Appendix K Infrastructure Report

Appendices

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CITY OF YUCAIPA

FREEWAY CORRIDOR SPECIFIC PLAN

INFRASTRUCTURE REPORT FOR HYDROLOGY, SEWER, WATER, AND WATER QUALITY

CITY OF YUCAIPA
SAN BERNARDINO COUNTY, CALIFORNIA

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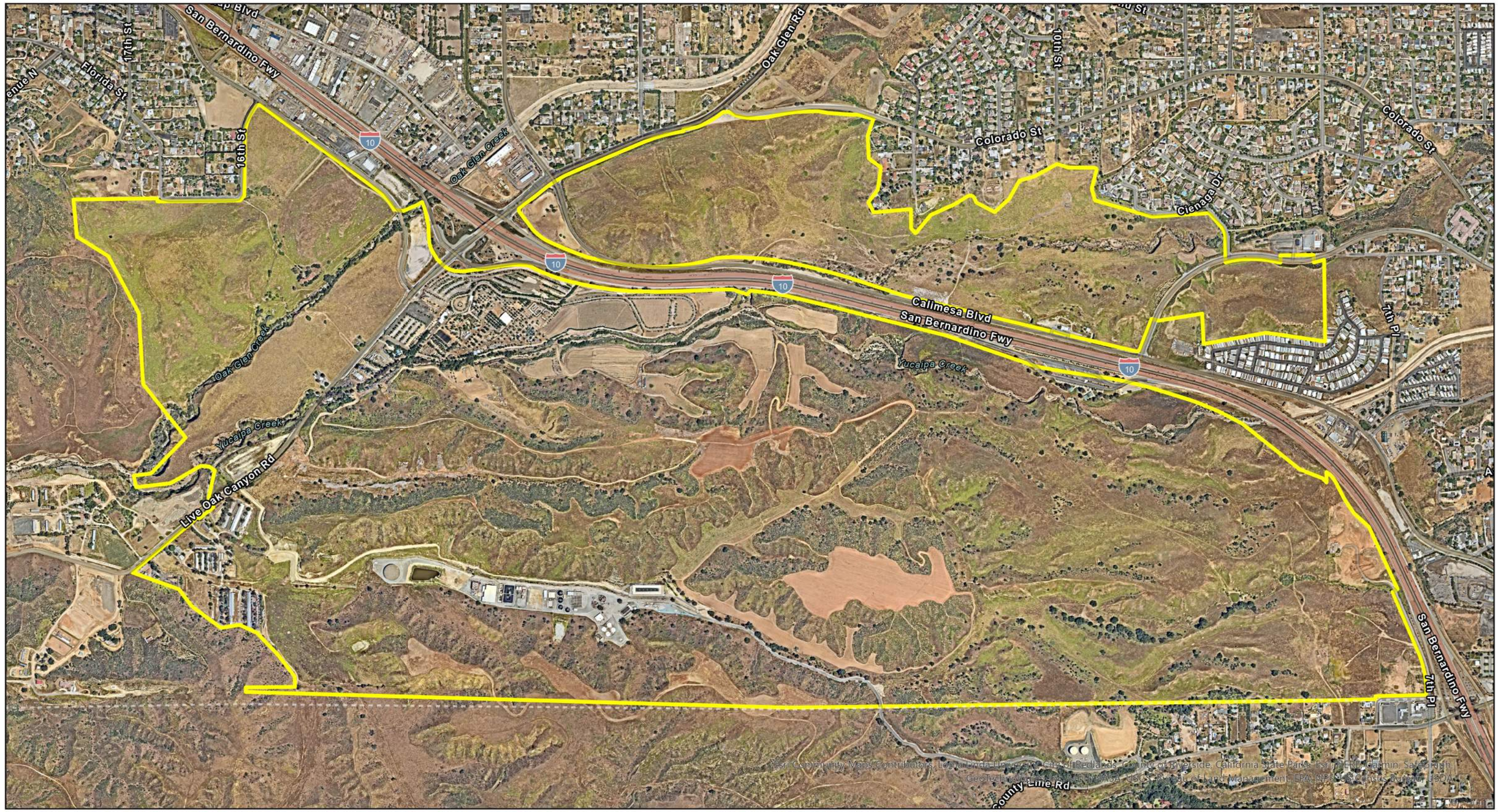
1.1 Introduction

The City of Yucaipa ("City") is currently proposing an update to the 2008 Freeway Corridor Specific Plan (FCSP) which is intended to shape development in the south-west portion of the City over the next 30-plus years. The FCSP update is necessary to better align development goals with the City's General Plan. The proposed land uses within the FCSP include residential and non-residential areas (i.e., regional commercial, business park, public facilities, open space).

Currently, the FCSP project area is 1,242 acres of various land uses including, agricultural, limited residential, open space, a wastewater treatment plant, and various commercial uses such as outdoor pottery store and storage. In 2008, the City approved the first iteration of the FCSP and the corresponding Environmental Impact Report (EIR) that proposed and evaluated 424.7 acres for residential development, with a maximum of 2,447 dwelling units (DU), 197.7 acres of non-residential development (primarily in for form of Regional Commercial), 25.3 acres of right-of-way (ROW), and 549 acres of open space. In 2022, the City approved an addendum to the FCSP for the Countyline Road Warehouse project that added 19.32 gross acres to the southeast corner of the project area. The updated FCSP proposes to alter the total areas and locations of the land uses as well as increase the housing densities in various portions of the project area. The proposed land use plan includes an overall increase of 25 DUs and 97.6 acres of non-residential land uses with a higher emphasis on Business Park land uses and reduced Regional Commercial as compared to the prior plan.

This report analyzes the infrastructure systems that will serve the FCSP area. The analysis includes a review and summary of the baseline conditions of the storm drain system, water and wastewater systems, and existing water quality regulations currently in place, and provides a comparison between the existing 2008 FCSP land uses versus the proposed FCSP updated land uses. CEQA thresholds for storm drain/flood control, water, sewer and water quality will be analyzed to determine any significant impacts. The analysis also includes the

utilization of existing infrastructure master plans, planning documents and ongoing communication and outreach with City staff, Yucaipa Valley Water District (YVWD) staff, South Mesa Water Company (SMWC) staff, and Western Heights Water District (WHWD) staff. Figure 1 shows the Aerial Extent of the FCSP, Figure 2 shows the 2008 FCSP and Figure 3 shows the Proposed Land Uses for FCSP.



Aerial Date: 05/17/2023

Freeway Corridor Specific Plan Aerial Exhibit

Yucaipa, CA

Figure 1

7/27/2023

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N

1 inch = 900 feet

0 900 1,800 Feet

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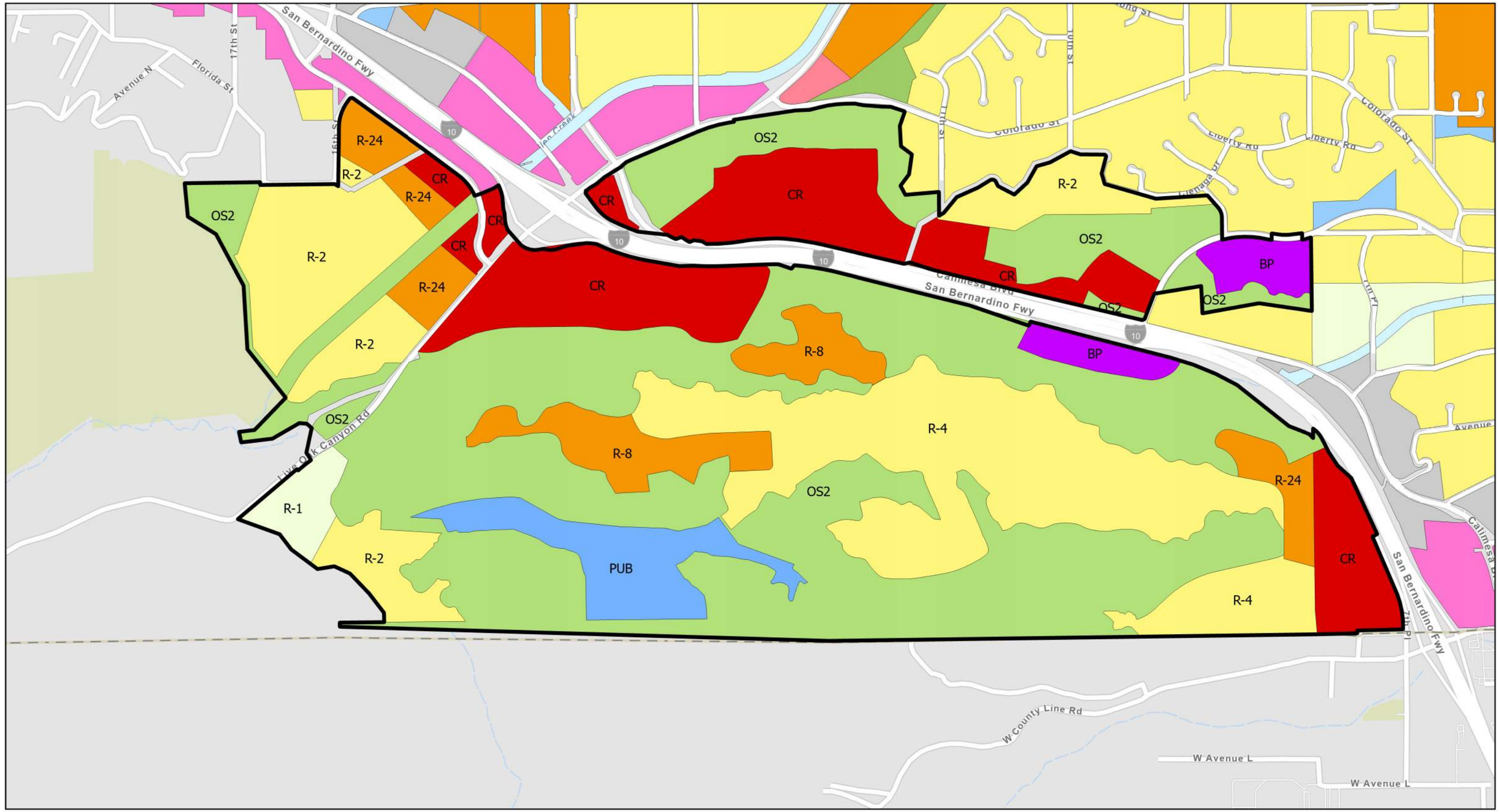

Freeway Corridor Specific Plan Existing Land Use

Yucaipa, CA

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Figure 2

7/28/2023

Project Boundary

Land Use

R-1 - Rural Living

R-2 - Single Residential

R-4 - Single Residential

R-8 - Single or Multiple Residential

R-24 - Multiple Residential

PUB - Public Facilities

BP - Business Park

CR - Regional Commercial

OS2 - Open Space

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1 inch = 1,000 feet

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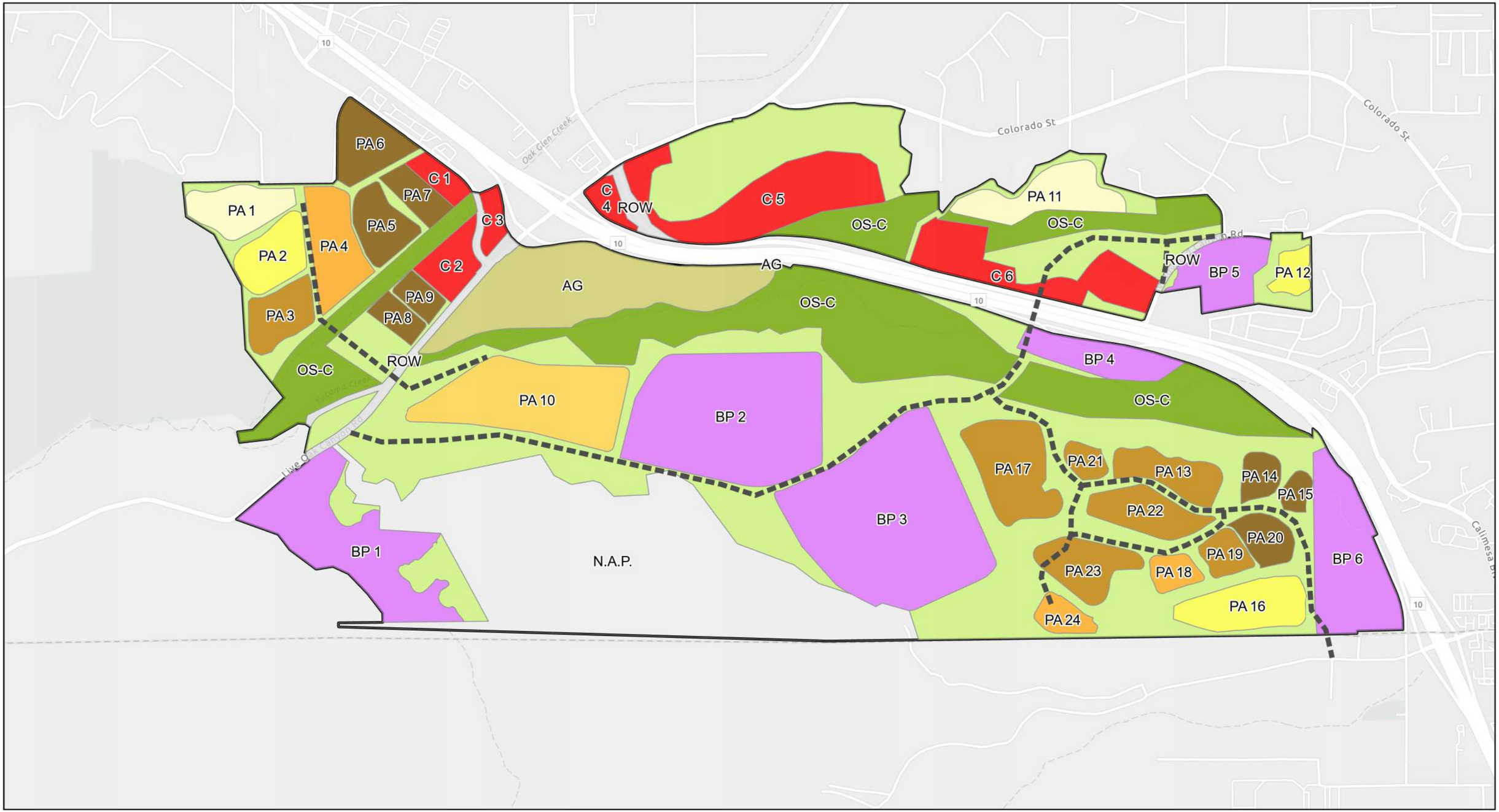

Freeway Corridor Specific Plan Proposed Land Use

Yucaipa, CA

Figure 3

8/9/2023

- R-2 - Single Residential
- R-4 - Single Residential
- R-6 - Single Residential
- R-8 - Single or Multiple Residential
- R-12 - Single or Multiple Residential
- R-24 - Multiple Residential
- BP - Business Park
- COM - Commercial
- AG - Agriculture
- OS - Open Space
- OS-C - Open Space Conservation
- ROW - Right of Way
- N.A.P. - Not A Part
- Proposed Roads

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1 inch = 1,000 feet

0 1,000 2,000 Feet

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1.2 Water Systems

1.2.1 EXISTING WATER SYSTEM

The City of Yucaipa's existing potable water system is managed by the Yucaipa Valley Water District ("YVWD" or "District"), the South Mesa Water Company ("SMWC"), and the Western Heights Water Company ("WHWC"). Providing potable water and sanitation services to a population of approximately 51,558, YVWD's boundaries encompass approximately 25,742 acres or 40 square miles, including a majority of the City of Yucaipa in San Bernardino County, and portions of the City of Calimesa in Riverside County. YVWD's customer accounts include over 14,000 residential and commercial connections. YVWD includes 234 miles of water lines, 17 groundwater wells, 27 reservoirs, booster pump stations, and lift stations.[1] Water supplies are procured from three sources: approximately 1.5 percent from surface water resources, 62.7 percent of water is extracted from local groundwater, which is managed by the Yucaipa Sustainable Groundwater Management Agency and the San Timoteo Groundwater Sustainability Agency, and the remaining 35.8 percent is imported from the San Bernardino Valley Municipal Water District for the San Bernardino County portion of the service area, and the San Gorgonio Pass Water Agency, for the Riverside County portion of the service area. The District also produced enough recycled water to meet 16.5 percent of total water demand in 2020, decreasing the potable water use by 2,234.48 acre-feet (AF).

For the FCSP, the majority of the surrounding area is serviced by YVWD with much smaller areas served by Westerns Heights in the northwest and South Mesa in the southeast. A significant portion of the central areas of the FCSP area is currently undeveloped and water service has not been established or annexed into service area. For FSCP, all areas not currently within a service area will be annexed into YVWD.

Distribution pipelines within YVWD range in diameter from 2 to 48 inches. The majority of the water lines are 8-inch pipes. Water distribution network piping material includes Ductile Iron Pipe, Mortar Lined Steel, Asphalt Concrete, Steel Pipe, Vitrified Clay Pipe, and Polyvinyl Chloride. Ductile Iron Pipe is used for the majority of the system.

Additionally, a portion of the FCSP project area is within SMWC's jurisdiction. Similar to YVWD, the SMWC provides domestic and irrigation water services to portions of the City of Yucaipa within San Bernardino County as well as portions of the City of Calimesa within Riverside County. As of 2020, SMWC served approximately 3,000 potable water service connections to both residential and

[1] Yucaipa Valley Water District, 2020 Urban Water Management Plan, Final Report, June 30, 2021.

commercial customers[2]. SMWC's water supply is comprised entirely of local groundwater. SMWC's produces groundwater from two different groundwater basins: the Yucaipa Sub-basin as well as the adjudicated portion of the San Timoteo Sub-Basin, also known as the Beaumont Groundwater Basin. In 2020, the SMWC maintained 8 active groundwater production wells.

A portion of the FCSP project area is within the WHWC's jurisdiction. WHWC has 2,210 potable water services throughout the City of Yucaipa and the City of Redlands, both within San Bernardino County. Their service area covers approximately four-square miles. WHWC gathers water from five groundwater recharge wells and is stored in three reservoirs with a total capacity of 4.5 million gallons.

Under the 2008 FCSP, the Water Supply Assessment (WSA) was performed by the YVWD and covered the entire FCSP project area. This included the portions of the project area that fall within SMWC and WHWC's jurisdiction. A similar approach is being taken with the proposed FCSP where the WSA will cover the entire specific plan area with the exception of the Countyline Warehouse Line project in the southeast portion of the site where SCWC provides water service. This project was already analyzed for water supply and water service within the Addendum to the FCSP Environmental Impact Report approved by the City of Yucaipa in May 2022.

The FCSP's project area is primarily undeveloped and there is limited water infrastructure currently in place. However, YVWD's water infrastructure exists all along the northeastern boundary of the project area, north of the I-10 Freeway. 12-inch ductile iron pipes run along John Wayne Way, Cienage Drive, and 10th Street. A 16-inch ductile iron pipe runs along Wildwood Canyon Road. There is additional water infrastructure near the project boundary including a 6-inch ductile iron pipe that runs along 11th street and a 4-inch asphalt concrete pipe that lays east of 11th Street. YVWD's Wochholz Regional Water Recycling Facility is within the southern portion of the FCSP project area and connects to a water pipeline that stems from County Line Road. The pipe begins as a 12-inch ductile iron pipe along County Line Road then transitions into a 6-inch polyvinyl chloride pipe and then back into a 12-inch ductile iron pipe when the pipeline approaches the facility. Figure 4 shows the existing YVWD water infrastructure adjacent and within the FCSP project area.

1.2.2 EXISTING WATER CAPACITY ASSESSMENT AND WATER PLANNING

YVWD is currently enhancing its ability to utilize its existing water supply sources through several projects that are in various phases of implementation, from

[2] South Mesa Water Company, 2020 Urban Water Management Plan, Final Report, June 30, 2021.

planning to preliminary design to construction. Specifically, YVWD is in the process of reviewing concept documents related to participation in the Bunker Hill Conjunctive Use Project. This program would provide a water banking opportunity in the adjacent Bunker Hill Groundwater Basin during wet periods for extraction when imported supplies from the State Water Project are limited. Additionally, YVWD is completing the necessary studies to implement the Calimesa Aquifer Storage and Recovery Project. This project will be a system of injection wells that will inject recycled water into the aquifer. That water can be pulled from those same injections wells to be used as recycled water or drawn from wells farther away as potable water. This project would allow YVWD a great amount of flexibility to meet both the recycled and potable needs of the community[3]. The Calimesa Aquifer Storage and Recovery Project is located within the same sub-basin as a portion of the FCSP.

The 2002 YVWD Water System Master Plan Update (2002 WSMP) was developed to understand water supplies and demands better and create a hydraulic computer model to assess the capacity of the water infrastructure to meet projected demands 25-30 years out. There have been subsequent updates over the years but since the FCSP project area is primarily undeveloped, the project area is not included in YVWD's 2002 WSMP.

YVWD long recognized that the current and projected local surface water and groundwater supplies would not be sufficient to meet the estimated water demands of the community into the future. YVWD began exploring the use of recycled water in 1992 and has implemented a series of facilities and improvements to use it for irrigation for parks, schools, golf courses, and other landscape areas. On August 20, 2008, YVWD's Board of Directors adopted (Resolution No. 11-2008) their sustainability plan, A Strategic Plan for a Sustainable Future – The Integration and Preservations of Resources, and design standards that require all new homes to install two water meters – one drinking water meter and one recycled water meter. The drinking water meter will be used to provide drinking water to the home, pools, spas, and hose bibs connected to the house. The recycled water service will be connected to a separate recycled water pipeline that will provide recycled water for landscaping in the front and rear of the house. The use of recycled water at each residential home is expected to decrease the amount of potable water used at each house by more than 50%.

YVWD regularly updates their Capital Improvement Plan (CIP) project list[4] based on needed improvements to water infrastructure. Table 1 lists the water projects adjacent to the FCSP project area.

[3] Yucaipa Valley Water District, 2020 Urban Water Management Plan, Final Report, June 30, 2021.

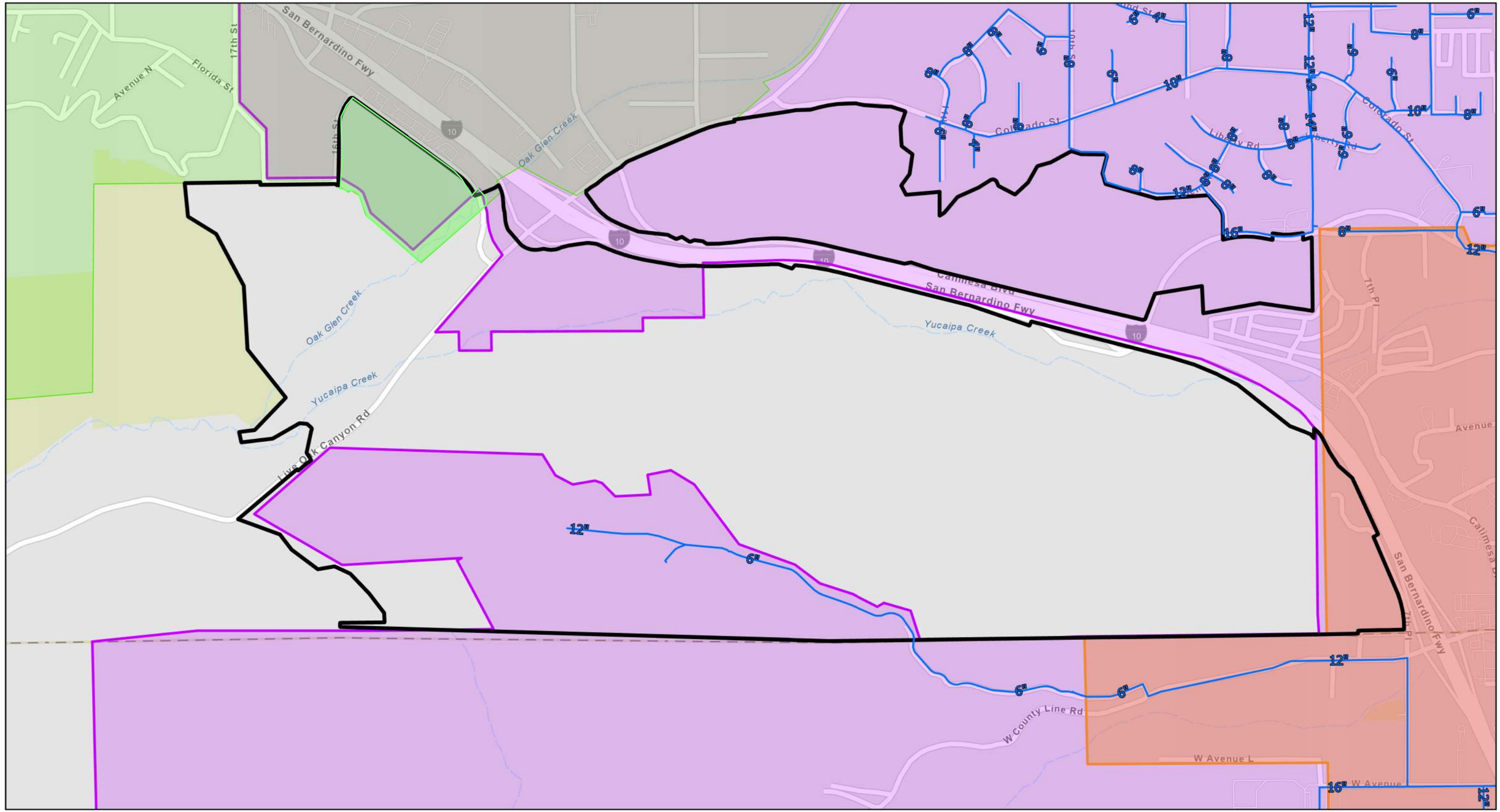
[4] Yucaipa Valley Water District CIP. Found here: https://yvwd.maps.arcgis.com/apps/Shortlist/index.html?appid=2cb8df4daf3240688abba8d5da523db1

Table 1 - Water Capital Improvement Projects Adjacent to FCSP

Project Name	Description	Projected Dates
Wastewater Plant Road - Drinking Water Mainline	Replacement of 5,300 linear feet of 12-inch water pipeline leading to Water Recycling Facility	2021-22

SMWC is currently in planning and engineering stages with several projects, those being area wide water line infrastructure replacement, booster station replacement, and forward planning for upcoming capacity increase through new reservoir construction. These projects vary throughout the service area and are in various stages of planning and pre-construction. Notably and pending state funding, SMWC has developed plans to upgrade major transmission and distribution lines through a significant portion of County Line Road near the FCSP project area. SMWC also has plans to utilize the state water project to convey water to planned recharge basin facilities, develop additional groundwater wells, recharge basins, and system wide line replacements to increase the available water supplies[5].

[5] South Mesa Water Company, 2020 Urban Water Management Plan, Final Report, June 30, 2021.



Freeway Corridor Specific Plan Existing Water

Yucaipa, CA

Figure 4
8/1/2023

South Mesa Water Company Service Area
Yucaipa Valley Water District Service Area
Western Heights Water Company Service Area
Existing Water Main
Project Boundary

N
1 inch = 1,000 feet
0 1,000 2,000 Feet

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1.2.3 PROPOSED LAND USE CHANGES AND WATER DEMAND ANALYSIS

The existing land uses on site include agricultural, limited residential, open space, a wastewater treatment plant, and various commercial uses (ex. outdoor pottery store, storage, etc.) that are not connected to YVWD's water or sewer system. Thus, the limited water demands from the existing project area are not accounted for within the existing condition and the proposed increased in water do not represent a "net" increase but a total increase in water demands over existing conditions. The water and sewer demands described below represent the current zoning for both residential and non-residential land uses that will be incorporated into the YVWDs service area and facilities. A total of 2,447 DU and 4,585,779 SF of non-residential area is currently allowed. The updated FCSP proposes to increase the total amount of DUs by 25 as well as increase the non-residential land uses by 504,713 SF. The following analysis compares the total potable water demands and recycled water demands between the current zoning versus the FCSP proposed land uses.

For the 2008 FCSP, water demands were calculated by reviewing the Average Day Demand (ADD) provided by YVWD. For single family units with lots greater than or equal to 20,000 square feet (SF), YVWD estimates an ADD of 300 gallons per day (GPD) per DU for potable water and 700 GPD/DU[6] for recycled water. For single family units with lots less than 20,000 SF, YVWD estimates an ADD of 280 GPD/DU for potable water and 420 GPD/DU for recycled water. The 2008 FCSP has a total of 225 DUs allowed under R-1 and R-2 zoning areas that would be on lots greater than or equal to 20,000 SF. Since YVWD offers recycled water only within its service area, the recycled water demand was added to the potable water demand for residential areas outside of its service area (1,000 GPD for lots greater than or equal to 20,000 SF and 700 GPD for lots less than 20,000 SF). These DUs were multiplied by the corresponding ADDs. The remaining 2,222 DUs allowed occur within various zones that allow higher densities (R-4, R-8, & R-24). Although the higher density zones allow low-scale multifamily units, for a conservative analysis all units are considered single-family units. The 2,220 DUs use were multiplied by the ADDs for single family units with lots less than 20,000 SF. See Table 2 for the total residential water demands.

Existing non-residential land uses are broken down into two different uses: regional commercial and business park. The YVWD's Henry N. Wochholz Regional Water Recycling Facility ("Recycling Facility") also exists within the FCSP project area and has been identified as Not A Part (NAP) of this analysis as this area will not undergo any significant change between existing and proposed conditions. The regional commercial and business park land uses have a sum of 197.7 acres of area. These two land uses are similar and fall under the YVWD's "Light

[6] Yucaipa Valley Water District, Design Criteria for Potable and Recycled Water System Facilities

Commercial" designation for ADD. YVWD estimates an ADD of 1,600 GPD/acre for potable water and 400 GPD/acre for recycled water for Light Commercial uses. Since YVWD offers recycled water only within its service area, the recycled water demand was added to the potable water demand for Light Commercial uses outside of its service area (2,000 GPD). The total area of regional commercial and business park land uses was multiplied by the corresponding YVWD Light Commercial ADD to determine the total water demand for these uses.

For proposed non-residential land uses, the FCSP is broken down into three different uses: regional commercial, business park, and pocket parks. The FCSP includes a sum of 295.3 acres of regional commercial and business park land uses. This does include the entire area of the approved Countyline Warehouse project located in the south-west corner of the project area. This project has completed the entitlement process and prepared an addendum to the existing FCSP Environmental Impact Report and was certified by the City of Yucaipa in May 2022. The total 295.3 acre of non-residential land use is "Light Commercial" under YVWD land use designations. YVWD estimates an ADD of 1,600 GPD/acre for potable water and 400 GPD/acre for recycled water for Light Commercial uses. See Table 3 for total non-residential water demands and Appendix A for a more detailed breakdown of the water demands throughout the project area.

Table 4 shows the water demand for streetscapes and open space slopes located within the project area for the 2008 approved FCSP and the proposed FCSP. These water demands are calculated by taking ten percent of the outdoor water demand across the entire project. For recycled water, ten percent of the total recycled water demand for the whole project area was calculated for the recycled water demand for streetscapes and open space slopes. Since areas outside of the YVWD will not have access to recycled water, potable water will be used for irrigation of streetscapes and open space slopes. The potable water demand for streetscapes and open space slopes was determined by calculating ten percent of the potential recycled water demand for the planning areas outside of the YVWD's service area.

Parcels within the FCSP and outside of YVWD's service area boundary will require annexation into YVWD before services are provided.

Table 2 - Residential Water Demands Under the FCSP

Land Use	Unit	Potable Water Factor (GPD/Unit)	Total Potable Demand (GPD)	Total Potable Demand (AFY)	Recycled Water Factor (GPD/Unit)	Total Recycled Demand (GPD)	Total Recycled Demand (AFY)
2008 FCSP Land Use							
SFR w/ Lots >= 20,000 SF[7]	108 DU	300	32,412	36	700	75,628	85
	117 DU*	1000	116,960	131	0	0	0
SFR w/ Lots < 20,000 SF[8]	1,863 DU	280	521,763	584	420	782,645	877
	359 DU*	700	250,992	281	0	0	0
TOTAL	**2,447**	**-**	**922,127**	**1,033**	**-**	**858,273**	**961**
Proposed FCSP Land Use							
SFR[9]	1,578 DU	280	441,840	495	420	662,760	742
	894 DU*	700	625,800	701	0	0	0
TOTAL	**2,472 DU**	**-**	**1,067,640**	**1,196**	**-**	**662,760**	**742**
*Located outside of the YVWD service area and does not utilize recycled water							

[7] Yucaipa Valley Water District, Design Criteria for Potable Water System Facilities for Single Family DU with lots equal to or greater than 20,000 square feet

[8] Yucaipa Valley Water District, Design Criteria for Potable Water System Facilities for Single Family DU with lots less than 20,000 square feet

[9] All units are considered single-family units on lots less than 20,000 square feet.

Table 3 - Non-Residential Water Demands Under the FCSP

Land Use	Acres	Potable Water Factor (GPD/Ac.)	Total Potable Demand (GPD)	Total Potable Demand (AFY)	Recycled Water Factor (GPD/Ac.)	Total Recycled Demand (GPD)	Total Recycled Demand (AFY)
2008 FCSP Land Use							
Regional Commercial	138.6	1,600	221,792	248	400	55,448	62
	33.4*	2,000	66,760	75	0	0	0
Business Park	25.7	1,600	41,120	46	400	10,280	12
TOTAL	**197.7**	**-**	**329,672**	**369**	**-**	**65,728**	**74**
Proposed FCSP Land Use							
Regional Commercial	68.1	1,600	108,960	122	400	27,240	31
	4.1*	2,000	8,200	9	0	0	0
Business Park	194.1	1,600	310,560	348	400	77,640	87
	29	2,000	58,000	65	0	0	0
TOTAL	**295.3**	**-**	**485,720**	**544**	**-**	**104,880**	**117**
*Located outside of the YVWD service area and does not utilize recycled water							

Table 4 - Streetscapes and Open Space Slopes Water Demand Under the FCSP

Land Use	Total Potable Demand (GPD)	Total Potable Demand (AFY)	Total Recycled Demand (GPD)	Total Recycled Demand (AFY)
2008 FCSP Land Use				
10% of outdoor water demand	24,582	28	92,400	104
Proposed FCSP Land Use				
10% of outdoor water demand	38,872	44	76,764	86

Table 5 - Total Potable Water Demands Under the FCSP

Water Type	GPD	AFY
2008 FCSP Land Use Potable Water Demand	1,276,381	1,430
Proposed FCSP Potable Water Demand	1,592,232	1,784
Total Water Demand Change		
Potable Water Demand Change	+315,851	+354

Table 6 - Total Recycled Water Demand Under the WCSP

Water Type	GPD	AFY
2008 FCSP Land Use Recycled Water Demand	1,016,401	1,139
Proposed FCSP Recycled Water Demand	844,404	946
Total Water Demand Change		
Recycled Water Demand Change	-171,997	-193

As shown above, potable water flows/demands would increase by approximately 1.6 MGD (1,784AFY) over existing conditions and increase by approximately 315,851 GPD (354 AFY) when comparing the proposed FCSP build out against the 2008 FCSP. Recycled water flows/demands would increase by 1.16 MGD (946 AFY) over existing conditions and decrease by approximately 171,997 GPD (193 AFY) when comparing the proposed build out of FCSP against the 2008 FCSP. The increase in potable water flows may impact future water infrastructure systems as well as result in an increase in future water demands. See Figure 5 below for the proposed land uses and proposed water demands per development area and the two proposed projects undergoing conceptual design and entitlements. It is anticipated that the majority of the public improvements for water will be implemented within the proposed public roadways associated with FCSP and YVWD is currently evaluating alignments to serve the entire area. Further discussion regarding future infrastructure within the FCSP project area is provided in Section 1.2.4 below.

C 1, C 2, C3	
Total SQFT	230,215
Total Potable Water Demand (gpd)	25,800
Total Recycled Water Demand (gpd)	4,400

C 4, C 5	
Total SQFT	527,512
Total Potable Water Demand (gpd)	55,360
Total Recycled Water Demand (gpd)	13,840

BP 4	
Total SQFT	263,538
Total Potable Water Demand (gpd)	19,360
Total Recycled Water Demand (gpd)	4,840

PA 11, PA 12	
Total Residential Units	45
Total Potable Water Demand (gpd)	12,600
Total Recycled Water Demand (gpd)	18,900

PA 1, PA 2, PA 3, PA 4, PA 5, PA 6, PA 7, PA 8, PA 9	
Total Residential Units	1,083
Total Potable Water Demand (gpd)	678,720
Total Recycled Water Demand (gpd)	79,380

C 6, BP 5	
Total SQFT	626,175
Total Potable Water Demand (gpd)	56,800
Total Recycled Water Demand (gpd)	14,200

PA 10	
Total Residential Units	211
Total Potable Water Demand (gpd)	59,080
Total Recycled Water Demand (gpd)	88,620

BP 1	
Total SQFT	814,572
Total Potable Water Demand (gpd)	59,840
Total Recycled Water Demand (gpd)	14,960

BP 2, BP 3	
Total SQFT	2,054,000
Total Potable Water Demand (gpd)	210,560
Total Recycled Water Demand (gpd)	52,640

PA 13, PA 14, PA 15, PA 16, PA 17, PA 18, PA 19, PA 20, PA 21, PA 22, PA 23, PA 24	
Total Residential Units	1,133
Total Potable Water Demand (gpd)	317,240
Total Recycled Water Demand (gpd)	475,860

BP 6	
Total SQFT	210,830
Total Potable Water Demand (gpd)	58,000
Total Recycled Water Demand (gpd)	-

Freeway Corridor Specific Plan Proposed Water

Figure 5
8/18/2023

Yucaipa, CA

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Existing Water Main
Proposed Roads

R-2 - Single Residential
R-4 - Single Residential
R-6 - Single Residential
R-8 - Single or Multiple Residential
R-12 - Single or Multiple Residential
R-24 - Multiple Residential
BP - Business Park
COM - Commercial
AG - Agriculture
OS - Open Space
OS-C - Open Space Conservation
ROW - Right of Way
N.A.P. - Not A Part

N

1 inch = 1,000 feet

0 1,000 2,000 Feet

Note: Pad Elevations provided with each development area for pressure zone evaluation by YVWD

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1.2.4 WATER INFRASTRUCTURE

In order to evaluate impacts on the water infrastructure system due to land development proposed by FCSP, all water districts within the project area have a formal process to ensure that the overall water system, including infrastructure, fire flow requirements, and water supply availability, is managed efficiently and functions properly. All new development projects must prepare detailed water hydraulic reports including detailed demands including peak flow and fire flow protection, grading plans, pad elevations, anticipated easements and public dedications, points of connection and anticipated water line alignments.

Once the documentation is complete, each District will incorporate the water demands into their respective hydraulic models to evaluate impacts and identify the required water infrastructure upgrades necessary to support the project while ensuring existing systems and service areas are not negatively impacted. The improvements are typically divided into two categories including those responsible by the developer and regional improvements that will provide benefit to the respective District and other service areas beyond the responsibility of the developer. In these instances, agreements are in place where the developer pays for their fair share of the regional improvements along with their developer responsibilities. Since the FCSP is being evaluated at a Program Level EIR site specific water infrastructure details and requirements are not generally known at this time. As projects consistent with FCSP land uses are submitted, detailed hydraulic analyses will occur to identify on-site and off-site improvements. There are two exceptions within FSCP and this includes the Countyline Warehouse Project within a portion of BP6 at the southeast corner and Pacific Oaks project covering BP2 and BP3. Both of these projects are undergoing conceptual design for entitlement purposes and are actively engaged with the respective water districts (SMWC for BP6; YVWD for BP2 & BP3) to determine water alignments, development fees and cost sharing for any regional improvements.

Projects within FCSP will be responsible for implementing water reservoirs, booster systems and off-site potable and recycled water lines to their specific locations within FCSP to bring water sources into the new service areas and ensure adequate pressure for fire flow protection. Additionally, for residential developments within the YVWD's service area, each lot is required to have a dual-plumbing system that allows the use of potable water inside the home and recycled water for landscaping purposes. Projects within the YVWD's service area will also be responsible to implement YVWD's established criteria which includes but is not limited to the following:

- For potable water system facilities[10], the minimum size of the water pipeline is 8 inches for the inner diameter. For peak hourly flow, pipeline shall be sized to provide a residual pressure of 40 psi and a maximum velocity of 7.0 fps. For the maximum daily flow plus fire flow, pipeline shall be sized to provide residual pressure of 20 psi within the entire proposed system and maximum velocity of 10.0 fps. The capacity of water mains shall be determined by using the Williams and Hazen Formula with a "C" factor of 120.
- For recycled water system facilities[11], the minimum size of the water pipeline is 4 inches for the inner diameter. For maximum hourly flow, pipeline shall be sized to provide a residual pressure of 40 psi and a maximum velocity of 8.0 fps. The capacity of water mains shall be determined by using the Williams and Hazen Formula with a "C" factor of 120.

FCSP Water System Infrastructure

In general, all proposed development within FCSP is anticipated to fall within Pressure Zones 9-12 based on the analysis completed for the 2008 FCSP. There have been no significant changes that would alter the pressure zones. YVWD is currently analyzing the updated land plan and reviewing the pressure zones, potable and recycled water alignments, pipe sizes and reservoirs required to service the majority of the area with the exception of the two smaller areas serviced by SMCW and WHWC.

For development areas north of the 10 Freeway within FCSP, there are 10-16" water lines providing existing service along Wildwood Canyon Road and Colorado St. It is anticipated residential, commercial and business park identified in FCSP north of the 10 would be serviced by these existing lines. YVWD is currently evaluating capacity within the existing system and the ability to provide sufficient fire flow protection for the existing and future development within FCSP. All future projects would be required to provide on-site and off-site improvements or development impact fees.

The County Line project on the eastern portion of FCSP serviced by SMWC and will connect to an existing 8" water line in County Line Lane and will also extend the existing 24" recycled water line south of County Line Road up through 7th Place to provide non-potable water supply to the project site for landscaping purposes.

YVWD worked with the Pacific Oaks applicant to identify the necessary water improvements for their project within BP2 and BP3. For the Pacific Oaks project, new water service lines will be constructed to service the two industrial buildings

[10] Yucaipa Valley Water District Design Criteria for Potable Water Facilities
[11] Yucaipa Valley Water District Design Criteria for Recycled Water Facilities

and the future residential component (PA 10). The applicant worked with YVWD on pipe sizes, alignments and associated infrastructure to provide reliable water supply and fire flow protection and determined the alignments for both potable and recycled water will follow the proposed roadway network associated with the proposed land uses. Similarly, new water lines for the residential development areas will also need to be constructed for PA14-PA24 located between the Pacific Oaks project and the County Line project. Points of connections and alignments have been determined by the Pacific Oaks applicant and YVWD. A draft water infrastructure plan for both potable and non-potable water systems has been completed by YVWD for the FCSP. See Appendix C for the draft potable water backbone infrastructure plan and non-potable water backbone infrastructure plan. Approximately 1,364 linear feet (LF) of onsite domestic waterlines would be installed connecting private water lines from each building with the public system in the proposed street. Approximately 20,690 LF of off-site domestic public water lines would be installed to service the project. The new connection would begin at Avenue D and Oak Glen Road to the north and run south under the I-10 within Live Oak Canyon and then easterly in the new proposed road leading to the Pacific Oaks project. The infrastructure plan also displays the proposed water lines and points of connection to serve PA14-PA24. These pipelines will tie into the existing water lines located along Wildwood Canyon Road located north of the I-10 and County Line Road located south of the I-10. The proposed pipelines will be located within the proposed roadways throughout these planning areas. In addition to proposed pipelines, the water infrastructure plan also notes additional water wells, tanks and booster pumping plants needed throughout the FCSP project area. The plan gives a general location of these needed facilities. Specific locations of facilities will need to be determined and coordinated between the YVWD and the developer/landowners before development agreements are executed.

For non-potable water infrastructure, proposed pipeline alinement will occur adjacent to all proposed potable water infrastructure. Separate pipelines and water storage facilities are used between the two sources to avoid mixing of one with the other.

For the proposed residential development west of Live Oak Canyon Road (PA1-PA8) and commercial zones, water connections and water lines will occur from Live Oak Canyon Road and YVWD is currently analyzing pressure zones, pipe size and alignments as these areas are located within the WHWC service area.

1.2.5 WATER INFRASTRUCTURE CEQA IMPACT ASSESSMENT

California Environmental Quality Act (CEQA) significance criteria are used to evaluate the degree of impact caused by a development project on environmental resources including water infrastructure. According to Appendix G

of the CEQA Guidelines, a project would normally have a significant effect on the environment if the project would impact any of the items listed below.

- Require or result in the relocation or construction of new or expanded water, wastewater treatment or storm water drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects?

Impact Assessment: The FCSP will require the construction of new water infrastructure on-site and off-site as a result of the project area being primarily undeveloped under the current condition. Off-site infrastructure includes new potable and recycled water lines and pumps. On-site infrastructure includes new water lines, recycled water lines and potential reservoirs for both potable water and recycled water. It is anticipated most on-site improvements will be 8" lines while off-site improvements within the public right of way could range from 12" to 24" dependent upon the hydraulic analysis. Potable water lines are anticipated to be 16" or greater while recycled water lines will be 12" or greater.

The construction of the on-site and off-site water line and associated improvements within the proposed roadway network in the public right-of-way and through private streets will primarily include trenching for the pipelines and grading for the reservoir pads. All construction will be performed in accordance with the Construction General Permit and all associated requirements. Any work that may affect services to the existing water lines will be coordinated with the City and the responsible water district.

Furthermore, a Construction Management Plan or equivalent, which would ensure safe pedestrian access as well as emergency vehicle access and safe vehicle travel in general, will be implemented to reduce any temporary pedestrian and traffic impacts occurring as a result of construction activities. Moreover, when considering impacts resulting from the installation of any required water infrastructure, all impacts are of a relatively short-term duration and would cease to occur once the installation is complete. Therefore, Project impacts on water associated with construction activities would be less than significant.

Once the improvements are complete, no additional environmental impacts are anticipated for the operational and on-going aspects of the water system.

1.2.6 CONCLUSIONS

As identified above, water infrastructure improvement projects including private on-site and public off-site improvements will need to take place as the residential and non-residential projects within FCSP occur. All water districts have an

established process to evaluate and identify new water infrastructure improvements. Therefore, there are processes in place for all future developments to ensure water infrastructure and service will be provided in an efficient and reliable manner.

1.3 Sewer Systems

1.3.1 EXISTING SEWER SYSTEM

The sewer system in the City is maintained by YVWD. The sewer system within the City consists of five sewer pump stations and associated force mains, one wastewater treatment plant, standard and trunk manholes, and approximately 213-mile network of gravity sewer pipes ranging from 6 inches to 24 inches in diameter. Most of YVWD's sewer network consists of pipes that are 8 to 12 inches in diameter. YVWD provides sewer services for their jurisdiction as well as within SMWC and WHWC's water service areas.

As previously noted, the FCSP project area contains primarily undeveloped land and therefore contains limited sewer infrastructure within the project's limits. The YVWD's Recycling Facility is located within the project's limits and has multiple trunklines leading to it. A major 24" trunkline originates from the north of the project area and delivers flows from north to south through the middle of the project area to the recycling facility. This 24" line collects flows from a number of laterals including an 8" in Colorado St, an 8" line in 11th street and an 18" line in Calimesa Blvd. In the southern portion of the project, an 8-inch sewer line connects to the Recycling Facility from County Line Road within the City of Calimesa. On the western side of the project area, parallel Live Oak Canyon Road, a 24-inch line runs near Oak Glen Creek and connects to a lift station near Live Oak Canyon Road which then sends sewer flows via a force main to the treatment plant. Figure 6 includes the existing sewer infrastructure within and near the FCSP project area.

YVWD regularly updates their Capital Improvement Plan (CIP) project list[12] based on needed improvements to sewer infrastructure. The table below lists the sewer projects adjacent to or within the FCSP project area. YVWD also has a number of CIP projects that pertain to the improvement of the Recycling Facility located within the project area. These projects are not listed in the table below since they do not directly correlate to the improvement of sewer pipelines within or near the FCSP project area.

[12] Yucaipa Valley Water District CIP. Found here: https://yvwd.maps.arcgis.com/apps/Shortlist/index.html?appid=2cb8df4daf3240688abba8d5da523db1

Table 7 - Sewer Capital Improvement Project Adjacent to or Within FCSP

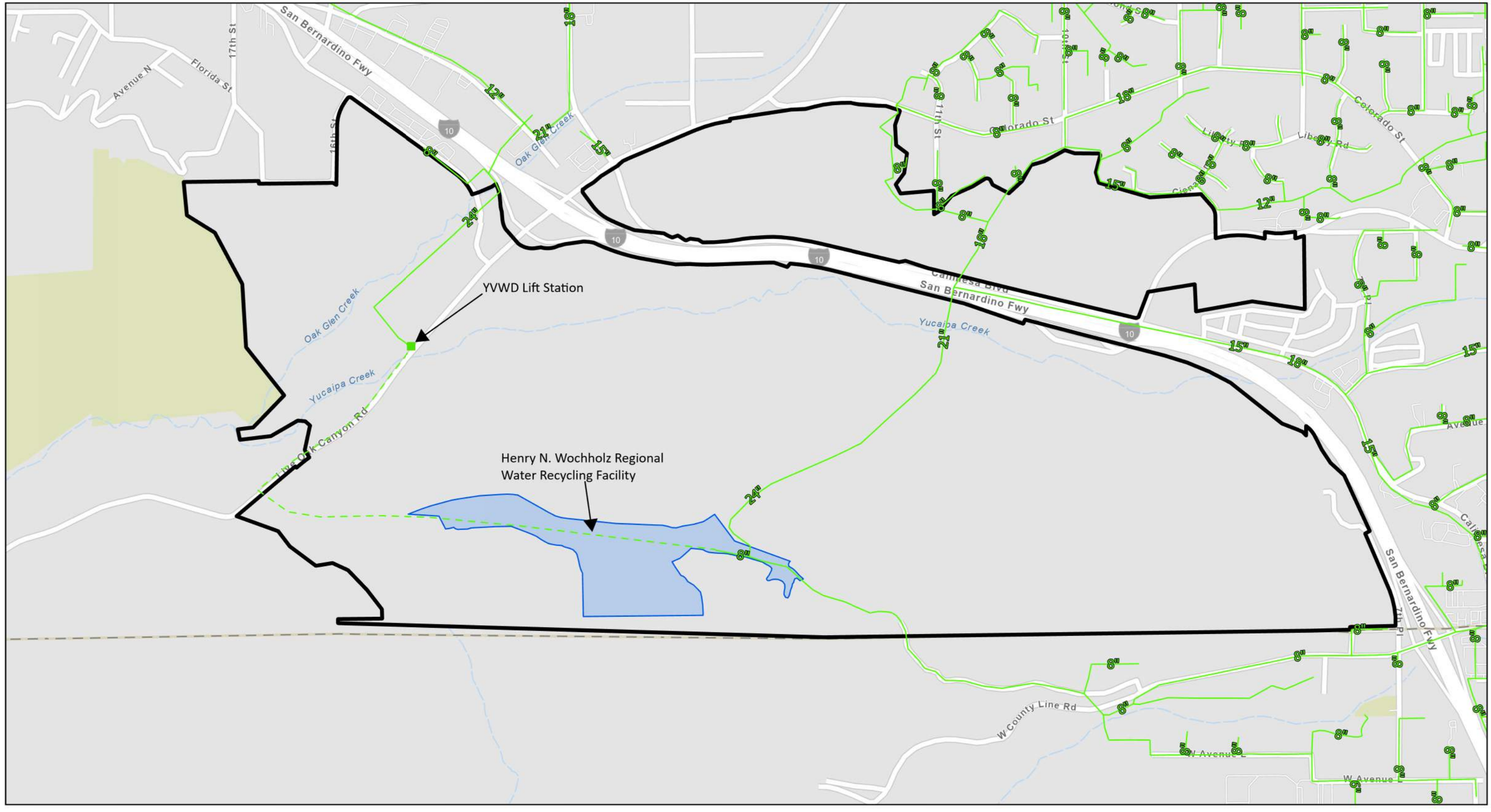
Project Name	Description	Projected Dates
Oak Glen Road Sewer Pipeline	Installing 2,000 linear feet of 15" sewer mainline from 14th Street to Colorado Street	2021-22
I-10 Bore and Jack - Dunlap Crossing	Installing 1,350 linear feet of 15" sewer mainline that passes through the pipe jack under I-10	2021-22

1.3.2 EXISTING SEWER CAPACITY ASSESSMENT

As mentioned in Section 1.3.1, YVWD owns and operates one wastewater treatment plant, the Wochholz Regional Water Recycling Facility, which has a capacity of 8.0 million gallons per day (MGD). The tertiary effluent produced at the Recycling Facility meets the criteria for California Title 22[13] reuse. This facility treats wastewater collected from YVWD's service area as well as from SMWC and WHWC's service areas with the exception of a few small pockets where residents depend on their septic systems. YVWD produces 4,000 acre-feet of Title 22 recycled water annually. The Recycling Facility was originally placed into service in 1986 with an initial capacity of 3.0 MGD. The facility was originally designed with trickling filters and small aeration basins in order to provide treatment of wastewater. The facility was upgraded and expanded in 1992 to 4.5 MGD, at which time denitrification filters were incorporated in order to reduce Total Nitrogen to less than 10 milligrams per liter (mg/L). The facility has recently been expanded to the current 8.0 MGD capacity. In 2020, YVWD treated 4,237 AFY or approximately 3.8 MGD[14]. Therefore, the treatment plant has a current capacity of 4.2 MGD.

[13] California State Water Resources Control Board (2018, October). Title 22 Code of Regulations. Found here: https://www.waterboards.ca.gov/drinking_water/certlic/drinkingwater/documents/lawbook/RWregulations_20181001.pdf

[14] Yucaipa Valley Water District, 2020 Urban Water Management Plan, Final Report, June 30, 2021.



Freeway Corridor Specific Plan Existing Sewer

Figure 6

8/1/2023

Yucaipa, CA

FUSCOE ENGINEERING

Sewer Gravity Main (owned and maintained by YVWD)

Sewer Force Main

Project Boundary

N

1 inch = 1,000 feet

0 1,000 2,000 Feet

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1.3.3 PROPOSED LAND USE CHANGE AND SEWER DEMAND ANALYSIS

As previously noted, the project area is currently zoned for both residential and non-residential land uses. The residential areas vary in density but allow a total of 2,447 residential units within the project area. As for non-residential, there are two land uses that include Regional Commercial and Business Park. The FCSP proposes to alter the total areas and locations of the land uses as well as increase the housing densities in various portions of the project area. The proposed land use plan includes an overall increase of 25 DUs and 504,713 SF of non-residential land uses. The following analysis compares the total sewer demands between the current zoning versus the FCSP proposed land uses.

YVWD estimates an ADD for sewer to be 250 GPD/DU[15] for both single family and multi-family DUs. Commercial and industrial developments shall be determined on an individual basis. Calculations and criteria shall be submitted to YVWD engineers for review and approval. This report estimates commercial and industrial sewer demands to be equivalent to the potable water demands for these land uses.

For the 2008 FCSP, the sewer generation rate was multiplied by 2,447 units, the maximum amount of residential units allowed under the current zoning code. For the proposed land uses, the sewer generation rate was multiplied by 2,472 units, the maximum amount of residential units allowed under the proposed land use. As previously mentioned above, the non-residential total sewer demand for the 2008 FCSP and proposed conditions is equivalent to the potable water demand of those uses for conservative purposes.

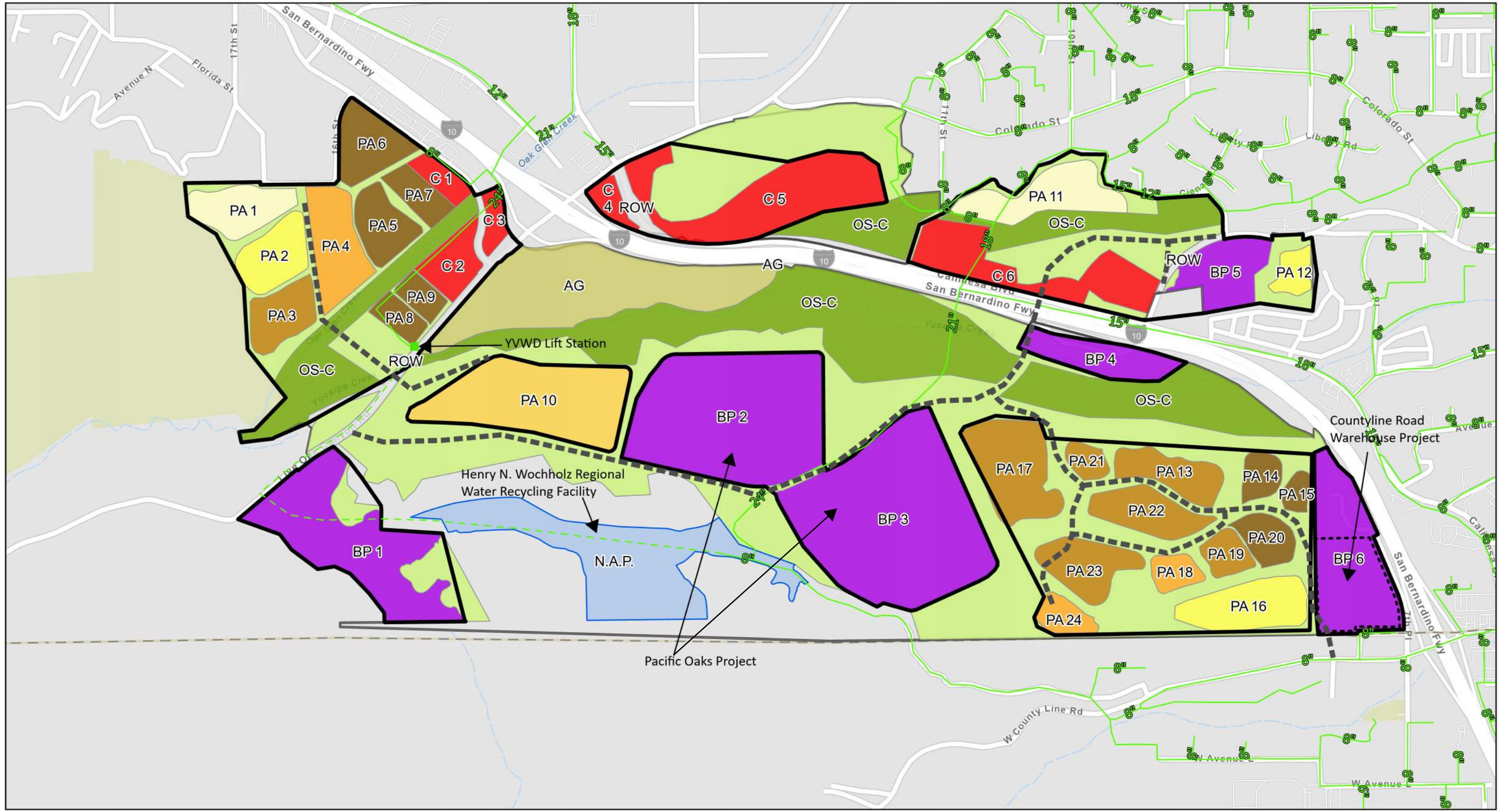
Table 7 provides a summary of the 2008 FCSP and proposed sewer demands. See Appendix A for a breakdown of the sewer demands throughout the project area.

[15] Yucaipa Valley Water District Design Criteria for Sewer System Facilities

Table 8 - Total Sewer Demand Under the FCSP

Land Use	Total Sewer Demand (GPD)	Total Sewer Demand (MGD)	Total Sewer Demand (AFY)
2008 FCSP Land Use			
Residential	611,750	0.61	685
Regional Commercial	275,200	0.28	308
Business Park	41,120	0.04	46
TOTAL	**928,070**	**0.93**	**1,039**
Proposed FCSP Land Use			
Residential	618,000	0.62	692
Regional Commercial	115,520	0.12	129
Business Park	356,960	0.36	400
TOTAL	**1,090,480**	**1.09**	**1,221**
Total Sewer Demand Change	**+162,410**	**+0.16**	**+182**

As shown above, implementation of the proposed FCSP would increase sewer flows by 1.1 MGD (1,090,480 GPD) over existing conditions and by 0.16 MGD (162,410 GPD) when compared against the 2008 FCSP land use. This increase in flows could impact the existing sewer infrastructure system and trunklines. A discussion of the sewer infrastructure requirements and potential impacts to sewer infrastructure are provided below. Figure 7 shows the proposed sewer conditions exhibit and the Pacific Oaks and Countyline Warehouse project footprints.



Freeway Corridor Specific Plan Proposed Sewer

Figure 7

8/11/2023

Yucaipa, CA

FUSCOE ENGINEERING

- Project Boundary
- Proposed Roads
- Sewer Gravity Main (owned and maintained by YVWD)
- Sewer Force Main

- R-2 - Single Residential
- R-4 - Single Residential
- R-6 - Single Residential
- R-8 - Single or Multiple Residential
- R-12 - Single or Multiple Residential
- R-24 - Multiple Residential
- BP - Business Park
- COM - Commercial
- AG - Agriculture
- OS - Open Space
- OS-C - Open Space Conservation
- ROW - Right of Way
- N.A.P. - Not A Part

N

1 inch = 1,000 feet

0 1,000 2,000 Feet

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1.3.4 SEWER INFRASTRUCTURE

In order to evaluate impacts on the sewer system due to land development proposed by FCSP, YVWD has a formal process to ensure that the overall sewer system, including sewer lines, capacity, integrity and protection of existing facilities is managed efficiently and functions properly. All new development projects must prepare detailed sewer reports including detailed demands, grading plans, pad elevations, anticipated easements and public dedications, points of connection and anticipated sewer line alignments and slopes. Once the documentation is complete, YVWD incorporates the sewer demands into their sewer hydraulic model to evaluate impacts and identify the required sewer infrastructure upgrades necessary to support the project while ensuring existing systems and service areas are not negatively impacted. On-site improvements are anticipated to be 8" sewer lines. Off-site improvements are anticipated through the proposed roadway network within the public right-of-way and could also include extension of existing lines, upsizing of existing lines within the localized area, modifications to lift stations or parallel lines to increase capacity. The improvements are typically divided into two categories including those responsible by the developer and regional improvements that will provide benefit to YVWD and other services areas beyond the responsibility of the developer. In these instances, there are agreements in place where the developer pays for their fair share of the regional improvements along with their developer responsibilities. Since the FCSP is being evaluated at a Program Level EIR site specific sewer infrastructure details and requirements are not generally known at this time. As projects consistent with FCSP land uses are submitted, detailed hydraulic analyses will occur to identify on-site and off-site improvements. There are two exceptions within FSCP and this includes the Countyline Warehouse Project within BP6 at the southeast corner and Pacific Oaks project covering BP2 and BP3. Both of these projects are undergoing conceptual design for entitlement purposes to determine sewer alignments, pipe sizes, development fees and cost sharing for any regional improvements.

The following design criteria for sewer lines will be followed:

- Existing pipes ≤ 12 inches in diameter: Pipes are to be ½ full at peak flow conditions.
- Existing pipes ≥ 15 inches in diameter: Pipes are to be ¾ full at peak flow conditions.

In certain instances where more precise detail is required, developers may be required to perform sewer flow monitoring at key nodes within the existing sewer system that will receive future flows from the FCSP area.

FCSP Sewer System Infrastructure

YVWD analyzed the updated land plan and reviewed the sewer system required to service the FCSP and the various development areas. This resulted in an updated sewer concept that includes new sewer alignments, pipe sizes, points of connection, and existing and proposed pump stations. Appendix D contains the updated sewer backbone infrastructure plan developed by YVWD for the FCSP. This plan identifies the sewer system upgrades for the Pacific Oaks projects located within BP2 and BP3 as well as the proposed backbone sewer system throughout the other planning areas. The 24" trunkline that bisects BP2 and BP3 does not have sufficient capacity for the Pacific Oaks project. YVWD and Pacific Oaks have determined that the project will include the installation of 886 linear feet of new sewer line for the Pacific Oaks development that would run parallel to the existing 24" line to avoid adding any flows to the impacted line. The proposed line will be located within the future roadway between BP2 and BP3. The proposed line would then tie into the existing line south of BP3 that runs along Pump House Road and leads to the treatment facility. In addition, approximately 3,978 linear feet of new sewer line would also be constructed in proposed roadways throughout the project area and connect to the main sewer line mentioned that leads into the treatment plant. This includes planning areas in the eastern portion of the site including PA 14- PA 24. The gravity lines will collect sewer from the development areas and gravity drain westerly to the treatment plant. Pipe sizes and specific alignments will be studies during project specific analyses but the pipe is anticipated to be in the range of 16-18" inches with 8" laterals reaching out to the various development areas.

Planning areas located north of the I-10 will tie into the existing sewer line that stems from 13th street to service the development of these areas. C5 and a portion of C6 will tie into the existing line along 14th street to the west. For the proposed residential development west of Live Oak Canyon Road (PA1-PA8), commercial zones C1-C3 and BP1, new sewer lines will be required within Live Oak Canyon Road. Sewer flows in this area will require new lift stations and relocation of the existing lift station to provide adequate service and conveyance to the treatment plant. In order to service these development areas, there are sewer force mains that will tie into the proposed gravity mains and lift stations to connect sewer line to the treatment facility. All development in this area will need site-specific sewer analyses to determine on-site improvements, off-site improvements, and developer fees/fair share contribution for regional improvements.

Figure *7* identifies the proposed land plan, existing sewer infrastructure and propose roadways and projects.

1.3.5 SEWER CAPACITY

At full buildout of the FCSP, sewer flows will increase by 1.1 MGD over existing conditions and 0.16 MGD increase over the full buildout of the current zoning. Currently there is 4.2 MGD of treatment capacity available, as noted in YVWD's Urban Water Management Plan. Thus, there are no anticipated issues with additional 1.09 MGD of sewer flow at the treatment plant based on the available capacity at the treatment plant. There is also sufficient capacity when factoring in the growth projected by the Wine Country Specific Plan of 0.3 MGD.

With respect to existing sewer lines within FSCP, the existing 24" trunkline that originates north of the 10 Freeway and drains southerly through the central portion of the site does not have sufficient capacity for the proposed development and requires upsizing and/or parallel systems.

In addition, the 24" line west of Live Oak Canyon Road does not have sufficient capacity for the full buildout of the proposed residential, commercial and business park proposed at the western portions of FCSP. YVWD is also evaluating the capacity of it's pump station located at 32280 Live Oak Canyon Road which pumps sewer flows southerly along Live Oak Canyon Road and then easterly to the treatment plan. It is likely this pump station will require improvements or relocation and upsizing to handle the increased flows. Additional pump stations may also be required for development areas west of Live Oak Canyon Road to be able to send flows to the waste treatment plant to the east.

1.3.6 SEWER SYSTEM CEQA IMPACT ASSESSMENT

California Environmental Quality Act (CEQA) significance criteria are used to evaluate the degree of impact caused by a development project on environmental resources including water infrastructure. According to Appendix G of the CEQA Guidelines, a project would normally have a significant effect on the environment if the project would impact any of the items listed below.

- Require or result in the relocation or construction of new or expanded water, wastewater treatment or storm water drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects?

Impact Analysis: Implementation of FCSP will require construction of new sewer infrastructure on-site and off-site as a result of the project area being primarily undeveloped under the current conditions. Off-site infrastructure includes new sewer lines and potential modifications to existing lift stations with the anticipation the majority of off-site improvements occurs within the proposed roadway network. On-site infrastructure will include new 8-inch sewer lines for

most projects within FCSP with larger trunklines in the public right of way leading back to the treatment plant.

The construction of the on-site and off-site sewer lines and associated improvements will primarily include trenching for the pipelines. All construction will be performed in accordance with the Construction General Permit and all associated requirements. Any work that may affect services to the existing sewer lines will be coordinated with the City and District.

Furthermore, a Construction Management Plan or equivalent, which would ensure safe pedestrian access as well as emergency vehicle access and safe vehicle travel in general, will be implemented to reduce any temporary pedestrian and traffic impacts occurring as a result of construction activities. Moreover, when considering impacts resulting from the installation of any required wastewater infrastructure, all impacts are of a relatively short-term duration and would cease to occur once the installation is complete. Therefore, Project impacts on wastewater associated with construction activities would be less than significant.

Once the improvements are complete, no additional environmental impacts are anticipated for the operational and on-going aspects of the sewer system.

- Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?

Impact Analysis: The overall FCSPs increase in sewer flows is approximately 1.1 MGD which will increase the amount of treatment required at the Wochholz Regional Water Recycling Facility. The existing wastewater flow within this system is approximately 3.8 MGD as of 2020, resulting in an available capacity of 4.2 MGD. The City is also currently processing the Wine Country Specific Plan in the northeastern portion of the City which will add up to 0.3 MGD in additional sewer flow. Both Specific Plans can be accommodated by the availability capacity. Therefore, the development anticipated under the FCSP will not exceed the available wastewater treatment capacity of the Wochholz Regional Water Recycling Facility.

1.3.7 CONCLUSIONS

New sewer infrastructure will be needed as the buildout of FCSP occurs and will be designed to current YVWD standards while protecting existing sewer systems. Prior to the approval of projects within FCSP and new sewer systems being

implemented, a full hydraulic analysis of the existing and proposed sewer systems will be performed to identify any potential capacity impacts. There is adequate wastewater treatment capacity at the Recycling Facility to handle increased sewer flows as part of the FCSP. YVWD also implements proactive process to track the condition of sewer infrastructure. This is conducted through evaluation, CIP projects and project-by-project review of the required documentation for development projects. This results in a clear understanding of owner responsibilities for on-site and off-site improvements and development impact fees. Therefore, there are processes in place for all future developments to ensure sewer infrastructure and service will be provided in an efficient and reliable manner.

1.4 Hydrology and Water Quality

1.4.1 CITY OF YUCAIPA STORM DRAIN MASTER PLAN

In 1993, the City of Yucaipa adopted a Master Plan of Drainage (1993) prepared by Boyle Engineering that identified drainage improvements throughout the City limits to contain 100-year flood flows within the channel banks while planning for future development. The improvements consisted of channel improvements, regional stormwater detention basins, and debris basins to mitigate flooding and minimize erosion and scour. Boyle Engineering used the San Bernardino County Flood Control District (SBCFD) Comprehensive Storm Drain No. 5 (a large-scale master plan of drainage covering the region) as a reference point. SBCFD divides up their service area into six districts and the City of Yucaipa falls within District 3.

In 2008 and 2012, RBF Consulting (now known as Michael Baker Corp) updated the Master Plan of Drainage to reflect the most current conditions, changes in hydrology, and future development scenarios. A major focus of the report updated basin sizing for all interim and future detention basins. In July 2008 the Phase I Master Plan of Drainage (MPD) included hydrology information for the implementation of fourteen (14) constructed and proposed detention basins within the City's watershed boundary and were approved by SBCFD in September 2008. Phase II of the MPD (January 2012) revised the hydrology information from Phase I and provided new hydraulic calculations for the impacted drainage facilities within the City of Yucaipa watersheds. These calculations were also used to update the Yucaipa Drainage Impact Fees and a summary of the MPD analyses and basin footprints were integrated into a GIS database.

The MPD accounts for the City limits and off-site tributary areas beyond the city boundaries which totals approximately 26,000 acres or 40.5 square miles. The drainage area is divided into two main creeks including Wilson Creek in the northern region and Wildwood Creek/Yucaipa Creek in the southern region. The FCSP project occurs within both the Wilson Creek watershed and Wildwood Creek/Yucaipa Creek watershed, with a majority being within the Wildwood/Yucaipa Creek watershed.

The hydraulic calculations from the 2012 Phase II MPD were based on the 2008 MPD Update, which incorporated both existing and proposed detention basins to mitigate peak flow downstream. A total of fourteen (14) detention basins were evaluated ranging in size and function. The potential reduction in 100-year peak flows was identified using the Node IDs throughout the basin and comparing the flow rates with and without the flow rates of downstream basins. At the

confluence point between Wildwood Creek and Yucaipa Creek, there is a 38% reduction in 100-year peak flows from 7,970 cfs to 4,943 cfs. Utilization of the Wildwood Creek 1 Basin (located within the FSCP area) is projected to reduce peak flows of 6,660 cfs to 3,350 cfs when combined with the upstream basins. Implementation of the basins within the FCSP will further serve to enhance the effectiveness of the existing and proposed Yucaipa and Wildwood Creek basins. See Table 9 below for a summary of the downstream flow rates of each basin.

Table 9 - City of Yucaipa Master Plan of Drainage Flow Rate Summary (2012)

Master Plan of Drainage (Ultimate Conditions) -- Flow Rate Summary with Basins								
Basin Location	**Unit Hydrograph (UH) without Basins**					**UH with Basins**		
	Basin Capacity	**Node**	**Area (ac.)**	**Tributary Area (acre)**	**Flow Rate (CFS)**	**Tributary Area (acre)**	**Flow rate (cfs) - Upstream**	**Flow rate (cfs) - Downstream**
Yucaipa Creek								
Yucaipa – 3	45	6324	1829.2	1829.2	2307	1829.2	2307	1826
Wildwood Creek								
Wildwood - 4	25	6911	772.8	772.8	1394	772.8	1394	1028
Wildwood - 3	78	7416	382.6	4955.8	6218	4955.8	5838	4878
Wildwood - 2A	20	7821A	NP	5358.5	6299	5358.5	4937	4000
Wildwood - 2B	35	7821B	NP	5358.5	6299	5358.5	4000	3450
Wildwood - 1	50	311A	243.2	6221.3	6660	6221.3	4243	3350
Confluence w/ Yucaipa Creek		8311		8422.5	7970	8422.5		4943

Source: City of Yucaipa, January 2012, Master Plan of Drainage Update.
See Appendix B for the Flow Rate Summary of all Basins analyzed in the City of Yucaipa.
NP = Value Not Provided in 2012 MPD

The City of Yucaipa's Public Works/Engineering Division is responsible for the implementation of the most current version of the MPD and ensuring development projects implement their required improvements.

The City of Yucaipa develops its Five-Year Capital Improvement Program (CIP) as a means to prioritize the most important infrastructure improvements. Major capital improvements can often be complex projects requiring several years of strategic planning, design, and funding before construction begins. New developments are required to pay a development impact fee based upon the

size and scale of their project. This fund is used for CIP Projects in the Storm Drain category of the CIP project list.

In addition to City storm drain infrastructure, the County of San Bernardino Flood Control District (SBCFCD) maintains the regional storm drain conveyance systems including an extensive system of facilities, dams, conservation basins, channels, and storm drains. The purpose of these facilities is to intercept and convey flood flows through and away from the major developed areas of the County. The primary functions of this infrastructure are flood protection on major streams, water conservation, and storm drain construction.

1.4.2 EXISTING DRAINAGE CONDITIONS

Under the existing condition, the FCSP is primarily undeveloped and there is limited drainage facilities and improvements. Based on the 2012 MPD, there are approximately twelve (12) sub-drainage basins that cover the project area including on-site and off-site runoff. The majority of flows originate off-site to the east and drain in a southwesterly direction through the City and lead to the project site. A portion of flows are tributary to Wilson Creek which converges with Oak Glen Creek northwest of the project area. Oak Glen Creek then converges with Yucaipa Creek, south of the I-10 Freeway and west of the project area. Within the project area, Yucaipa Creek converges with Wildwood Creek south of the I-10 Freeway. A majority of the flows are tributary to Wildwood Creek. Table 9 breaks down the existing sub-drainage areas with the FCSP project area according the 2012 MPD.

Table 10 - Freeway Corridor Specific Plan Existing Sub-Drainage

Sub-Drainage Area	On-site (Ac)	Off-site (Ac)	Total Area (Ac)
86	46.9	14.6	61.5
85	143	386.6	529.6
63	7.6	210.5	218.1
64	141.2	83.7	224.9
55	157.5	139.3	296.8
80	1.2	151.7	152.9
82	217.4	51.6	269
83	274.1	76.6	350.7
84	197.9	17.6	215.5
45	50.1	134.4	184.5
54	1.9	68.2	70.1
Total	**1238.8**[16]	**1334.8**	**2573.6**

Approximately 1,335 acres of drainage area is upstream or downstream of the project area. The majority of the runoff is upstream and conveyed through naturally eroding channels directed towards the confluence point of Oak Glen Creek and Yucaipa Creek. Prior to entering the project area, runoff is directed towards a series of existing flood control basins owned and operated by San Bernardino County Flood Control District. There are four basins located in the northeastern portion of the City collectively called the Wilson Basins and a fifth component downstream called the Wilson Creek Spreading Grounds to further promote groundwater infiltration. Alongside the southeastern portion of the City Wildwood Creek, Wildwood Creek Basin 3, and the northwestern portion of the City alongside Dunlap Basins 2-3 and 13th Street Sports Complex Basin these basins mitigate flood flows and recharge stormwater runoff throughout the City[17].

The San Bernardino County Flood Control District identifies an interim flood control basin south of the 10 Freeway adjacent to Yucaipa Creek within the FCSP project area. The basin is called the Atwood Basin and is owned by a private entity. This basin location and surrounding area will remain open space in the proposed

[16] Includes the total acreage within the FCSP boundary and does not exclude any acreages.

[17] City of Yucaipa Master Plan of Drainage Update Addendum 1, January 2012

condition land uses to allow it to be used for flood control purposes in the future if needed.

Due to evidence of erosion and instability the MPD identifies approximately 83,000 total linear feet of natural channel improvements of which approximately 20,000 linear feet is located within the FCSP area. The MPD anticipates channel improvements to occur as development projects and basins are implemented. See Figure 8 for the existing drainage boundaries and channels identified for future improvement.

Area Name	Off-Site	On-Site	Total Area (Ac)
45	134.4	50.1	184.5
54	68.2	1.9	70.1
55	139.3	157.5	296.8
63	210.5	7.6	218.1
64	83.7	141.2	224.9
80	151.7	1.2	152.9
82	51.6	217.4	269
83	76.6	274.1	350.7
84	17.6	197.9	215.5
85	386.6	143	529.6
86	14.6	46.9	61.5
TOTAL	1334.8	1238.8	2573.6

Freeway Corridor Specific Plan Existing Drainage Boundaries and Primary Flow Lines

Figure 8

8/21/2023

Yucaipa, CA

FUSCOE ENGINEERING

Storm Channels
Flow Direction
Streams
Project Boundary
Drainage Boundaries for 2012 MPD
Interim Basin (a.k.a. Atwood Basin)

N

1 inch = 1,500 feet

0 1,500 3,000 Feet

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1.4.3 EXISTING FLOODPLAIN MAPPING

The National Flood Insurance Act (1968) established the National Flood Insurance Program, which is based on the minimal requirements for flood plain management and is designed to minimize flood damage within Special Flood Hazard Areas. The Federal Emergency Management Agency (FEMA) is the agency that administrates the National Flood Insurance Program. Special Flood Hazard Areas (SFHA) are defined as areas that have a 1 percent chance of flooding within a given year, also referred to as the 100-year flood. Flood Insurance Rate Maps (FIRMs) were developed to identify areas of flood hazards within a community.

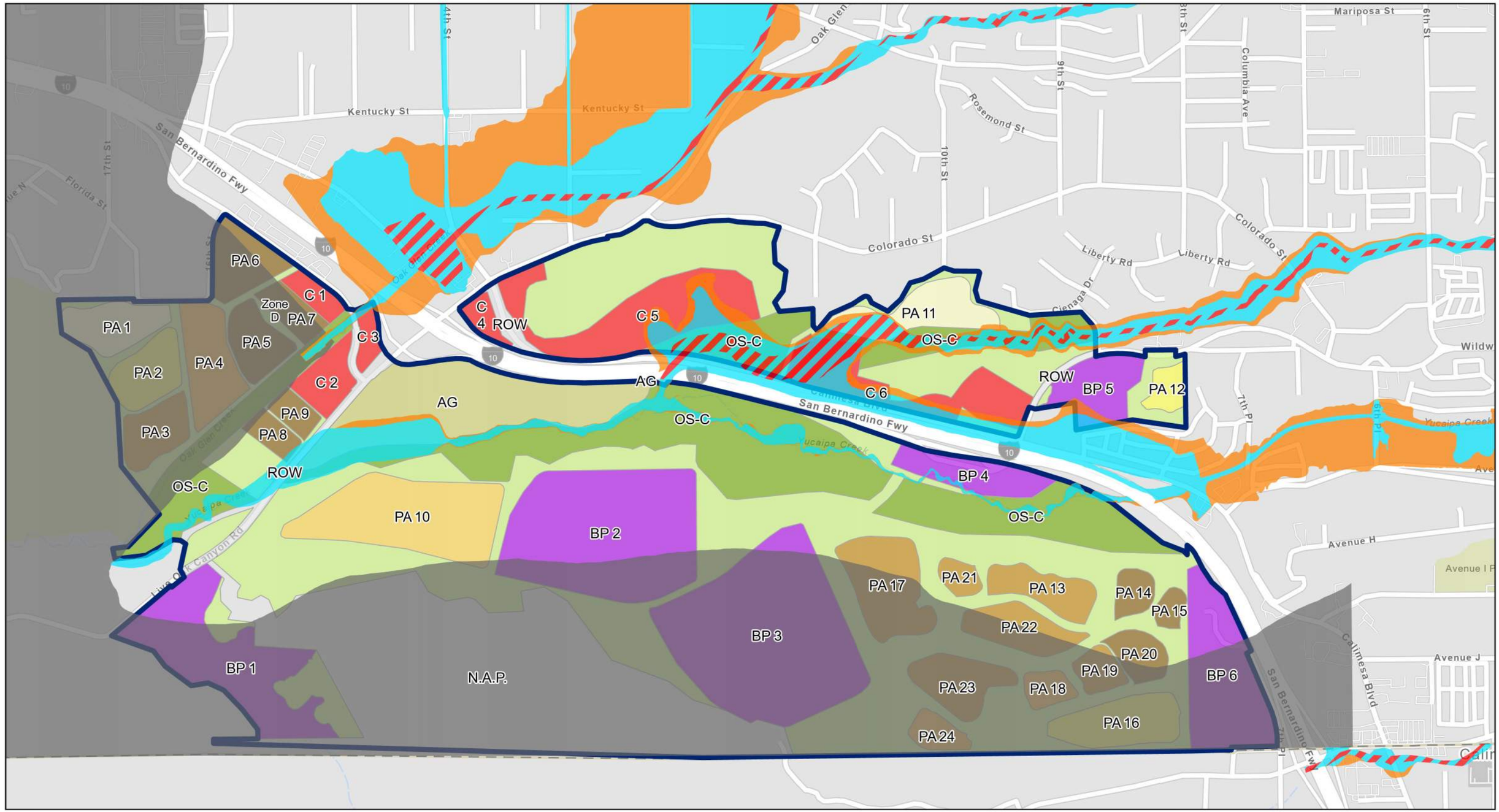
According to the Flood Zone determination, the FCSP consists of several different Flood Hazard Zones due to the multiple creeks that run through the project areas including Zone AE, Zone AO, Zone X and Zone D. These designations are described below.

Zone Designation	Zone	Zone Description
Special Flood Hazard Area – With Base Flow Elevation or Depth	Zone AE	The base floodplain where base flood elevations are provided.
	Zone AO	River or stream flood hazard areas, and areas with a 1% or greater chance of shallow flooding each year, usually in the form of sheet flow, with an average depth ranging from 1 to 3 feet. These areas have a 26% chance of flooding over the life of a 30-year mortgage.
Other Areas of Flood Hazard	Zone X	If shaded: Area of 500-year flood; area subject to the 100-year flood with average depths of less than 1 foot or with contributing drainage area less than one square mile; and areas protected by levees from the base flood. If unshaded: Area determined to be outside the 500-year floodplain
	Zone D	Areas with possible but undetermined flood hazards. No flood hazard analysis has been conducted.
Source: FEMA, Glossary. Found here: https://www.fema.gov/about/glossary.		

Notably the southern and eastern portion of the project area is identified as Zone D that represents areas with possible but undetermined flood hazards and FEMA

has not conducted a flood hazard analysis for this area[18]. Zone A is considered a special flood hazard area and it is important to provide buffers from Zone A areas. These areas may be subject to infrequent flood hazard until adequate channel and debris retention facilities are implemented to intercept and conduct flows through and away from the stie. The proposed plan identifies a significant buffer beyond the Zone A limits and will also include additional basins for debris entrapment, flow attenuation and water quality improvements within the buffer area to protect property while ensuring the long-term benefits of the natural creeks. Portions of the FCSP are zoned as Zone AE and VE regulatory floodways, specifically development areas in PA-8, C-5, C-6, BP-4, and BP-5. Any development within these areas will be required to follow FEMA and the City's floodplain safety requirements including flood analysis, proper setbacks, and sufficient pad elevations. See Figure 9 below for a map of the FEMA flood zones within the FCSP.

[18] Federal Emergency Management Agency National Flood Hazard Layer Viewer. Found here: https://hazards-fema.maps.arcgis.com/apps/webappviewer/index.html?id=8b0adb51996444d4879338b5529aa9cd



Freeway Corridor Specific Plan FEMA Flood Zones

Figure 9

8/18/2023

Yucaipa, CA

FUSCOE ENGINEERING

Flood Hazard Zones

- Zone AO: 1% Annual Chance Flood Hazard
- Zone AE: Regulatory Floodway
- Zone X (unshaded): area determined to be outside the 500-year flood and protected by levee from 100- year flood
- Zone X: 0.2% Annual Chance Flood Hazard
- Zone D: Area of Undetermined Flood Hazard

- R-2 - Single Residential
- R-4 - Single Residential
- R-6 - Single Residential
- R-8 - Single or Multiple Residential
- R-12 - Single or Multiple Residential
- R-24 - Multiple Residential
- AG - Agriculture
- BP - Business Park
- COM - Commercial
- OS - Open Space
- OS-C - Open Space Conservation
- N.A.P. - Not A Part
- ROW - Right of Way

N

1 inch = 1,000 feet

0 1,000 2,000 Feet

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1.4.4 EXISTING WATER QUALITY CONDITIONS

The State Water Resources Control Board (SWRCB), through its nine Regional Water Quality Control Boards (RWQCBs), developed Regional Water Quality Control Plans (or Basin Plans) that designate beneficial uses and water quality objectives for California's surface waters and groundwater basins, as mandated by both the Clean Water Act and the state's Porter-Cologne Water Quality Control Act. Water quality standards are thus established in these Basin Plans and provide the foundation for the regulatory programs implemented by the state. The Santa Ana RWQCB's Basin Plan, which covers the City, specifically (i) designates beneficial uses for surface waters and ground waters, (ii) sets narrative and numerical objectives that must be met in order to protect the beneficial uses and conform to the state's antidegradation policy, and (iii) describes implementation programs to protect all waters in the Region. In other words, the Santa Ana RWQCB Basin Plan provides all relevant information necessary to carry out federal mandates for the antidegradation policy, 303(d) listing of impaired waters, and related Total Maximum Daily Loads (TMDLs), and provides information relative to National Pollutant Discharge Elimination System (NPDES) and Waste Discharge Requirement (WDR) permit limits.

In addition, the California State Water Resources Control Board (State Board) has adopted the statewide Trash Provisions that requires implementation of Best Management Practices (BMPs) that mitigate or abate trash within Priority Land Use Areas (PLUs). PLUs are defined as, "high density residential, industrial, commercial, mixed urban, and public transportation stations." The purpose of the Trash Provisions is to establish a statewide water quality objective that ensures the quality of surface waters that enter storm drains and eventually lead out to major water ways are free of trash. The City is currently undergoing the process to comply with these new Trash Provisions under the Track 1 status and would apply to FCSP. All projects within FCSP would be subject to requirements to implement full capture trash devices as part of the compliance with the State Trash Provisions.

In January 2010, the Santa Ana RWQCB re-issued the San Bernardino County MS4 Storm Water Permit as WDR Order R8-2010-0036[19] (NPDES Permit No. CAS618036) to the County of San Bernardino, the incorporated cities of San Bernardino County, and the San Bernardino County Flood Control District within the Santa Ana Region.

Land development policies pertaining to hydromodification and low impact development (LID) are regulated for new developments and significant redevelopment projects. The use of LID BMPs in project planning and design is to

[19] California Regional Water Quality Control Board Santa Ana Region Order No. R8-2010-0036 https://www.waterboards.ca.gov/santaana/board_decisions/adopted_orders/orders/2010/10_036_sbc_ms4_permit_01_29_10.pdf

preserve a site's predevelopment hydrology by minimizing the loss of natural hydrologic processes such as infiltration, evapotranspiration, and runoff detention. These land development requirements are detailed in the San Bernardino County Technical Guidance Document (TGD), effective September 2013, which cities have incorporated into their discretionary approval processes for new development and redevelopment projects. Projects are required to comply with the LID requirements in accordance with the LID hierarchy.

The LID hierarchy requires new developments and re-developments to implement BMPs under the LID hierarchy as described in the TGD. The LID hierarchy requires new projects to first infiltrate, then harvest and reuse, then biofilter stormwater runoff from their project site. In areas where infiltration is determined to be infeasible, either through infiltration testing or groundwater concerns, harvest and reuse BMPs may prove feasible for projects that incorporate ample landscaping and/or have high indoor toilet flushing demands (i.e. hotels). For areas that cannot infiltrate or utilize harvest and reuse systems, projects will be able to biofilter stormwater through biofiltration BMPs such as vegetated swales and bioretention basins.

In addition to the protection of surface water quality, groundwater is also protected. The Yucaipa Basin underlies the City of Yucaipa and is managed by the Yucaipa Sustainable Groundwater Management Agency. The Groundwater Sustainability Plan[20] (GSP) for the Yucaipa Basin was developed in early 2022. The GSP is intended to protect the groundwater by monitoring groundwater elevations and groundwater quality. Land use and activities may be coordinated amongst agencies and assessed to prevent risks to groundwater quantity and quality.

1.4.5 PROPOSED LAND USE CHANGES

Implementation of FCSP will result in changes in runoff, pollutant loading and could impact drainage and water quality conditions. Primarily, areas that are currently vacant land will experience increases in peak flow runoff which may impact drainage facilities. In addition, new developments may contribute to increased pollutants entering water bodies. These impacts are assessed and elaborated upon in the following sections.

In order to evaluate impacts of the proposed land use changes on hydrology, using the acreage of each land type and associated impervious ratio allows a comparison between the potential peak runoff for both the MPD and the FCSP. The comparison is helpful as potential runoff is directly related to the percent of

[20] Groundwater Sustainability Plan for Yucaipa Groundwater Subbasin. January 2022 https://yucaipasgma.org/final-gsp

impervious cover for various land uses, time of concentration and soil types. The soil types are the same for both the MPD and FCSP and time of concentrations are similar leaving the impervious cover as the key factor in evaluating changes in runoff between the 2008 FCSP use and the updated FCSP.

Under the 2008 FCSP condition land use, a variety of housing densities are allowed within the project area. In accordance with the original 1993 Master Plan of Drainage and subsequent updates, the impervious ratio ranges from 20% or 0.2 to 65% or 0.65 for residential uses. For nonresidential uses, which includes commercial and industrial land uses, the impervious ratio is 90% or 0.9. Under the updated FCSP, the housing densities vary slightly and add an additional 25 DUs. As for non-residential area, the updated FCSP proposes an additional 97.6 acres. The table below breaks down housing densities and non-residential areas for both the 2008 FCSP and proposed FCSP conditions as well as the relative impervious ratios according to the 1993 MPD. The updated FCSP has an open space component as well as an agricultural tourism component. These land uses are assumed to be primarily pervious cover and are not included in this analysis. Commercial/Industrial land uses include both Business Park and Regional Commercial land uses.

Table 11 - Freeway Corridor Specific Plan Total Impervious Area

Land Use	Area (acres)	Impervious Ratio	Total Impervious Area (acres)
2008 FCSP Land Use			
R-1	15.7	0.2	~3
R-2	104	0.3	~31
R-4	215.1	0.4	~86
R-8	49.9	0.5	~25
R-24	40	0.65	~26
Commercial/Industrial*	242.5	0.9	~218
Right-of-Way	25.3	1	~25
Total			**~415**
Proposed FCSP Land Use			
R-2	25.7	0.3	~8
R-4	28.5	0.4	~11
R-6	35.2	0.5	~18
R-8	22.7	0.5	~11
R-12	67.2	0.65	~44
R-24	46.5	0.65	~30
Commercial/Industrial	295.3	0.9	~266
Right-of-Way	15.1	1	~15.1
		Total	**~403**
		Total Change	**~-12**

* Commercial/ Industrial land uses include Regional Commercial (RC), Business Park (BP), and public facilities.

The impervious condition analysis shows the potential for an overall decrease in impervious conditions for the existing and proposed land uses associated with the updated FCSP by approximately 12 acres or approximately 3% less than the 2008 FCSP. This high-level analysis indicates the proposed impervious conditions would be equal to or less than the 2008 FCSP designations but also confirms the significant increase over existing conditions. It validates the City's approach to make each development project mitigate peak flows to equal to or less than existing condition to negate any potential impacts related to the increase in impervious conditions.

All proposed developments within FCSP must conform to the 2012 MPD approved by the City of Yucaipa and the San Bernardino County Flood Control. All projects that occur with FCSP will be required to implement project-scale stormwater basins for flood control and LID compliance. The purpose of the basins will be to mitigate for any peak flow runoff that occurs as a result of the development project and may be required to demonstrate additional mitigation to match up with peak flow controls assigned within the MPD. All projects will be required to

analyze both potential impacts. This includes the design and construction of the proposed Wildwood Creek 1 Basin located just upstream of the confluence of Wildwood Canyon Creek and Yucaipa Creek at the north central area of FCSP. The implementation of this basin will be predicated on development within FCSP upstream and downstream of the project. Based on the 2012 MPD and project specific analyses, fair share contributions from developments upstream and downstream of the project that will benefit from the basin will be required. The City will oversee this process through development agreements, connection fees, fair share agreements and issuance of grading permits.

A demonstration of this is represented by the Pacific Oaks project. The Pacific Oaks project covers a significant portion of the FCSP area and includes the development of BP2 and BP3 located in the central portion of the project area. The proposed project is approximately 324 areas and will include two large industrial buildings, parking areas, loading docks, drive aisles and landscape areas. The Pacific Oaks project prepared a preliminary hydrology study. The proposed project occurs within Sub-basin 82, 83, 84, and 85 of the MPD. Peak flow rates were determined for existing and proposed conditions for the 100-year, 24-hour storm event with and without mitigation. The tables below summarize the hydrology conditions. Table 12 provides the pre-development (existing) flows and volumes for the development area.

Table 12 - Pre-development (Existing) Flows and Volumes (Refer to Pre-Development Exhibit)

Area Description	Area (acres)	Q2 (cfs)	V2 (cf)	Q100 (cfs)	V100 (cf)
A1	10.89	8.59	8,943	37.40	178,683
A2	20.62	5.30	14,484	49.06	339,637
A3	26.66	17.45	21,658	92.52	437,103
A4	48.40	20.28	35,162	136.81	794,260
A5	85.66	1.79	49,449	146.21	1,412,951
A6	89.75	13.06	55,138	198.73	1,476,453
A7	42.02	20.46	33,123	125.45	690,544
Total	**323.99**	**86.93**	**217,957**	**786.18**	**5,329,631**

Table 13 provides the post-development flows and volumes for the development area without the use of detention facilities.

Table 13 - Onsite Post-development Flows (Unmitigated)

Area Description	Area (acres)	Q2 (cfs)	V2 (cf)	Q100 (cfs)	V100 (cf)
A1	55.00	66.39	314,277	182.01	921,542
A2	18.95	22.01	91,419	60.48	300,769
A3	57.97	72.17	336,484	197.53	977,434
A4	95.01	17.76	61,968	182.33	1,558,607
B	68.96	22.64	50,874	179.72	1,132,068
C	10.48	3.21	7,623	26.46	172,532
D	17.61	7.12	13,512	45.51	57,604
Total	**323.99**	**211.30**	**876,157**	**874.04**	**5,120,556**

Table 14 represents the treatment volumes required for compliance with the local MS4 Stormwater Permit and the allowable peak flows associated with the 100-year storm event.

Table 14 - Stormwater Mitigation Requirements

Area Description	Retention Treatment (CF)	2-Year Allowable Outflow (cfs)	100-Year Allowable Outflow (cfs)
A1	176,693	-	37.40
A2	47,782	-	49.06
A3	190,063	-	92.52
A4	-	-	136.81
B	-	-	146.21
C	-	-	198.73
D	-	-	125.45
Total	**414,538**	**97.50**	**786.18**

Table 15 provides the proposed detention facilities sizes and volumes stored to assist with peak flow mitigation.

Table 15 - Basin Volume Summary

Area Description	BMP	Total Storage (CF)
A1	Underground 144" CMP (600' x 72')	450,183
A2	Underground 144" CMP (300' x 42')	137,857
A3	Underground 144" CMP (600' x 87')	538,370
Total		1,126,410

Table 16 provides a summary of the basin routing analysis that verifies the peak flow discharges under the proposed condition will be significantly lower than existing conditions.

Table 16 - Basin Routing Analysis

Area Description	2-Year Allowable Flow Rate (CFS)	2-Year Peak Flow with Mitigation Rate (CFS)	100-Year Allowable Flow Rate (CFS)	100-Year Peak Flow with Mitigation Rate (CFS)
A1	8.59	3.66	37.40	40.55
A2	5.30	1.22	49.06	11.22
A3	17.45	3.53	92.52	38.84
A4	20.28	17.76	136.81	182.33
B	1.79	22.64	146.21	179.72
C	13.06	3.21	198.73	26.46
D	20.46	7.12	125.45	45.51
Total	**97.50**	**59.14**	**786.18**	**524.63**

The analysis demonstrates the functionality of the proposed detention facilities to mitigate peak flows to less than existing conditions which is consistent with the 2012 MPD objectives.

The Yucaipa County Line Warehouse Project located within the eastern portion of the FCSP will follow a similar process of incorporating underground detention systems to reduce proposed condition runoff to less than existing conditions. Under the existing conditions, there are three discharge points. Under the proposed condition, two discharge points will be utilized with the incorporation of underground detention facilities to mitigate flow impacts to below existing

conditions for all three discharge points. Refer to Table 17 below for a summary of the existing and proposed conditions.

Table 17 - Yucaipa County Line Warehouse Project Hydrology Summary

	Existing Condition		Proposed Condition (No Detention)		Proposed Condition (with Detention)	
Location	Area (Ac)	Q100 (cfs)	Area (Ac)	Q100 (cfs)	Area (Ac)	Q100 (cfs)
North	4.4	11.0	2.2	5.7	2.2	5.7
Midwest	8.0	19.7	17.1	56.7	17.1	19.4
Southwest	6.9	16.5	0.0	0.0	0.0	0.0
Total	19.3	47.2	19.3	60.2	19.3	25.1

The proposed hydrology is consistent with the 2012 MPD by achieving peak flows less than existing conditions through the use of underground detention facilities.

Figure 10 shows the proposed condition land uses with peak flow discharge limitations at specific nodes and Figure 11 shows the conceptual grading plan for the FCSP area.

1.4.6 PROPOSED STORM DRAIN INFRASTRUCTURE

Based on the types of development anticipated within FCSP, the use of storm drain collection systems with detention basins or underground detention facilities (vaults, CMP pipe, etc) with or without infiltration are anticipated and expected. All projects will be responsible for the design of storm drain facilities in accordance with San Bernardino County Flood Control District and City of Yucaipa. The majority of the underground storm drain facilities are anticipated to generally follow the proposed roadway alignment, but additional details are required. All projects that have off-site runoff will be responsible for implementing proper debris basins where applicable to manage off-site flows and route them through the project area such as the Pacific Oaks project is proposing. The implementation of the proposed Wildwood Creek Basin 1 as identified in the 2012 MPD will also occur as development projects are initiated upstream and downstream of the basin location. The basin location is identified at the confluence of Wildwood Creek and Yucaipa Creek and is identified as having the capacity of up to 50 ac-ft and reducing flow rates from 6,660 cfs to 3,350 cfs when assuming all upstream basins are also implemented. The implementation of this basin will be driven by developers under the direction of the City of Yucaipa and both upstream and downstream development that benefit from this basin will be required to provide fair share funding for the basin and its long-term maintenance.

1.4.7 WATER QUALITY REQUIREMENTS

Water quality standards will be met for new development associated with the FCSP through implementation of Low Impact Development (LID) Best Management Practices (BMPs) in accordance with the local MS4 stormwater permit. Applicants may refer to the San Bernardino County Technical Guidance Manual (TGM) for Stormwater Quality Control Measures for further guidance.[21]

Based on the types of development anticipated within FCSP, the use of detention basins with the design capture volume (required volume for treatment) are anticipated to be the primary BMP type for managing water quality, hydromodification, and flood control. These BMPs are consistent with other developments throughout the City and are also part of the MPD. The Pacific Oaks project provides a good example of implementing these types of BMPs. A preliminary Water Quality Management Plan (WQMP) was completed for the Pacific Oaks project and described stormwater runoff being collected by catch basins and routed towards three underground detention systems after pretreatment from hydrodynamic separators. The preliminary analysis found infiltration to be not feasible at this site due to geotechnical hazards. Flows from the detention facilities will then be slowly released to Modular Wetland Systems for biotreatment prior to discharging offsite. The proposed plan conceptually identifies a water quality treatment volume of 9.5 ac-ft and a hydromodification volume of 14.1 ac-ft. Based on the design objective to treat a minimum volume of 9.5 ac-ft, the project will be satisfying the treatment requirements based on the MS4 Stormwater Permit. Although infiltration is not feasible for the Pacific Oaks projects, all projects within the FCSP will evaluate the feasibility of infiltration practices or other LID measures such as permeable pavement, raingardens, bioretention facilities, and infiltration trenches are explored.

The Yucaipa County Line Warehouse Project will follow a similar strategy for water quality and flood control compliance while protecting downstream receiving waters. Similar to Pacific Oaks, site conditions are not suitable for infiltration. Therefore, site runoff will be directed into underground detention facilities before being slowly released through proprietary biotreatment systems. In this case, the design capture volume (1.75 ac-ft) is larger than the hydromodification control volume (0.6 ac-ft) so compliance with the DCV will satisfy both water quality treatment and hydromodification. Similar to the other project, treatment of the design capture volume through biotreatment systems will satisfy the treatment requirements of the MS4 Stormwater Permit.

[21] San Bernardino Technical Guidance Manual for Water Quality Management Plans. June 7, 2013. https://www.sbcounty.gov/uploads/DPW/docs/SantaAnaRiver-WQMP-Final-June2013.pdf

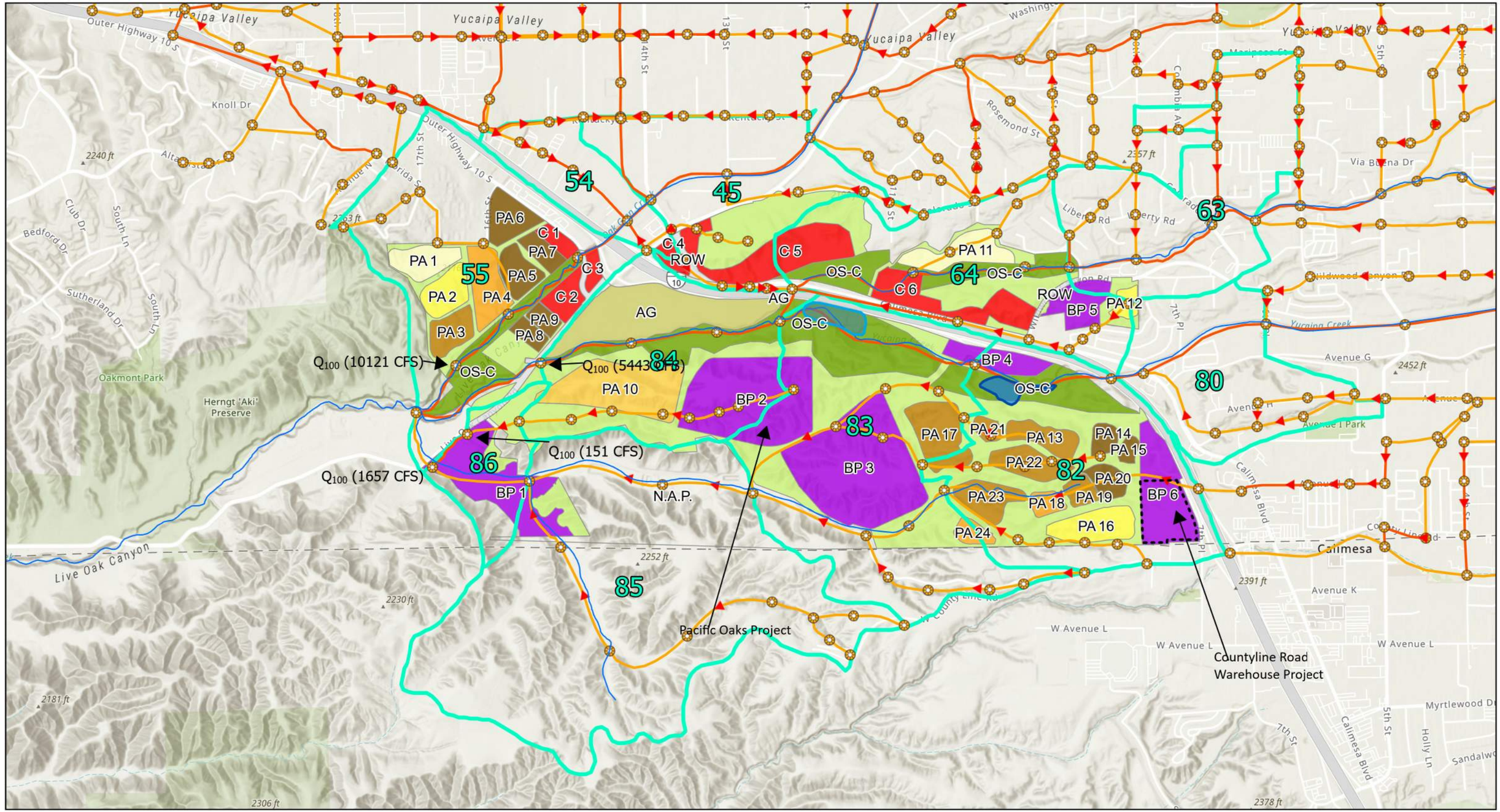
Both projects require preparation of a site-specific Water Quality Management Plan detailing out all treatment and compliance requirements for water quality and requires approval from the City prior to obtaining grading permits.

FCSP area overlays the Yucaipa Subbasin which has several groundwater subareas within the jurisdiction of the District and SBVMWD including the Calimesa Subarea, Western Heights Subarea and Live Oak Subarea. To determine if these subareas are capable of infiltrating State Water Project Water and stormwater runoff SBVMWD partnered with YVWD and SMWC to conduct infiltration tests throughout the region[22]. Within the Calimesa Subarea of the Yucaipa Groundwater Basin, three infiltration tests were conducted at various locations and two of the three test sites were found to be suitable for groundwater recharge. Within the Western Heights subarea, two infiltration tests were conducted, and neither were found to be suitable for groundwater recharge. Since there are varying infiltration results within these subareas, it is recommended that each project conduct site specific infiltration testing to determine suitability of groundwater recharge. Sites that are favorable for recharge will support the FCSP's stormwater capture and infiltration plans while strengthening the resiliency of groundwater supply throughout the region.

The TGM provides groundwater quality requirements such as a minimum of 100 feet of separation between infiltration BMPs and potable wells, non-potable wells, drain fields, and springs. In addition, the Yucaipa groundwater basin groundwater quality will be protected by the requirements set forth by the GSP, which is managed by the Yucaipa Sustainable Groundwater Management Agency. Figure *12* shows groundwater basins local to the FCSP.

Therefore, surface water and groundwater quality will be protected as projects within FCSP get implemented, and no significant impacts are anticipated.

[22] San Bernardino Valley Municipal Water District, January 2019. Infiltration Testing at Eleven Investigation Sites in the Yucaipa Basin



Freeway Corridor Specific Plan Proposed Land Uses with 2012 MPD Ultimate Condition Flows

Figure 10

8/21/2023

Yucaipa, CA

FUSCOE ENGINEERING

- Storm Channels
- Flow Direction
- Proposed Improvements
- Streams
- Drainage Boundaries for 2012 MPD
- Interim Basin
- Wildwood Creek 1 Basin (Proposed)
- Proposed Roads
- R-2 - Single Residential
- R-4 - Single Residential
- R-6 - Single Residential
- R-8 - Single or Multiple Residential
- R-12 - Single or Multiple Residential
- R-24 - Multiple Residential
- BP - Business Park
- COM - Commercial
- AG - Agriculture
- OS - Open Space
- OS-C - Open Space Conservation
- ROW - Right of Way
- N.A.P. - Not A Part

N

1 inch = 1,500 feet

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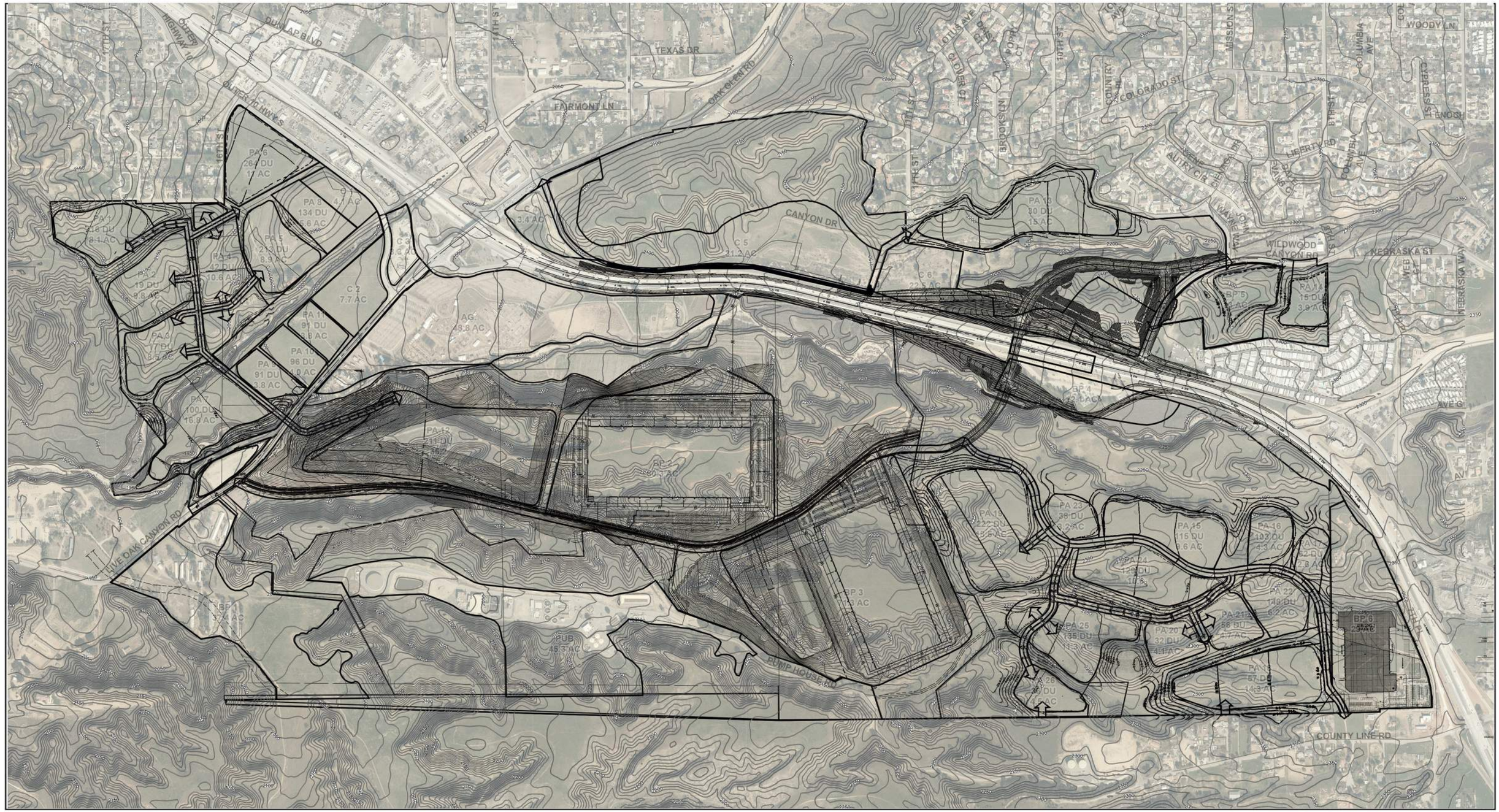

Freeway Corridor Specific Plan Conceptual Grading Plan

Yucaipa, CA

Figure 11
8/9/2023

N

1 inch = 1,000 feet

0 1,000 2,000 Feet

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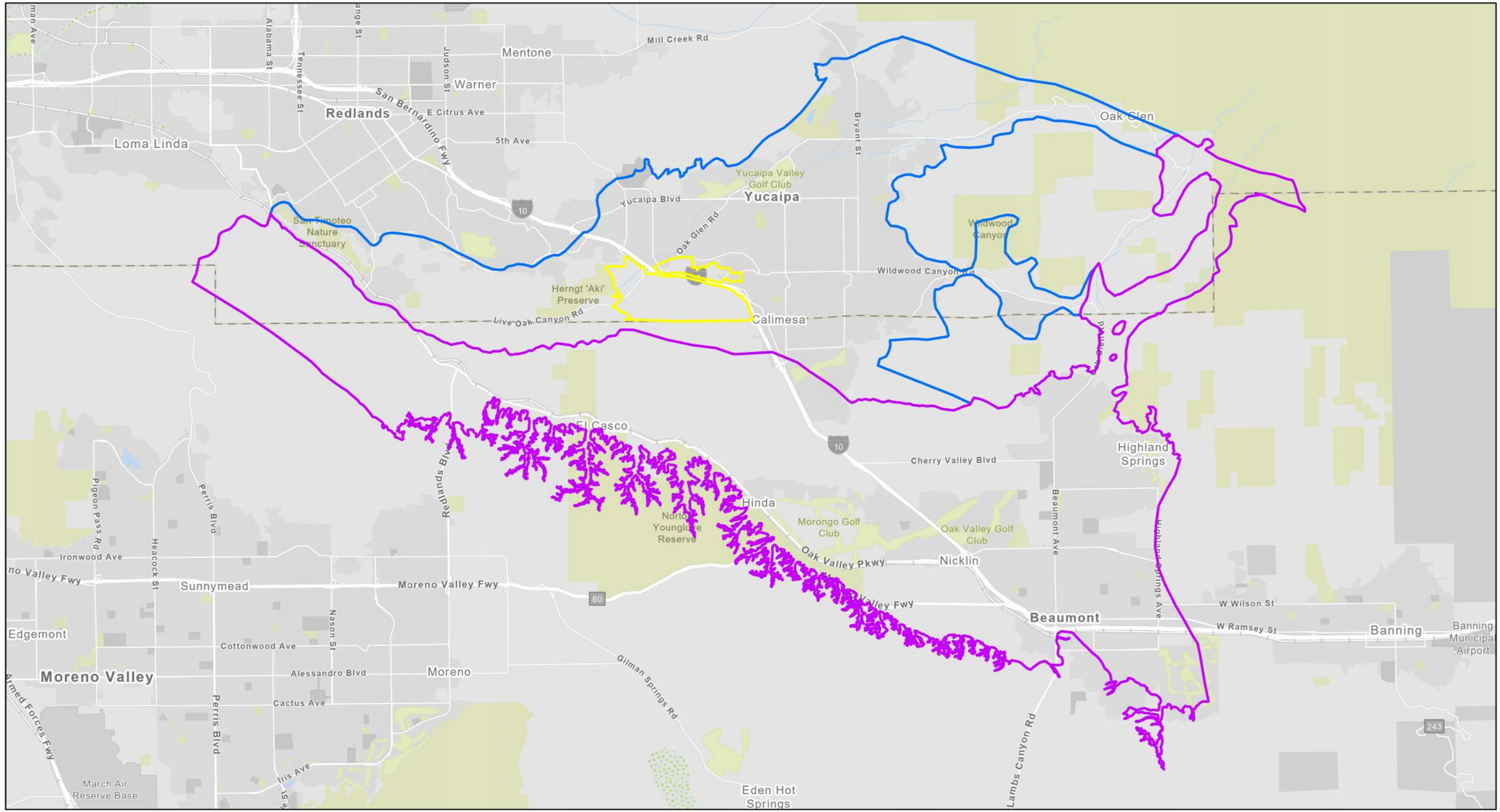

Freeway Corridor Specific Plan Groundwater Exhibit

Yucaipa, Ca

FUSCOE ENGINEERING

Yucaipa Basin

San Timoteo Basin

Project Boundary

Exhibit 12

8/9/2023

N

1 inch = 8,350 feet

0 8,350 16,700 Feet

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1.4.8 DRAINAGE AND WATER QUALITY CEQA IMPACT ASSESSMENT

California Environmental Quality Act (CEQA) significance criteria are used to evaluate the degree of impact caused by a development project on environmental resources including storm drain infrastructure and water quality. According to Appendix G of the CEQA Guidelines, a project would normally have a significant effect on the environment if the project would impact any of the items listed below.

- Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or groundwater quality?

Impact Assessment: As previously noted, the City is subject to the Phase I MS4 NPDES Permit, Order No. R8-2010-0036 issued by the SARWQCB. Water quality standards will be protected through the use of LID BMPs for new development within FCSP with a focus on project-specific detention facilities for flow attenuation, hydromodification control and water quality via infiltration where feasible or biotreatment when infiltration is infeasible. Groundwater quality for the Yucaipa Basin is actively managed by the Yucaipa Sustainable Groundwater Management Agency in which the City of Yucaipa is a member and the use of detention basins is a common accepted practice for the region that implement infiltration, if feasible.

Therefore, no impacts to water quality standards, waste discharge requirements or groundwater quality are anticipated.

- Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin.

Impact Assessment: The Yucaipa groundwater basin in the City of Yucaipa is managed by the Yucaipa Sustainable Groundwater Management Agency. A GSP is in place to protect the groundwater by monitoring groundwater elevations and groundwater quality. Additionally, development projects within FCSP will be required to infiltrate, where feasible, to recharge groundwater and meet water quality standards. To protect the groundwater basin, infiltration may not be allowable in areas with a history of contamination or within 100 feet of potable wells, non-potable wells, drain fields, and springs.

Therefore, there will be no significant negative impacts to groundwater supplies or recharge.

- Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would:
    - (i) Result in a substantial erosion or siltation on- or off-site.

      Impact Assessment: All projects shall comply with Federal, State, County and local approval agency regulations on floodplain and floodway management which includes conformance with FEMA regulations for Special Flood Hazard Areas including US ACOE 404 permits and SARWQCB 401 Certification permit. Wildwood Creek and Yucaipa Creek and their tributaries are the primary floodways within FCSP and will be protected through a large buffer where no construction will occur and where appropriate, detention basins will be integrated to manage flood flows and overflow areas while protecting development further way from the creek. All proposed detention facilities will be consistent the 2012 Yucaipa Master Plan of Drainage and will serve to reduce peak flows and infiltrate water quality flows for protection of surface water quality and enhance groundwater recharge in a safe manner, if deemed feasible. This includes the requirement to implement the Wildwood Creek 1 Basin within the project area adjacent to Yucaipa Creek south of the 10 Freeway. Additionally, increased instability and erosion due to increased runoff volumes, flow durations, and higher stream velocities, also known as "hydromodification impacts," will need be mitigated through compliance with hydromodification requirements within the MS4 Permit. Individual projects within FCSP will be responsible for mitigating hydromodification within their project limits in accordance with the Technical Guidance Manual and mitigating peak flood flows consistent with the requirements of the MPD. Between the combination of the proposed detention facilities as part of the 2012 MPD and the site-specific detention systems with infiltration where feasible, substantial erosion or siltation is not anticipated.

    - (ii) Substantially increase the rate or amount of surface runoff in a manner which would result in flooding on or offsite;

      Impact Assessment: Implementation of the FCSP will result in slightly lower (<3% decrease) impervious assumptions from what was assumed under the current 2008 FCSP buildout. Increases in impervious surfaces will increase though over the existing conditions resulting in increased rates and volumes of surface runoff. All projects

will be evaluated based on project-specific impervious surface calculations to ensure proper mitigation of runoff is met. All proposed projects will also be subject to the provisions in the 2012 MPD which requires projects to match or reduce peak flows as compared to predevelopment/existing conditions and will largely be achieved through detention basins with infiltration or sub-surface detention facilities with orifice control to regulate peak flow discharges. Through these requirements, the increase in impervious conditions associated with FCSP will be mitigated. The detention basins will serve to control on-site and off-site flooding, debris and provide infiltration for groundwater recharge, when deemed feasible. Implementation of FCSP will also require the implementation of the Wildwood Creek Basin 1 located within FSCP. Therefore, the City and County have policies in place to ensure that runoff volumes, flow durations, and velocities are at a rate that will not result in flooding and no significant impacts are anticipated.

- (iii) Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff; or

  Impact Assessment: All new storm drain systems will be designed to the City's Standard Design Guidelines for Public Works Construction and Grading (2015) to ensure sufficient pipe sizes to convey the ultimate flow condition while protecting improvements from flooding. In most cases, the new storm drain systems will be designed to convey flows to on-site basins which will serve to manage increases in flows associated with the projects and infiltrate or attenuate runoff to reduce substantial sources of polluted runoff. These design criteria will prevent runoff that would exceed the capacity of stormwater drainage systems or sources that exceed pollutant limits.

- (iv) Impede or redirect flood flows?

  Impact Assessment: Conformance with the 2012 MPD will ensure that flood flows are properly directed towards the on-site basins associated with each project or the downstream regional basin facilities which are designed to manage peak flows in a manner which prevents downstream impacts. Therefore, buildout of the FCSP development is not expected to impede or redirect flood flows.

- In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation?

Impact Assessment: All projects within FCSP shall comply with Federal, State, County and local approval agency regulations on floodplain and floodway management which includes conformance with FEMA regulations for Special Flood Hazard Areas and the City's Floodplain Safety Overlay District. Wildwood Creek and Yucaipa Creek (Zone A) are the primary floodways within FCSP and will be largely protected through buffers where no construction will occur and where appropriate, detention basins will be integrated to manage flood flows and overflow areas while protecting development further way from the creek. For those limited areas in FCSP where conflicts align with zoning and floodways, all floodway requirements take precedence over development. Furthermore, the City has Developmental Standards that ensure floodplain regulations are taken to provide safety, promote public health, and minimize public and private economic losses within flood prone areas.[23]

There is no risk from tsunami or seiche zones within the City of Yucaipa.

- Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?

Impact Assessment: The City is a co-permitee of the San Bernardino County MS4 Permit which requires compliance with the Santa Ana Basin Plan and specific measures for new development to protect water quality and groundwater. Projects will comply with the San Bernardino County TGD. Groundwater quality for the Yucaipa groundwater basin is subject to requirements set forth by the GSP. These programs and standards will ensure no impacts to water quality nor sustainable groundwater management.

1.4.9 CONCLUSIONS

Implementation of the full build out of FCSP will result in significant drainage improvements throughout the project area. All drainage improvements will be designed in conformance with City standards while utilizing the 2012 MPD as the overall basis of design. Per the City's Municipal Code, prior to the issuance of a grading permit or final map approval, applicants must identify any necessary storm drain improvements and temporary and permanent best management practices (BMP) for the control of non-point water discharges, to ensure flood protection as well as protection of water quality. In addition, drainage improvements must be designed so that after-development, drainage to

[23] City of Yucaipa, California Municipal Code – 85.02325 Developmental Standards. Found here: https://library.qcode.us/lib/yucaipa_ca/pub/municipal_code/item/development_code-division_5-chapter_2-article_2-85_020325

adjacent parcels would not be increased above the ultimate condition flows identified in the MPD. All drainage measures necessary to mitigate stormwater flows must be provided to the satisfaction of the City Engineer including fair share contributions to regional basin(s). The applicant shall make any on-site and downstream improvements, required by the City, to support the proposed development. Therefore, the City has established procedures to ensure flood and water quality is protected as FCSP is developed in conformance with the proposed land uses. Therefore, no significant impacts are anticipated for drainage and water quality conditions for FCSP.

2 TECHNICAL APPENDICES

Appendix A Water Demand and Sewer Flow Calculations

Appendix B 2012 Master Plan of Drainage Flow Rate Summary Table

Appendix C Yucaipa Valley Water District Water Infrastructure Backbone Plan

Appendix D Yucaipa Valley Water District Sewer Infrastructure Backbone Plan

Appendix A: Water Demand and Sewer Flow Calculations

FCSP Water Demand - Approved Project

Residential	Acres	DU	Potable Water Demand Rate (gpd/dwelling unit)	Potable Water Demand (gpd)	Potable Water Demand (afy)	Recycled Water Demand Rate (gpd/dwelling unit)	Recycled Water Demand (gpd)	Recycled Water Demand (afy)
R-1, R-2 Residential 1du/ac and 2 du/ac* YVWD	61.2	108	300	32,412	36	700	75,628	85
R-1, R-2 Residential 1du/ac and 2 du/ac* WHMWC	58.5	117	1000	116,960	131	0	0	0
R-2, R-4, R-8, and R-24 ** YVWD	290.1	1,861	280	521,203	584	420	781,805	876
R-2, R-4, R-8, and R-24 ** WHMWC	14.9	359	700	250,992	281	0	0	0
Open Space	-	2	280	560	1	420	840	1
SUBTOTAL	424.7	2,447	-	922,127	1,033	-	858,273	961

Source: YVWD Design Criteria for Potable Water Distribution Systems

* The rate for "Single Family Units with Lots More than 20,000 Square Feet" is used here.

** Units within R-4, R-8, and R-24 zones are assumed to be on lots less than 20,000 SF and use the corresponding YVWD water rate. Additionally, Residential R-8, R-24 allow low-scale multifamily units, however for a conservative analysis all units are considered single-family units. Therefore the potable demand rate for "Single Family Units with Lots Less than 20,000 Square Feet" is used for these land use categories.

Regional Commercial (RC)	Acres	SQFT	Potable Water Demand Rate (gpd/acre)*	Potable Water Demand (gpd)	Potable Water Demand (afy)	Recycled Water Demand Rate (gpd/acre)*	Recycled Water Demand (gpd)	Recycled Water Demand (afy)
YVWD Service Area	138.6	-	1,600	221,792	248	400	55,448	62
SMMWC Service Area	29.0	-	2,000	58,000	65	0	0	0
WHMWC Service Area	4.4	-	2,000	8,760	10	0	0	0
SUBTOTAL	172.0	-	1,600	288,552	323	400	55,448	62

Source: YVWD Design Criteria for Potable Water Distribution Systems

*The "Light Commercial" demand rates are used for the RC land use.

Business Park (BP)	Acres	SQFT	Potable Water Demand Rate (gpd/acre)*	Potable Water Demand (gpd)	Potable Water Demand (afy)	Recycled Water Demand Rate (gpd/acre)*	Recycled Water Demand (gpd)	Recycled Water Demand (afy)
YVWD Service Area	25.7	1,206,042	1600	41,120	46	400	10,280	12

*The "Light Commercial" demand rates are used for the RC land use.

Streetscapes and Open Space Slopes	Acres	SQFT	Potable Water Demand Rate (gpd/acre)*	Potable Water Demand (gpd)	Potable Water Demand (afy)	Recycled Water Demand Rate (gpd/acre)*	Recycled Water Demand (gpd)	Recycled Water Demand (afy)
10% of outdoor water demand	-	-	-	24,582	28	-	92,400	104
Net Increase Approved vs Proposed								
TOTAL	-	-	-	1,276,381	**1,430**	-	1,016,401	**1,139**
Net Difference Proposed vs. Approved	-	-	-	315,851	**354**	-	-171,997	**-193**

Approved Yucaipa FCSP Sewer Demand Calculations

Land Use	Unit	Sewer Demand Factor (gpd/DU)	Sewer Demand (gpd)	Sewer Demand (afy)
Residential Units w/ Lots >= 20,000 SF (DU)	225	250	56,250	63
Residential Units w/ Lots < 20,000 SF (DU)	2,222	250	555,500	622
Total Residential	**2,447**	**-**	**611,750**	**685**

Source: YVWD Design Criteria for Sewer System Facilities

Note: gpd = Gallons per Day; DU = Dwelling Units

Land Use	Acres	Potable Water Demand Rate (gpd/Acre)	Sewer Demand (gpd)*	Sewer Demand (afy)
Regional Commercial Size	172.0	1,600	275,200	308.26
Business Park	25.7	1,600	41,120	46.06
Total	**197.7**	**-**	**316,320**	**354.32**

Source: YVWD Design Criteria for Sewer System Facilities

Note: gpd = Gallons per Day

** The YVWD Design Criteria for Sewer System Facilities states that Commercial and Industrial flows shall be determined on an individual basis. For this planning level analysis, 100% of indoor potable water demands are assumed to be discharged to the sewer system.*

Summary Table	
Total Sewer Demand (gpd)	**Total Sewer Demand (afy)**
928,070	**1,040**

FCSP Water Demand - Proposed Project

Planning Area (PA)	Acres	DU	Potable Water Demand Rate (gpd/dwelling unit)*	Potable Water Demand (gpd)	Potable Water Demand (afy)	Recycled Water Demand Rate (gpd/dwelling unit)*	Recycled Water Demand (gpd)	Recycled Water Demand (afy)
PA 1**	10.7	21	700	14,700	16	0	0	0
PA 2**	10.3	41	700	28,700	32	0	0	0
PA 3**	9.1	109	700	76,300	85	0	0	0
PA 4**	14.1	112	700	78,400	88	0	0	0
PA 5**	8.9	213	700	149,100	167	0	0	0
PA 6**	11.0	264	700	184,800	207	0	0	0
PA 7**	5.6	134	700	93,800	105	0	0	0
PA 8	4.1	98	280	27,440	31	420	41,160	46
PA 9	3.8	91	280	25,480	29	420	38,220	43
PA 10	35.2	211	280	59,080	66	420	88,620	99
PA 11	15.0	30	280	8,400	9	420	12,600	14
PA 12	3.9	15	280	4,200	5	420	6,300	7
PA 13	9.6	115	280	32,200	36	420	48,300	54
PA 14	4.3	103	280	28,840	32	420	43,260	48
PA 15	2.6	62	280	17,360	19	420	26,040	29
PA 16	14.3	57	280	15,960	18	420	23,940	27
PA 17	18.5	222	280	62,160	70	420	93,240	104
PA 18	4.1	32	280	8,960	10	420	13,440	15
PA 19	4.7	56	280	15,680	18	420	23,520	26
PA 20	6.2	148	280	41,440	46	420	62,160	70
PA 21	3.2	38	280	10,640	12	420	15,960	18
PA 22	10.8	129	280	36,120	40	420	54,180	61
PA 23	11.3	135	280	37,800	42	420	56,700	64
PA 24	4.5	36	280	10,080	11	420	15,120	17
SUBTOTAL	225.8	2,472	-	1,067,640	1,196	-	662,760	742

Source: YVWD Design Criteria for Potable Water Distribution Systems

* Residential R-4 allows 2 to 4 dwelling units per acre. All the remaining residential land uses allow a higher density. Therefore, lot size are all considered to be less than 20,000 SF. Additionally, Residential R-8, R-12, and R-24 allow low-scale multifamily units, however for a conservative analysis all units are considered single-family units. Therefore the potable demand rate for "Single Family Units with Lots Less than 20,000 Square Feet" is used.

** This area is within the Western Heights Mutual Water Company's service are and no recycled water would be supplied.

Regional Commercial (RC)	Acres	SQFT	Potable Water Demand Rate (gpd/acre)*	Potable Water Demand (gpd)	Potable Water Demand (afy)	Recycled Water Demand Rate (gpd/acre)*	Recycled Water Demand (gpd)	Recycled Water Demand (afy)
C 1**	4.1	62,509	2,000	8,200	9	0	0	0
C 2	7.7	117,394	1,600	12,320	14	400	3,080	3
C 3	3.3	50,312	1,600	5,280	6	400	1,320	1
C 4	3.4	51,836	1,600	5,440	6	400	1,360	2
C 5	31.2	475,675	1,600	49,920	56	400	12,480	14
C 6	22.5	343,035	1,600	36,000	40	400	9,000	10
SUBTOTAL	72.2	1,100,761	-	117,160	131	-	27,240	31

Source: YVWD Design Criteria for Potable Water Distribution Systems

*The "Light Commercial" demand rates are used for the RC land use.

** This area is within the Western Heights Mutual Water Company's service are and no recycled water will be supplied.

Business Park (BP)	Acres	SQFT	Potable Water Demand Rate (gpd/acre)*	Potable Water Demand (gpd)	Potable Water Demand (afy)	Recycled Water Demand Rate (gpd/acre)*	Recycled Water Demand (gpd)	Recycled Water Demand (afy)
BP 1	37.4	814,572	1,600	59,840	67	400	14,960	17
BP 2	60.3	1,052,500	1,600	96,480	108	400	24,120	27
BP 3	71.3	1,001,500	1,600	114,080	128	400	28,520	32
BP 4	12.1	263,538	1,600	19,360	22	400	4,840	5
BP 5	13.0	283,140	1,600	20,800	23	400	5,200	6
BP 6**	29.0	577,253	2,000	58,000	65	0	0	0
SUBTOTAL	223.1	3,992,503	-	368,560	413	-	77,640	87

Source: YVWD Design Criteria for Potable Water Distribution Systems

The "Light Commercial" demand rates are used for the BP land use. This rate is comparable to the rates used for this land use type in Addendum to the FCSP EIR for the County Line Warehouse Project and the 2007 FCSP WSA prepared by YVWD.

***This area is within the South Mesa Water Company's service are and no recycled water will be supplied.

Streetscapes and Open Space Slopes	Acres	SQFT	Potable Water Demand Rate (gpd/acre)*	Potable Water Demand (gpd)	Potable Water Demand (afy)	Recycled Water Demand Rate (gpd/acre)*	Recycled Water Demand (gpd)	Recycled Water Demand (afy)
10% of outdoor water demand	-	-	-	38,872	44	-	76,764	86
TOTAL**	521.1	-	-	1,592,232	**1,784**	-	844,404	**946**

FCSP Sewer Demand by Area for Residential, BP, and RC Land Uses - Proposed Project

Planning Area (PA)	Acres	DU	Sewer Demand Rate (gpd/dwelling unit)*	Sewer Demand (gpd)	Sewer Demand (afy)
PA 1	10.7	21	250	5,250	6
PA 2	10.3	41	250	10,250	11
PA 3	9.1	109	250	27,250	31
PA 4	14.1	112	250	28,000	31
PA 5**	8.9	213	250	53,250	60
PA 6**	11.0	264	250	66,000	74
PA 7**	5.6	134	250	33,500	38
PA 8	4.1	98	250	24,500	27
PA 9	3.8	91	250	22,750	25
PA 10	35.2	211	250	52,750	59
PA 11	15.0	30	250	7,500	8
PA 12	3.9	15	250	3,750	4
PA 13	9.6	115	250	28,750	32
PA 14	4.3	103	250	25,750	29
PA 15	2.6	62	250	15,500	17
PA 16	14.3	57	250	14,250	16
PA 17	18.5	222	250	55,500	62
PA 18	4.1	32	250	8,000	9
PA 19	4.7	56	250	14,000	16
PA 20	6.2	148	250	37,000	41
PA 21	3.2	38	250	9,500	11
PA 22	10.8	129	250	32,250	36
PA 23	11.3	135	250	33,750	38
PA 24	4.5	36	250	9,000	10
SUBTOTAL	225.8	2,472.0		618,000.0	692.2

Source: YVWD Design Criteria for Potable Water Distribution Systems

* Residential R-4 allows 2 to 4 dwelling units per acre. All the remaining residential land uses allow a higher density. Therefore, lot size are all considered to be less than 20,000 SF. Additionally, Residential R-8, R-12, and R-24 allow low-scale multifamily units, however for a conservative analysis all units are considered single-family units. Therefore the potable demand rate for "Single Family Units with Lots Less than 20,000 Square Feet" is used.

** This area is within the Western Heights Mutual Water Company's service are . The 2007 FCSP WSA assumed recycled water will be supplied by YVWD in this area.

Regional Commercial (RC)	Acres	SQFT	Potable Water Demand Rate (gpd/acre)*	Sewer Demand (gpd)	Sewer Demand (afy)
C 1**	4.1	62,509	1,600	6,560	7
C 2	7.7	117,394	1,600	12,320	14
C 3	3.3	50,312	1,600	5,280	6
C 4	3.4	51,836	1,600	5,440	6
C 5	31.2	475,675	1,600	49,920	56
C 6	22.5	343,035	1,600	36,000	40
SUBTOTAL	72.2	1,100,761	-	115,520	129

Source: YVWD Design Criteria for Potable Water Distribution Systems

*The "Light Commercial" demand rates are used for the RC land use.

** This area is within the Western Heights Mutual Water Company's service are . The 2007 FCSP WSA assumed recycled water will be supplied by YVWD in this area.

Business Park (BP)	Acres	SQFT	Potable Water Demand Rate (gpd/acre)*	Sewer Demand (gpd)	Sewer Demand (afy)
BP 1	37.4	814,572	1,600	59,840	67
BP 2	60.3	1,052,500	1,600	96,480	108
BP 3	71.3	1,001,500	1,600	114,080	128
BP 4	12.1	263,538	1,600	19,360	22
BP 5	13.0	283,140	1,600	20,800	23
BP 6	29.0	577,253	1,600	46,400	52
SUBTOTAL	223.1	3,992,503	-	356,960	400
TOTAL**	521.1	5,095,737		1,090,480	1,221

Source: YVWD Design Criteria for Potable Water Distribution Systems

* The "Light Commercial" demand rates are used for the BP land use. This rate is comparable to the rates used for this land use type in Addendum to the FCSP EIR for the County Line Warehouse Project and the 2007 FCSP WSA prepared by YVWD.

** Total of residential and non-residential sewer demands includes the sum of all Planning Areas (PAs), Regional Commercial (RC), and Buisness Park (BP)

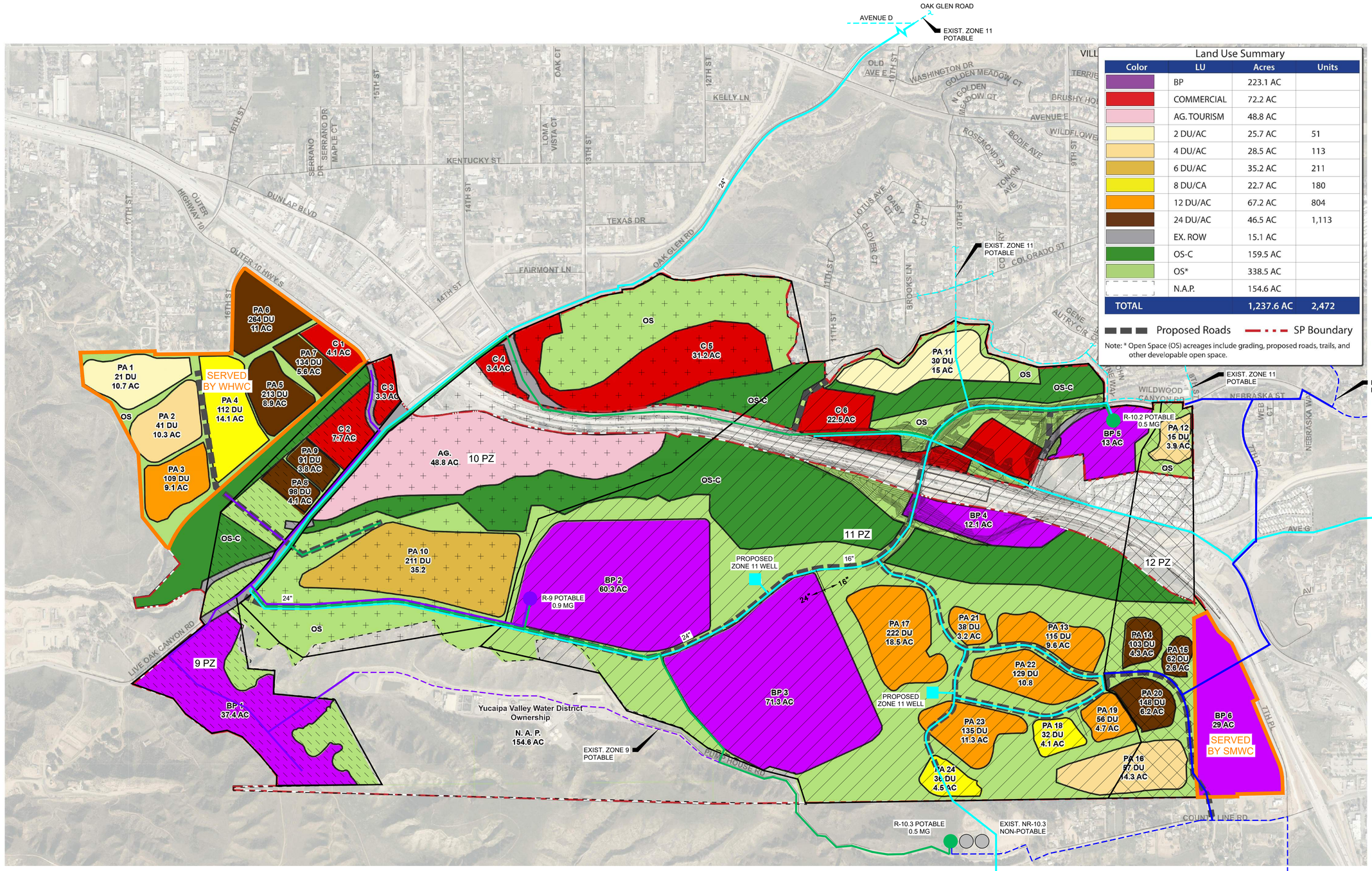
Appendix B: City of Yucaipa 2012 Master Plan of Drainage Update - Flow Rate Summary with Basins

TABLE 1
CITY OF YUCAIPA
Master Plan of Drainage (Ultimate Conditions)
Flow Rate Summary with BASINS

Basin Location			Unit Hydrograph (UH) without Basins			UH with Basins			
	Basin Capacity (ac-ft)	Node	Area (ac)	Tributary Area (ac)	Flow rate (cfs)	Tributary Area (ac)	Flow rate (cfs) - Upstream	Flow rate (cfs) - Downstream	Flow rate reduction per ac-ft
WILSON CREEK									
		3414	3883.3						
Pendleton	130	2852	4438.7	4438.7	6199	4438.7	6199		
Wilson – II/ Oak Glen	129[4]	2852	4438.7	4438.7	6199	4438.7	6199	4432	
Wilson - III	200	3021	3020.7	7459.4	9102	7459.4	6207	5287	
		3414	520.6	11863.3	11819	11863.3	-	-	
		3733	837.7	12701.0	11954	12701.0		8189	
Chicken Springs*[1]	35	3833A	1771.7	1771.7	2490	1771.7	2490	2266	
		3833		14472.7	12840	14472.7		9447	
		4517	1320.0	16379.9	13690	16379.9		10029	
		5524A	387.9	16767.8	13650	16767.8		10121	
YUCAIPA CREEK									
Yucaipa - 3	45	6324	1829.2	1829.2	2307	1829.2	2307	1826	11.2
		6425	370.6	2199.8	2349	2199.8	1902	1902[2]	
WILDWOOD CREEK									
Wildwood – 4*	25	6911	772.8	772.8	1394	772.8	1394	1028	14.7
		7234	3800.4	4573.2	6070	4573.2		5706	
Wildwood - 3	78	7416	382.6	4955.8	6218	4955.8	5838	4878	12.3
		7722	402.7	5358.5	6405	5358.5		4958	
Wildwood – 2a[3]	20[5]	7821A		5358.5	6299	5358.5	4937	4000	46.9
Wildwood – 2b[3]	35[5]	7821B		5358.5	6299	5358.5	4000	3450	15.7
		8025	621.0	5979.5	6647	5979.5		4127	
Wildwood - 1	50[5]	311A	243.2	6221.3	6660	6221.3	4243	3350	17.9
	Confluence w/Yucaipa Creek	8311		8422.5	7970	8422.5		4943	
		8611	92.0	92.0	172	92.0		172	
		8612	1141.0	1233.0	1447	1233.0		1233	
		5524B	143.3	9801.5	8619	9801.5		5694	
CONFLUENCE POINT	**5524**			**26565.1**	**17773**	**26565.1**		**14191**	

Note:
1. Existing downstream capacity is 1,900 cfs.
2. Existing downstream capacity at I-10 freeway crossing is 3,200 cfs.
3. Existing downstream capacity at I-10 freeway crossing is 3,200 cfs.
4. Modeled in SWMM
5. Basins were modeled as flow-by.
6. Dunlap 2(A) and 2(B) have a total capacity of approximately 50 ac-ft.

Appendix C: Yucaipa Valley Water District Water Infrastructure Backbone Plan



Land Use Summary

Color	LU	Acres	Units
	BP	223.1 AC	
	COMMERCIAL	72.2 AC	
	AG. TOURISM	48.8 AC	
	2 DU/AC	25.7 AC	51
	4 DU/AC	28.5 AC	113
	6 DU/AC	35.2 AC	211
	8 DU/CA	22.7 AC	180
	12 DU/AC	67.2 AC	804
	24 DU/AC	46.5 AC	1,113
	EX. ROW	15.1 AC	
	OS-C	159.5 AC	
	OS*	338.5 AC	
	N.A.P.	154.6 AC	
TOTAL		1,237.6 AC	2,472

Proposed Roads — SP Boundary

Note: * Open Space (OS) acreages include grading, proposed roads, trails, and other developable open space.

SCALE: 1"=500'

PRESSURE ZONE AND SYMBOL LEGEND:

- ZONE 9
- ZONE 10
- ZONE 11
- ZONE 12
- PROPOSED ZONE 9 POTABLE 16" WATERLINE
- PROPOSED ZONE 10 POTABLE 16" WATERLINE
- PROPOSED ZONE 11 POTABLE 16" WATERLINE, UNLESS NOTED OTHERWISE
- PROPOSED ZONE 12 POTABLE 16" WATERLINE
- EXISTING WATERLINE
- TYPICAL TANK
- TYPICAL WELL
- TYPICAL BOOSTER PUMPING PLANT

R-9	HWL = 2180'± P.E. = 2150'±	HIGHEST PAD SERVED = 2034' LOWEST PAD SERVED = 1891'
R-10	HWL = 2320'± P.E. = 2290'±	HIGHEST PAD SERVED = 2174' LOWEST PAD SERVED = 2031'
R-11	HWL = 2463'± P.E. = 2433'±	HIGHEST PAD SERVED = 2320' LOWEST PAD SERVED = 2174'
R-12	HWL = 2600' P.E. = 2570'±	HIGHEST PAD SERVED = 2455' LOWEST PAD SERVED = 2311'

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YUCAIPA VALLEY WATER DISTRICT

FREEWAY CORRIDOR SPECIFIC PLAN

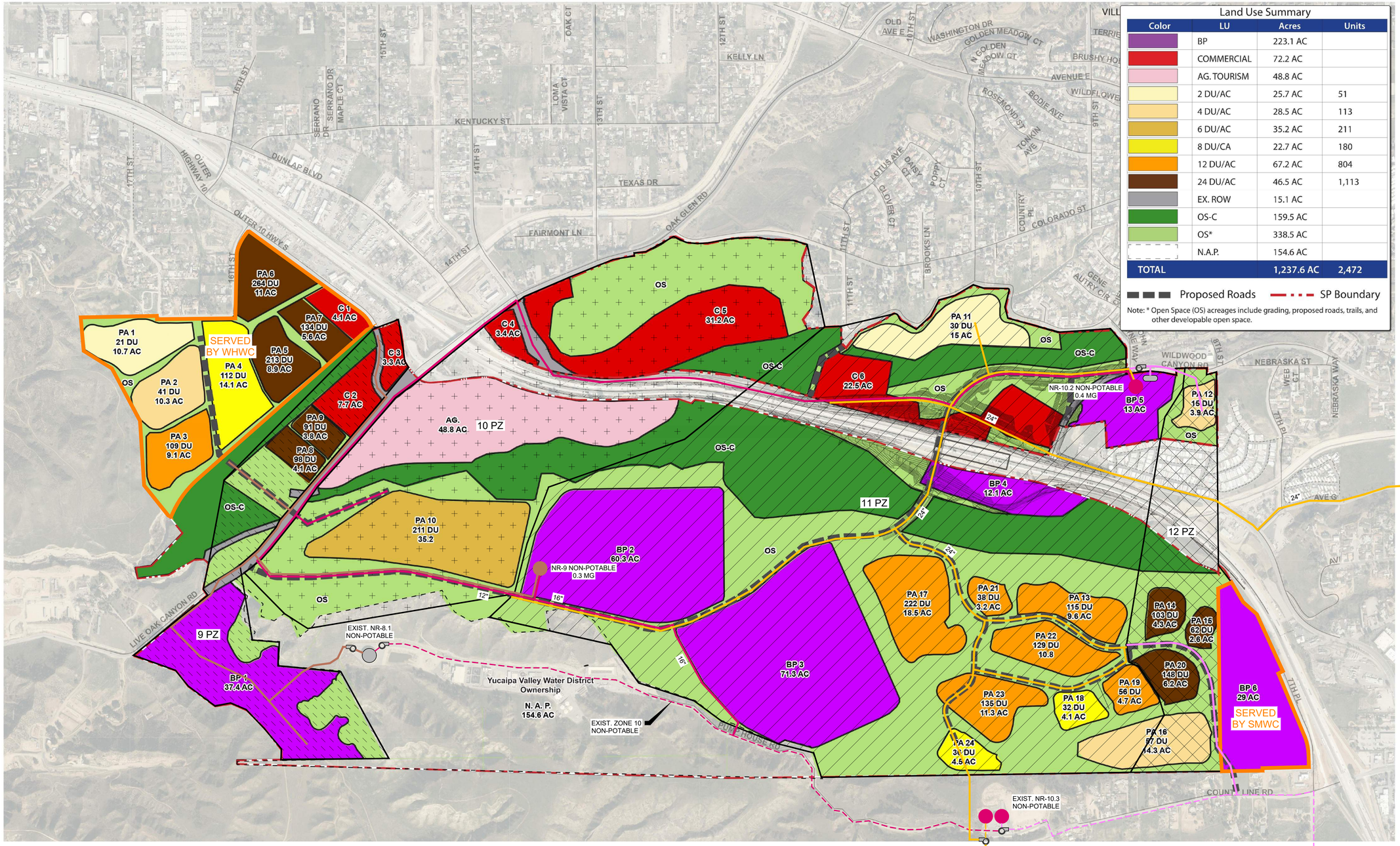
POTABLE WATER INFRASTRUCTURE

FIGURE A-1

SCALE: 1"=500' DATE: 11/09/23 DRAWN BY: TMW CHECKED BY: NRW W.O.: 818-42

DWG. NO.: 818-42-fig-e1 FILE NO.: 818-42 UPDATE BY: TMW PROJ. ENG.: NRW PLOT DATE: 11/09/23 PLOT TIME: 9:36AM PLOT SCALE: 1=1

DRAFT



PRESSURE ZONE AND SYMBOL LEGEND:

- ZONE 9
- ZONE 10
- ZONE 11
- ZONE 12
- PROPOSED ZONE 9 NON-POTABLE 12" WATERLINE
- PROPOSED ZONE 10 NON-POTABLE 12" WATERLINE UNLESS NOTED OTHERWISE
- PROPOSED ZONE 11 NON-POTABLE 12" WATERLINE UNLESS NOTED OTHERWISE
- PROPOSED ZONE 12 NON-POTABLE 12" WATERLINE
- EXISTING WATERLINE
- TYPICAL TANK
- TYPICAL WELL
- TYPICAL BOOSTER PUMPING PLANT
- TYPICAL HYDROPNEUMATIC TANK

R-9 HWL = 2180'± HIGHEST PAD SERVED = 2034'
P.E. = 2150'± LOWEST PAD SERVED = 1891'

R-10 HWL = 2320'± HIGHEST PAD SERVED = 2174'
P.E. = 2290'± LOWEST PAD SERVED = 2031'

R-11 HWL = 2463'± HIGHEST PAD SERVED = 2320'
P.E. = 2433'± LOWEST PAD SERVED = 2174'

R-12 HWL = 2600' HIGHEST PAD SERVED = 2455'
P.E. = 2570'± LOWEST PAD SERVED = 2311'

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YUCAIPA VALLEY WATER DISTRICT

FREEWAY CORRIDOR SPECIFIC PLAN

NON-POTABLE WATER INFRASTRUCTURE

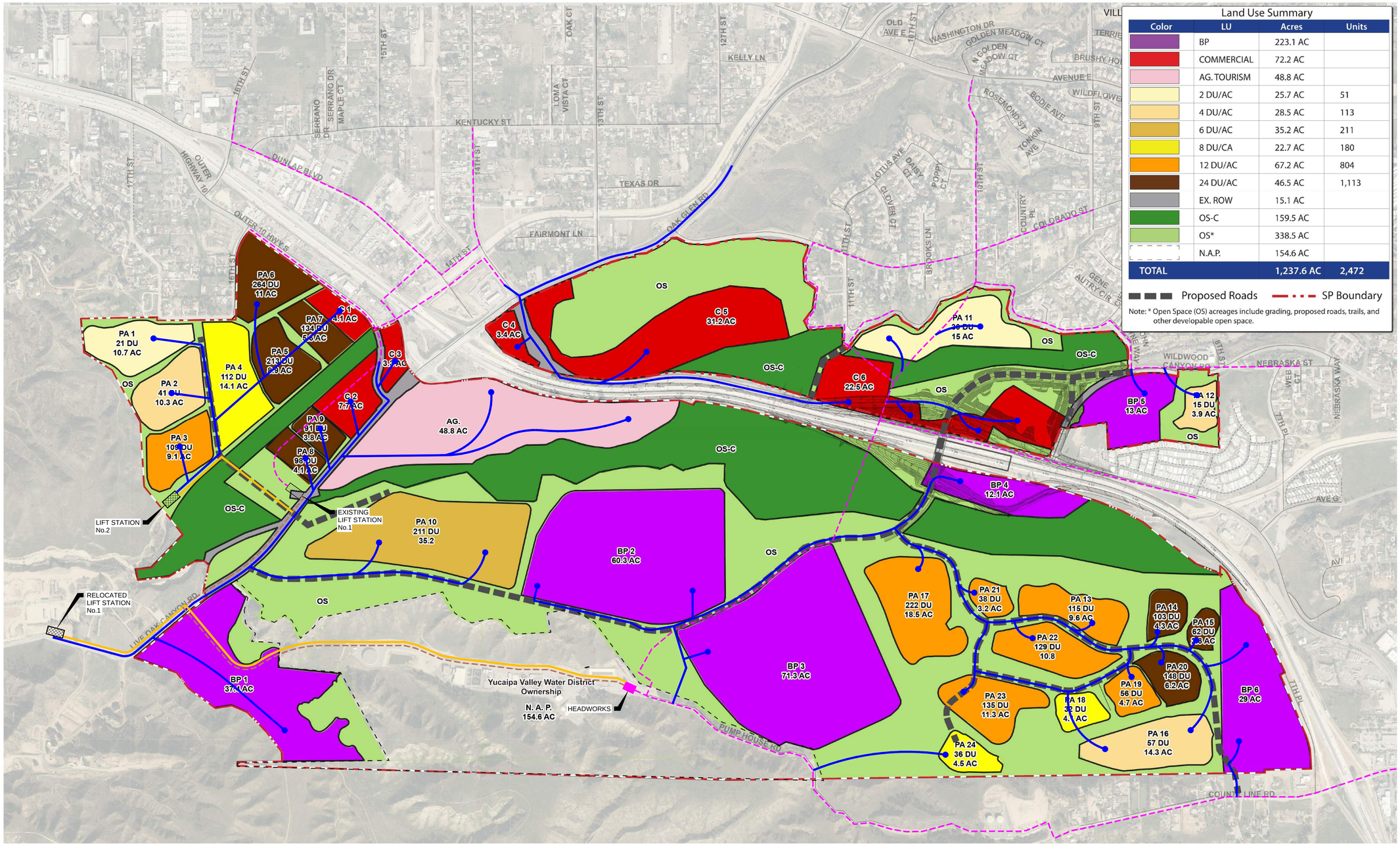
FIGURE A-2

SCALE: 1"=500' DATE: 11/09/23 DRAWN BY: TMW CHECKED BY: NRW W.O.: 818-42

DRAFT

DWG. NO.: 818-42-fig-a-2 FILE NO.: 818-42 UPDATE BY: TMW PROJ. ENG.: NRW PLOT DATE: 11/09/23 PLOT TIME: 9:35AM PLOT SCALE: 1=1

Appendix D: Yucaipa Valley Water District Sewer Infrastructure Backbone Plan



Land Use Summary

Color	LU	Acres	Units
	BP	223.1 AC	
	COMMERCIAL	72.2 AC	
	AG. TOURISM	48.8 AC	
	2 DU/AC	25.7 AC	51
	4 DU/AC	28.5 AC	113
	6 DU/AC	35.2 AC	211
	8 DU/CA	22.7 AC	180
	12 DU/AC	67.2 AC	804
	24 DU/AC	46.5 AC	1,113
	EX. ROW	15.1 AC	
	OS-C	159.5 AC	
	OS*	338.5 AC	
	N.A.P.	154.6 AC	
TOTAL		1,237.6 AC	2,472

Proposed Roads — SP Boundary

Note: * Open Space (OS) acreages include grading, proposed roads, trails, and other developable open space.

SCALE: 1"=500'

LEGEND:

- PROPOSED GRAVITY SEWER
- PROPOSED SEWER FORCE MAIN
- EXISTING GRAVITY SEWER
- EXISTING SEWER FORCE MAIN
- EXISTING LIFT STATION
- PROPOSED LIFT STATION

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YUCAIPA VALLEY WATER DISTRICT

FREEWAY CORRIDOR SPECIFIC PLAN

BACKBONE SEWER

FIGURE B

SCALE: 1"=500' DATE: 12/19/23 DRAWN BY: TMW CHECKED BY: NRW W.O.: 818-42

DRAFT

DWG. NO.: 818-42_fig_b FILE NO.: 818-42 UPDATE BY: TMW PROJ. ENG.: NRW PLOT DATE: 12/19/23 PLOT TIME: 1:06PM PLOT SCALE: 1=1