Appendix H Infrastructure Report for Hydrology, Sewer, Water, and Water Quality

Appendices

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CITY OF YUCAIPA

WINE COUNTRY SPECIFIC PLAN

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

CITY OF YUCAIPA
SAN BERNARDINO COUNTY, CALIFORNIA

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DATE PREPARED: JANUARY 19, 2023

TABLE OF CONTENTS

List of Figures

List of Tables

1 YUCAIPA VALLEY WINE COUNTRY SPECIFIC PLAN INFRASTRUCTURE CEQA TECHNICAL REPORT

1.1 Introduction

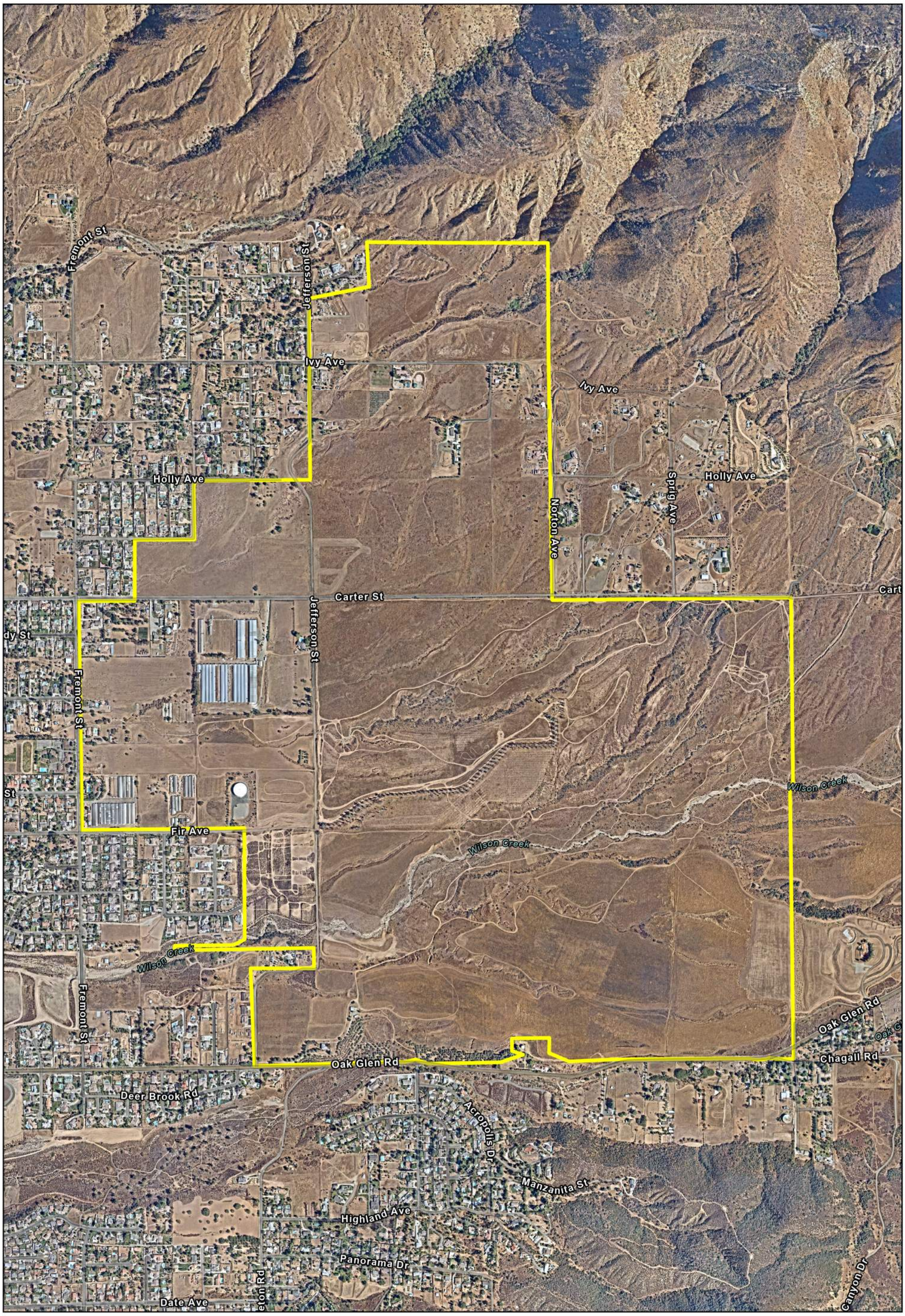
The City of Yucaipa ("City") is currently proposing a Wine Country Specific Plan (WCSP) which is intended to shape development in the eastern portion of the City over the next 30-plus years. The WCSP proposes to subdivide the predominately vacant land into lots (i.e. residential) and non-residential areas (i.e. vineyards, trails, open space).

Currently, the proposed project site is 1,093.6 acres of undeveloped land. The WCSP proposes to split the land uses 50/50, with 547.4 acres for residential and 546.2 acres for non-residential. Residential uses acreage would be split between two types of units, Villas and Estates. The Villas would have a build out density of 2 to 3 dwelling units per acres (DU/ac.), covering 315 acres; the Estates would have a build out density of 2 DU/ac., covering 232.4 acres. A maximum of 1,091 residential uses with a minimum net lot size of 10,000 square feet (SF), would be allowed in the project area, which is consistent with the 2016 Yucaipa General Plan. Within the non-residential areas, a natural creek exists (Wilson Creek), and a buffer will be established to maintain natural open space. The Wilson Creek buffer is approximately 75 acres. The remaining space will be used for wineries or vineyards. If wineries are developed, 75% of the lot will be designated for vineyards and 25% for winery facilities (i.e. retail, event venue, courtyards, landscaping, etc.). If solely vineyards are developed, 100% of the lot may be designated for vineyards. To help with estimating impacts of wineries on water, sewer and drainage conditions, the WCSP anticipates a total of 26 wineries including 12 micro-wineries (min 2.5 acres), 10 artisan wineries (min 5 acres) and 4 boutique wineries (min 10 acres).

A residential subdivision project, Wilson Creek Estates Wine Country Subdivision Project (TTM 20567), has been submitted and is within the WCSP project area. The project is consistent with the WCSP criteria and is located in the southern portion of the project area, south of Wilson Creek. Although this project is still within the early design phase, relevant analyses have been conducted and are further discussed in this report.

This report analyzes the infrastructure systems that will serve the WCSP 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 General Plan land uses versus the proposed WCSP land uses. Any significant impacts will be identified by analyzing the CEQA thresholds of significance as they relate to storm drain, water, sewer and water quality. The analysis also includes the

utilization of existing infrastructure master plans, planning documents and ongoing communication with City staff and Yucaipa Valley Water District (District) staff. Figure 1 shows the Aerial Extent of the Wine Country Specific Plan, Figure 2 shows the Existing General Plan Land Uses and Figure 3 shows the Proposed Land Uses for WCSP.



Aerial Date: 08/29/2022

Aerial Extent for Wine Country Specific Plan

Figure 1

12/1/2022

Yucaipa, Ca

FUSCOE ENGINEERING
full circle thinking

Project Boundary

N

1 inch = 1,000 feet

0 1,000 2,000 Feet

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Fremont St
Jefferson St
Ivy Ave
Ivy Ave
Holly Ave
Holly Ave
Jocelyn Ln
Country Ridge Rd
Norton Ave
Sprig Ave
Carter St
Cart
dy St
Jefferson St
Fremont St
Balsa St
St
Fir Ave
Plum View Ln
Deer Valley Rd
Hawkridge Rd
Creekside Dr
Estacia Ln
Casa Vista St
Wilson Creek
Wilson Creek
Wilson Creek
Fremont St
Oak Glen Rd
Oak Glen Rd
Oak Gl
Chagall Rd
Deer Brook Rd
Acropolis Dr
Manzanita St
Highland Ave
Panorama Dr
eton Rd
Date Ave
Canyon Dr

Existing Land Use within Wine Country Specific Plan

Figure 2

1/18/2023

Yucaipa, Ca

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Full circle thinking

Project Boundary

Land Use Districts
- RL - Rural Residential (1 unit/acre)
- RS - Single Residential
- IN - Institutional
- OS - Open Space
- P - Park

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1 inch = 1,000 feet

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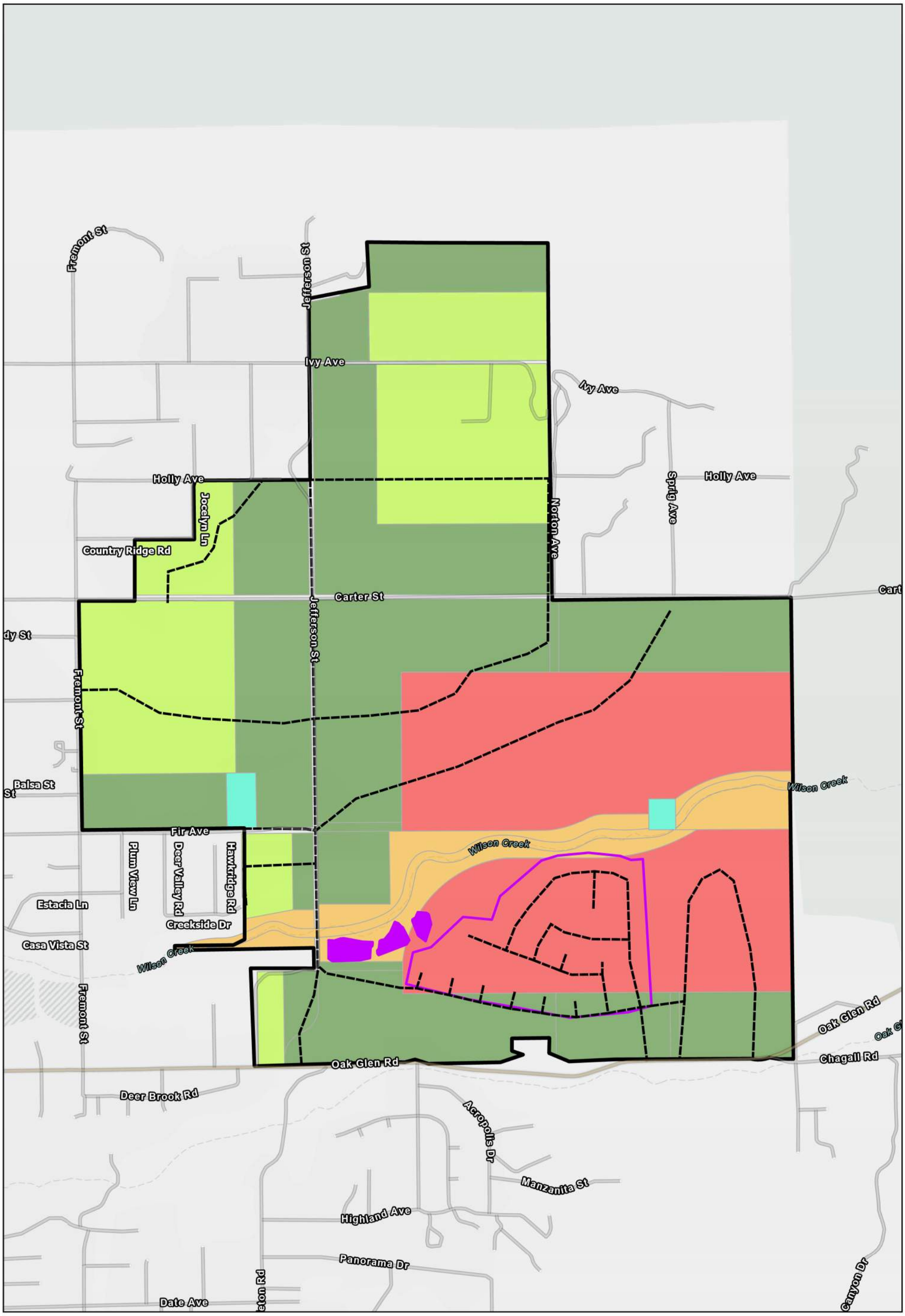

Wine Country Specific Plan Proposed Land Use

Figure 3

3/23/2023

Yucaipa, Ca

FUSCOE ENGINEERING
Full circle thinking

Proposed Land Use
- 10000 SF Residential
- Half Acre Residential
- Vineyards
- Wilson Creek and Associated Buffer
- Water District

- Project Boundary
- Wilson Creek Estates Wine Country Subdivision Project
- Detention/WQ Basins
- Proposed Streets

N

1 inch = 1,000 feet

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1.2 Water Systems

1.2.1 EXISTING WATER SYSTEM

Yucaipa's existing potable water system is managed by the Yucaipa Valley Water District ("District"). Providing potable water and sanitation services to a population of approximately 51,558, the District's boundaries encompass approximately 25,742 acres or 40 square miles, including the City of Yucaipa in San Bernardino County, and the City of Calimesa in Riverside County. The District's customer accounts include over 14,000 residential and commercial connections. The District 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).

Distribution pipelines within the District 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 Pipi, and Polyvinyl Chloride. Ductile Iron Pipe is used for the majority of the system.

The WCSP's project area is currently undeveloped and there is limited water infrastructure currently in place. However, potable water infrastructure exists all along the western boundary and southern boundary of the project area. An 8-inch polyvinyl chloride pipe runs along Carter Street near the eastern project boundary. A 24-inch and 16-inch ductile iron pipe is located north of Fir Avenue and east of Jefferson Street along with a water reservoir. 12" and 16" lines run north and south along Freemont St which a portion of the project abuts up against. A 12" line runs all along Oak Glen Road for the entirety of the WCSP limits. Figure 4 shows the existing water infrastructure adjacent to the WCSP project area.

1.2.2 EXISTING WATER CAPACITY ASSESSMENT AND WATER PLANNING

The 2002 Yucaipa Valley Water District 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 WCSP project area is currently undeveloped, the project area is not included in the District's WSMP.

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

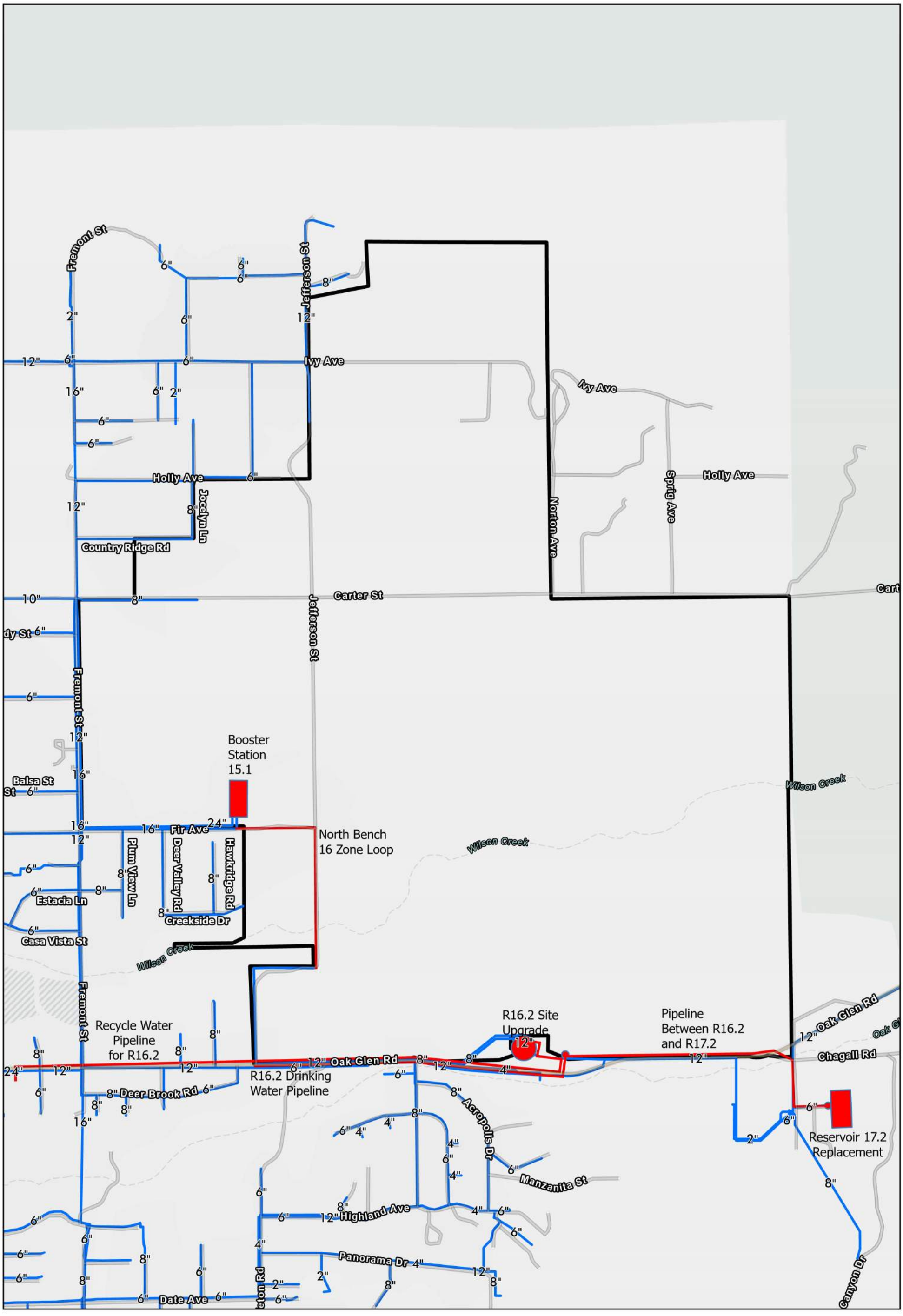
The District regularly updates their Capital Improvement Plan (CIP) project list[2] based on needed improvements to water infrastructure. Table 1 lists the projects adjacent to the WCSP project area.

Table 1 - Capital Improvement Projects Adjacent to WCSP

Project Name	Description	Projected Dates
Drinking Water Pipeline - R16.2	Supply pipeline for future R16.2.1 and R16.2.2	2022-23
Reservoir 16.2 Site Upgrade	Construction of 2 0.5 MG drinking water reservoirs, one recycled water reservoir, four drinking water boosters and two recycled water boosters	2022-23
North Bench 16 Zone Loop	Installation of 2,500 LF of 16" DIP in the 16 zone within Fir Ave. and Jefferson St.	2023-24
Recycled Water Pipeline for R16.2	Conveyance from RWR14.1 to future RWR16.2	2023-24
Booster Station 15.1	Repair the damaged booster at R15.1	2024-25
Reservoir 17.2 Replacement	Replacement and relocation of the drinking water reservoir 17.2 located south of Oak Glen Road	2025-26
Pipeline Between R16.2 and R17.2	Pipeline replacement	2027-28

The District 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. The District 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, the District'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 drinking water used at each house by more than 50%.

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



Wine Country Specific Plan Existing Water Facilities

Figure 4

1/11/2023

Yucaipa, Ca

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full circle thinking

Project Boundary
Water Mains
CIP Projects

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 project area is currently zoned as Rural Residential (RL-1) that allows a maximum housing density of 1 DU/ac. for a total of 1,091 residential units. The WCSP proposes to allow the same number of housing units at a higher density (2-4 DU/ac.) as compared to existing current zoning as well as develop wineries throughout the non-residential areas.

The following analysis compares the total potable water demands and recycled water demands between the current zoning versus the WCSP proposed land uses.

For the existing land use plan, water demands were calculated by reviewing the Average Day Demand (ADD) provided by the District. For potable water, the District estimates 300 gallons per day (GPD) to be used for single family units with lots greater than 20,000 SF which is consistent with RL-1 zoning. For recycled water, the District estimates 700 GPD[3] to be used for single family units with lots greater than 20,000 SF. The water demand factors were multiplied by 1,091 units, the maximum amount of residential units allowed under the current zoning code.

For the proposed land use, water demands were calculated by reviewing the District's ADD as well. Since the WCSP is proposing various housing densities (2-4 DU/ac.), the residential water demand calculations assumed that each single-family lot was less than 20,000 SF. For these single-family units, the District's water demand factors are 280 GPD for potable water and 420 GPD[4] for recycled water. These values were multiplied by 1,091 units proposed by the WCSP. These calculations account for the overall residential changes throughout the WCSP, by noting the changes between Single Family Residences (SFRs) lot sizing.

Table 2 contains the anticipated water flows and demands for the residential portion of the project area using the current and proposed zoning under the WCSP.

For proposed non-residential land uses, the WCSP is broken down into three different uses: parks, vineyards, and wineries. The WCSP estimates 12.6 acres of park area that would be irrigated using recycled water. Per the District's design standards for recycled water systems for parks and open space, the estimated water demand factor is 2,800 GPD per acre. For vineyards and wineries, the total water demand was calculated by Placeworks under their Water Supply and Demand Analysis for the WCSP. See Table 3 for total non-residential water demands.

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

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

[4] Email correspondence from Yucaipa Valley Water District

Table 2 - Residential Water Demands Under the WCSP

Land Use	DU	Potable Water Factor[5] (GPD/DU)	Total Potable Demand (GPD)	Total Potable Demand (AFY)	Recycled Water Factor[6] (GPD/DU)	Total Recycled Demand (GPD)	Total Recycled Demand (AFY)
Existing General Plan Land Use							
SFR	1,091	300	327,300	366.87	700	763,700	856.02
Proposed WCSP Land Use							
SFR	1,091	280	305,480	342.41	420	458,220	513.6

Table 3 - Non-Residential Water Demands Under the WCSP[7]

Land Use	Total Potable Demand (GPD)	Total Potable Demand (AFY)	Total Recycled Demand (GPD)	Total Recycled Demand (AFY)
Existing General Plan Use				
Non-Res.	--	--	--	--
Proposed WCSP Land Use				
Parks	--	--	35,239	39.5
Vineyards	--	--	732,277	820.8
Wineries	31,046	34.8	--	--
TOTAL	**31,046**	**34.8**	**768,073**	**860.3**

Table 4 - Total Potable Water Demands Under the WCSP

Water Type	GPD	AFY
Existing General Plan Land Use Potable Water Demand	327,300	366.87
Proposed WCSP Potable Water Demand	336,526	377.2
Total Water Demand Change		
Potable Water Demand Change	+9,226	+10.3

Table 5 - Total Recycled Water Demand Under the WCSP

Water Type	GPD	AFY
Existing General Plan Land Use Recycled Water Demand	763,700	856.02
Proposed WCSP Recycled Water Demand	1,225,736	1,374
Total Water Demand Change		

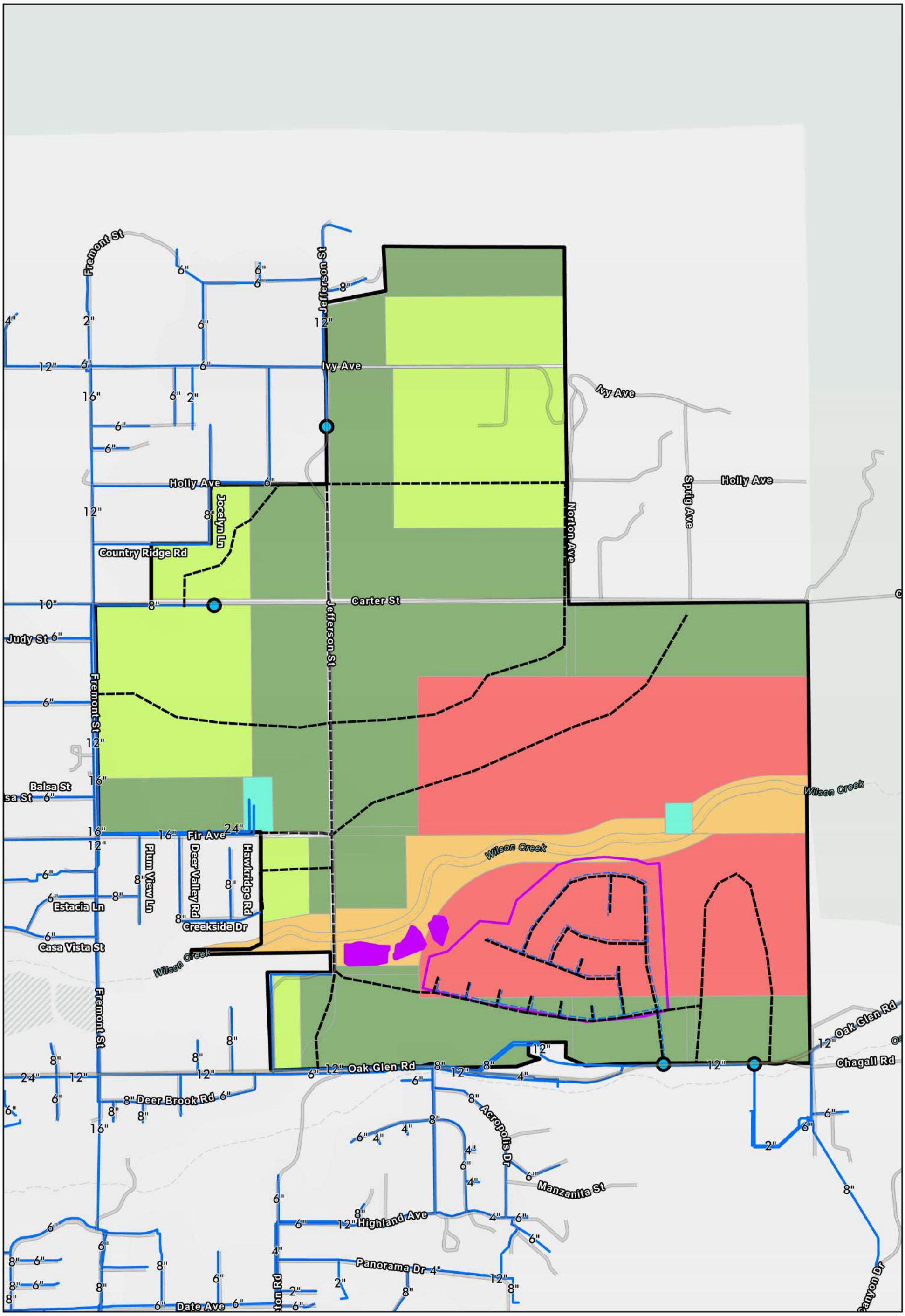
[5] Yucaipa Valley Water District, Design Criteria for Potable Water System Facilities for Single Family DU with lots greater than 20,000 square feet
[6] Yucaipa Valley Water District, Design Criteria for Recycled Water System Facilities for Single Family DU with lots greater than 20,000 square feet
[7] Water Demand totals provided by Placeworks Water Supply and Demand Analysis

Recycled Water Demand Change	+462,036	+517.8

As shown above, potable water flows/demands would increase over existing conditions by 336,526 GPD (377.2 AFY) and would increase by approximately 9,200 gallons per day (GPD) (10.3 AFY) when comparing the build out of WCSP against the existing General Plan. Recycled water flows/demands would increase by 1,225,736 GPD (1,374 AFY) over existing conditions and increase by approximately 462,032GPD (518 AFY) when comparing WCSP against the General Plan. This increase in flows may impact future water infrastructure systems as well as result in an increase in future water demands. A discussion regarding future infrastructure within the WCSP project area is provided below. Figure 5 below shows the proposed land uses as well as potential points of connection to existing water infrastructure and the District's CIP projects. Figure 5 also introduces the conceptual circulation pattern and roadway network proposed for WCSP although it is subject to change. It is anticipated that the majority of the public improvements for water will be implemented within the roadway right-of-way, but additional details are needed to show such improvements.

Figure 5 includes the projected boundary of the Wilson Creek Estates Wine Country Subdivision Project (TTM 20567) located in the southern portion of WCSP, south of Wilson Creek including their proposed detention basins which will serve to infiltrate stormwater runoff to the groundwater basin. This project is in the early conceptual stage but is far enough along to include the anticipated footprint and conceptual roadway alignment although it is still subject to change. Although the interior water lines are not shown, they are anticipated to follow the internal roadway alignment and be a looped system.

See Appendix A for a more detailed breakdown of the water demands throughout the project area.



Wine Country Specific Plan Proposed Water Exhibit

Figure 5

3/23/2023

Yucaipa, Ca

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full circle thinking

Proposed Land Use
- 10000 SF Residential
- Half Acre Residential
- Vineyards
- Wilson Creek and Associated Buffer
- Water District

- Water Mains
- Proposed Water Mains
- Possible Connection Points
- Wilson Creek Estates Wine Country Subdivision Project
- Detention/WQ Basins
- Proposed Streets
- Project Boundary

N

1 inch = 1,000 feet

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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 WCSP, the District has 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, grading plans, pad elevations, anticipated easements and public dedications, points of connection and anticipated water line alignments.

Once the documentation is complete, the District incorporates the water demands into the District's hydraulic model 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 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 WCSP is being evaluated at a programmatic level and there are no projects within the WCSP of sufficient detail to analyze at this point, site specific water infrastructure details and requirements are not known at this time. As projects consistent with WCSP land uses are submitted, detailed hydraulic analyses will occur to identify on-site and off-site improvements.

Although project specific requirements are not known at this time, projects within WCSP will be responsible for implementing water reservoirs, booster systems and off-site potable and recycled water lines to their specific projects within WCSP to bring water sources into the new service areas and ensure adequate pressure for fire flow protection. Additionally, for residential developments, 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 outside of the home. All projects will also be responsible for District's established criteria which includes but is not limited to the following:

- For potable water system facilities[8], 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[9], 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.

[8] Yucaipa Valley Water District Design Criteria for Potable Water Facilities
[9] Yucaipa Valley Water District Design Criteria for Recycled Water Facilities

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 WCSP will require the construction of new water infrastructure on-site and off-site as a result of the project area being undeveloped under the current condition. Off-site infrastructure includes new potable and recycled water lines and pumps. On-site infrastructure includes new 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. For the Wilson Creek Estates Wine Country Subdivision Project, the point of connection for water will be off Oak Glen Road. While other points of connection are not known at this time, potential opportunities occur along Carter Street and Jefferson Street and are noted in Figure 5.

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 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.

1.2.6 CONCLUSIONS

As identified in Section 1.2.4 , water infrastructure improvement projects will need to take place as the residential and vineyard projects within WCSP occur. The District has 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

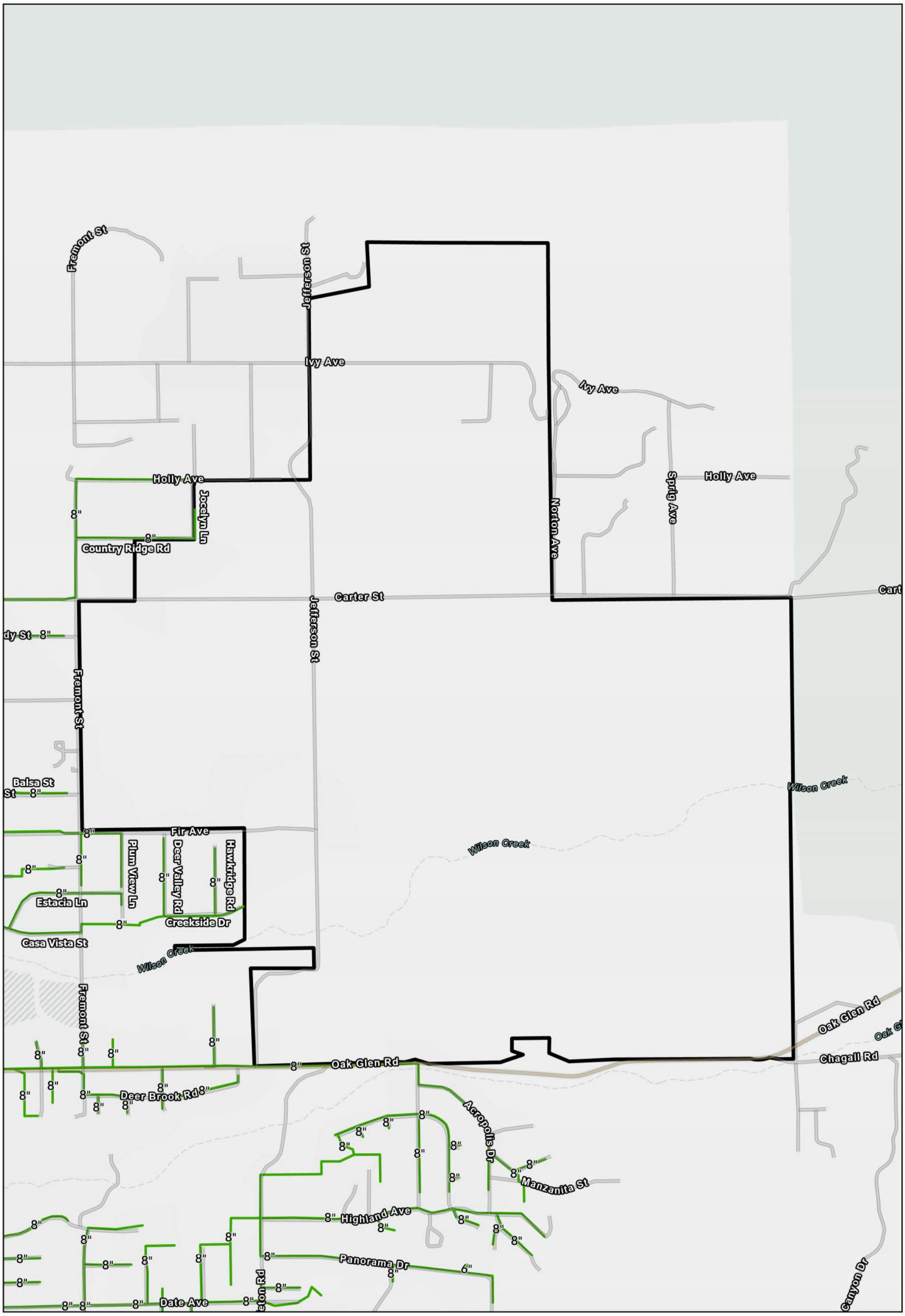
The sewer system in the City is maintained by the District. The sewer system within the City consists of five sewer pump stations and associated force mains, one wastewater treatment plant, standard and trunk manholes, and approximately 213-mile network of gravity sewer pipes ranging from 6 inches to 24 inches in diameter. Most of the District's sewer network consists of pipes that are 8 to 12 inches in diameter.

As previously noted, the WCSP project area contains undeveloped land which does not include any sewer infrastructure within the project's limits. However, sewer infrastructure does exist along the western boundary of the project's limits along Jocelyn Lane, Country Ridge Road, and Fir Avenue. A portion of Oak Glen Road also contains sewer infrastructure along the south-east project boundary. All sewer lines adjacent to the project area are 8-inch lines.

1.3.2 EXISTING SEWER CAPACITY ASSESSMENT

The District owns and operates one wastewater treatment plant, the Wochholz Regional Water Recycling Facility with a capacity of 8.0 million gallons per day (MGD), and the tertiary effluent produced meets criteria for California Title 22[10] reuse. The District produces 4,000 acre-feet of Title 22 recycled water annually. The Wochholz 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, the District treated 4,237 AFY or approximately 3.8 MGD[13]. Therefore, the treatment plant has a current capacity of 4.2 MGD.

[10] 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



Wine Country Specific Plan Existing Sewer Facilities — **Figure 6**

1/11/2023

Yucaipa, Ca

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Project Boundary

Sewer Mains

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 as Rural Residential (RL-1) that allows a maximum housing density of 1 DU/ac. for a total of 1,091 residential units. The WCSP proposes to allow housing at a higher density (2-4 DU/ac.) and smaller footprint while maintaining the same number of total units allowed to provide opportunities to develop vineyards and wineries throughout the non-residential areas. The following analysis compares the total sewer water demands between the current zoning versus the WCSP proposed land uses.

For the existing land use plan, the District requires a demand factor of 250 GPD/DU and this factor does not change based on the density. The sewer demand factors were multiplied by 1,091 units, the maximum amount of residential units allowed under the current zoning code. The proposed sewer demand is the same for the existing land use plan and the proposed residential component of the WCSP.

In addition to sewer demands associated with residential development, there are also sewer demands associated with the winery component of the WCSP. For non-residential uses, the WCSP proposes to implement wineries throughout the project area. Winery facilities are expected to occupy a total of 120 acres of the project area of which 75% of the winery must be dedicated to vineyards. The District does not have water or sewer demand factors for winery facilities so a detailed analysis of water demands was prepared by Placeworks. This report assumes that the sewer demands are equal to the potable water demand associated with wineries. All potable water demands are assumed to be discharged to the District's sewer system to be conservative. The total potable indoor water demand and sewer demand for wineries is 31,046 GPD or 34.8 AFY. The total sewer demand includes the estimated processed water generated from wineries that is discharged to the sewer system and is further discussed below.

In addition to sewer demands from the wineries, there is also processed water generated from the wine making process that must be disposed of properly. Winery operators have two options for disposal; discharge processed water to the District's sewer system or treat onsite using water treatment systems in ponds or other means. If the first option is selected, the winery must meet the District's current and future local limits for pre-treatment control to the District's wastewater treatment plant. If the latter option is selected, the site is subject to the guidelines set forth by the California State Water Resources Control Board General Waste Discharge Requirements for Winery Process Water (Winery Order)[11]. If the Winery pursues reusing processed water for onsite irrigation, it must meet the standard set forth by the Santa Ana Regional Water Quality Control Board within their Basin Plan which requires a total dissolved solids level of 330 mg/l for water in the Yucaipa Basin. If the Winery selects to treat processed water onsite, it will decrease it's sewer discharge to the District's sewer system. In order to provide a conservative estimate of sewer demands, it is assumed that all wastewater generated by the winery is discharged into the sewer system and is accounted for in the sewer demand summary.

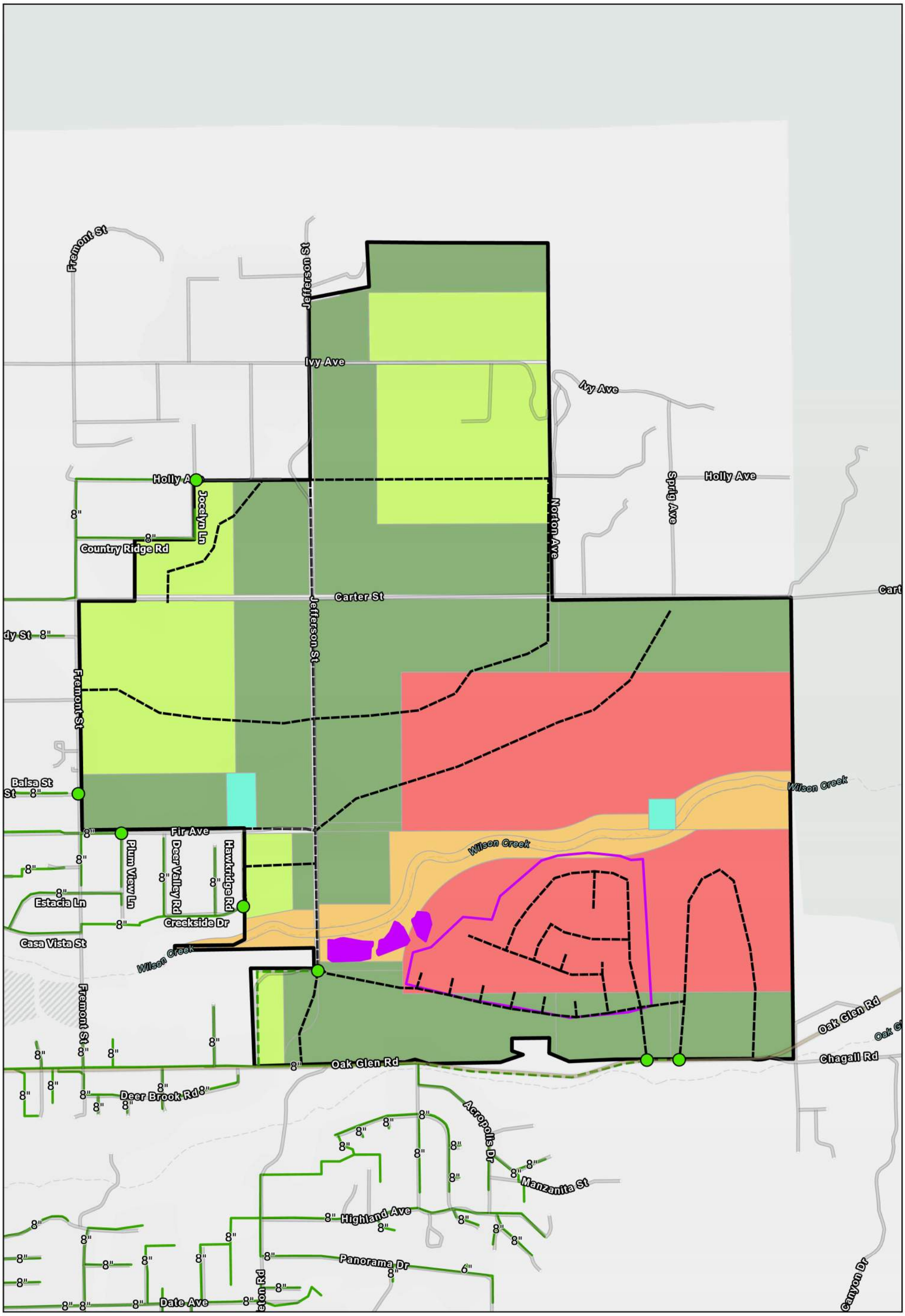
[11] California State Water Resources Control Board, General Waste Discharge Requirements for Winery Process Water. Found here: https://www.waterboards.ca.gov/water_issues/programs/waste_discharge_requirements/winery_order.html

Table 6 provides a summary of the proposed sewer demands. See Appendix A for a breakdown of the sewer demands throughout the project area.

Table 6 - Total Sewer Demand Under the WCSP

Land Use	Total Sewer Demand (GPD)	Total Sewer Demand (MGD)	Total Sewer Demand (AFY)
Existing General Plan Land Use			
Residential	272,750	0.23	305.7
Non-Res.	--		--
TOTAL	272,750	0.23	305.7
Proposed WCSP Land Use			
Residential	272,750	0.23	305.7
Wineries	31,046	0.03	34.8
TOTAL	303,796	0.26	340.5.
Total Sewer Demand Change from Existing GP to WCSP	+31,046	+0.03	+34.8

As shown above, implementation of the WCSP would increase sewer flows by a total of 303,796 GPD (.303 MGD) MGD over existing conditions and by 31,046 GPD or 0.031 MGD when compared against the existing General Plan land use. This increase in flows could impact sewer infrastructure system. An assessment of impacts to infrastructure is provided below. Figure 7 shows the proposed sewer conditions exhibit, potential points of connection and the Wilson Creek Estates Wine Country Subdivision Project footprint. Figure 7 also includes show the conceptual circulation pattern and roadway network proposed for WCSP although it is subject to change. It is anticipated that the majority of the public improvements for sewer will be implemented within the roadway right-of-way but additional details are needed to show such improvements.



Wine Country Specific Plan Proposed Sewer Exhibit

Figure 7

3/23/2023

Yucaipa, Ca

FUSCOE ENGINEERING
Full circle thinking

Proposed Land Use
- 10000 SF Residential
- Half Acre Residential
- Vineyards
- Wilson Creek and Associated Buffer
- Water District

- Wilson Creek Estates Wine Country Subdivision Project
- Detention/WQ Basins
- Proposed Streets
- Project Boundary
- Sewer Mains
- Potential Sewer Extension
- Possible Connection Points

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 WCSP, the District 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 water 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, the District incorporates the sewer demands into the District's 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 the District 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 WCSP is being evaluated at a programmatic level and there are no projects within the WCSP at a sufficient detail enough to analyze at this point, site specific sewer infrastructure details and requirements are not known at this time. As projects consistent with WCSP land uses are submitted, detailed hydraulic analyses will occur to identify on-site and off-site improvements.

The following design criteria for sewer lines will be followed:

- Existing pipes $\leq$ 12 inches in diameter: Pipes are to be ½ full at peak flow conditions.
- Existing pipes $\geq$ 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 WCSP area. There are currently no sewer system projects near the WCSP project area on the CIP list for the District[12].

At full buildout of the WCSP, sewer flows will increase by 0.303 MGD over existing conditions, and there is currently 4.2 MGD of treatment capacity available, as noted in the District's Urban Water Management Plan. Thus, there are no anticipated issues with treatment capacity of flows throughout the District.

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

1.3.5 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: As identified in Section 1.3.4, implementation of WCSP will require construction of new sewer infrastructure on-site and off-site as a result of the project area being 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 WCSP. For the Wilson Creek Estates Wine Country Subdivision Project, the point of connection is anticipated to be off Oak Glen Road although other options may exist such as Cherry Croft Drive/Jefferson St[13].

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.

- 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 increase in sewer flows of approximately .303 MGD 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. Therefore, the development anticipated under the

[13] Communication with District Staff on November 3, 2022. Conference Call.

WCSP will not exceed the available wastewater treatment capacity of the Wochholz Regional Water Recycling Facility.

1.3.6 CONCLUSIONS

New sewer infrastructure will be needed as the buildout of WCSP occurs and will be designed to current District standards while protecting existing sewer systems. Prior to new sewer systems being implemented, a full hydraulic analysis of the existing and proposed sewer systems is performed to identify any potential capacity impacts. There is adequate wastewater treatment capacity at the Wochholz Regional Water Recycling Facility to handle increased sewer flows as part of the WCSP. The District has a proactive process to track the condition of sewer infrastructure. This is conducted through established CIP projects and project-by-project review of required documentation, which results in no major constraints on future developments within the project area. 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 (implementation of concrete trapezoidal channels), and 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 (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 updates includes updated basin sizing for all interim and future detention basins. The Phase I Master Plan of Drainage (MPD) Update in July 2008 included updating the hydrology for the implementation of fourteen (14) constructed and proposed detention basins within the City's watershed boundary. The updated hydrology and hydraulics was approved by SBCFD in September 2008.

The Phase II MPD (January 2012) incorporated and revised the hydrology from the Phase I Update and provided new hydraulic calculations for the impacted drainage facilities within the City of Yucaipa watersheds. The updated calculations were also used to support updating the Yucaipa Drainage Impact Fees and a summary of the MPD analyses and basin layouts were integrated into a GIS database.

The Yucaipa MDP 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 creek including Wilson Creek in the northern region and Wildwood Creek in the southern region. The WCSP project occurs within the Wilson Creek watershed.

As part of the 2012Phase II MPD, hydraulic calculations were based on the 2008 MPD Update. A portion of the hydrology was updated to optimize the drainage facilities and account for updated future city development plans. As part of the update, an optimization study was performed for the Wilson Creek Watershed to maximize the proposed detention basins and channel facility. The study identified that integration of more upstream basins was not cost effective and that implementation of the Wilson III basin (currently proposed in 2008/2012 MPD) was still the most viable option for reducing flood flows. The study verified that full implementation of the proposed basins would result in a 20% reduction of flood flows at Yucaipa Blvd downstream of the project location. Other benefits included reduced sedimentation, groundwater recharge of natural stream flows, improved water quality, economic development opportunities and environmental restoration.

Phase IA Wilson III basin was completed in September 2021 and 1B is anticipated for completion in 2022/2023. The third and final phase is anticipated to begin in 2023 and will include a large lake at the downstream end of a series of basins that can hold up to 45 ac-ft of stormwater and help with groundwater recharge. A summary of the Master Plan of Drainage (2012 Phase II Update) in Table 7 demonstrates the effectiveness of existing and proposed basins. The sum of the existing and proposed basins will reduce peak flows within the Wilson Creek watershed by 32% at downstream Node 3733 for the 100-year storm event from 11,954 cfs to 8,189 cfs. Implementation of on-site basins within WCSP will further serve to enhance the effectiveness of the existing and proposed Wilson Creek series of basins.

Table 7 - 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
Wilson Creek								
Pendleton	130	2852	4438.7	4438.7	6199	4438.7	6199	
Wilson - II/Oak Glen	129	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	11819	11863	-	-
		3733	837.7	12701	11954	12701		8189

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.

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.
Under the undeveloped condition of the site, there is limited drainage facilities and improvements.

1.4.2 EXISTING DRAINAGE CONDITIONS

Under the existing condition, the site is undeveloped and there is limited drainage facilities and improvements. Based on the 2012 MPD, there are approximately thirteen (13) sub-drainage basins that cover the project area including on-site and off-site runoff. Flows originate off-site from the mountains to the east and drain in a southwesterly direction through the project site. The majority of flows are tributary to Wilson Creek which converges with Oak Glen Creek southwest of the project area. Oak Glen Creek then converges with Yucaipa Creek south of the I-10 Freeway. The northern portion of the site drains westerly towards Yucaipa Regional Park and then south before joining with Oak Glen Creek.

Table 8 - Wine Country Specific Plan Existing Sub-Drainage

Sub-Drainage Area	On-site (Ac)	Off-site (Ac)	Total Area (Ac)
08	227.3	306.1	533.442
09	156.9	334.8	491.715
10	0.7	27.5	28.249
11	163.6	46	209.615
19	3.7	233.1	236.797
20	41.6	2029.7	2071.348
21	124.4	15.7	140.139
22	110.1	8.9	119.044
23	127	0	127.017
25	0.1	3800	3799.824
26	34.1	329.1	363.243
27	25	125.9	150.945
Total	**1112**[14]	**7368.9**	**8481.011**

The table identifies approximately 8,481 total acres of drainage area in which approximately 1,112 acres exists onsite and 7,369 acres exists either upstream or downstream of the project area with the majority being upstream. The majority of the runoff is conveyed through naturally eroding channels and is ultimately directed towards a series of existing flood control basins along Wilson Creek owned and operated by San Bernardino County Flood Control District. The basins are collectively called the Wilson Basins and include four separate basins numbered 1 - 4 and include a fifth component downstream called the Wilson Creek Spreading Grounds to further promote groundwater infiltration. The basins serve to attenuate flood flows and recharge stormwater runoff to the groundwater basin.

Within the project limits, there is one natural channel identified in the MPD to be improved. The natural channel is located within sub-basin 11 and originates west of Jefferson St and drains directly west across Freemont Street and ends at Bryant Street. The segment is approximately 5,300 linear feet long and shows evidence of erosion and instability. Figure 8 shows the existing drainage boundaries.

[14] Includes the total acreage within the WCSP boundary and does not exclude any acreages

Area Name	On-Site	Off-Site	Total Area (Ac)
08	227.3	306.1	533.442
09	156.9	334.8	491.715
10	0.7	27.5	28.249
11	163.6	46	209.615
19	3.7	233.1	236.797
20	41.6	2029.7	2071.348
21	124.4	15.7	140.139
22	110.1	8.9	119.044
23	127	0	127.017
24	97.5	112.1	209.633
25	0.1	3800	3799.824
26	34.1	329.1	363.243
27	25	125.9	150.945
TOTAL	1112	7368.9	8481.011

Wine Country Specific Plan Existing Drainage Boundaries

Figure 8

12/13/2022

Yucaipa, CA

FUSCOE ENGINEERING full circle thinking

Flow Direction
Storm Channels
Project Boundary
Drainage Boundaries for 2012 MPD
Wilson Creek

N

1 inch = 2,500 feet

0 2,500 5,000 Feet

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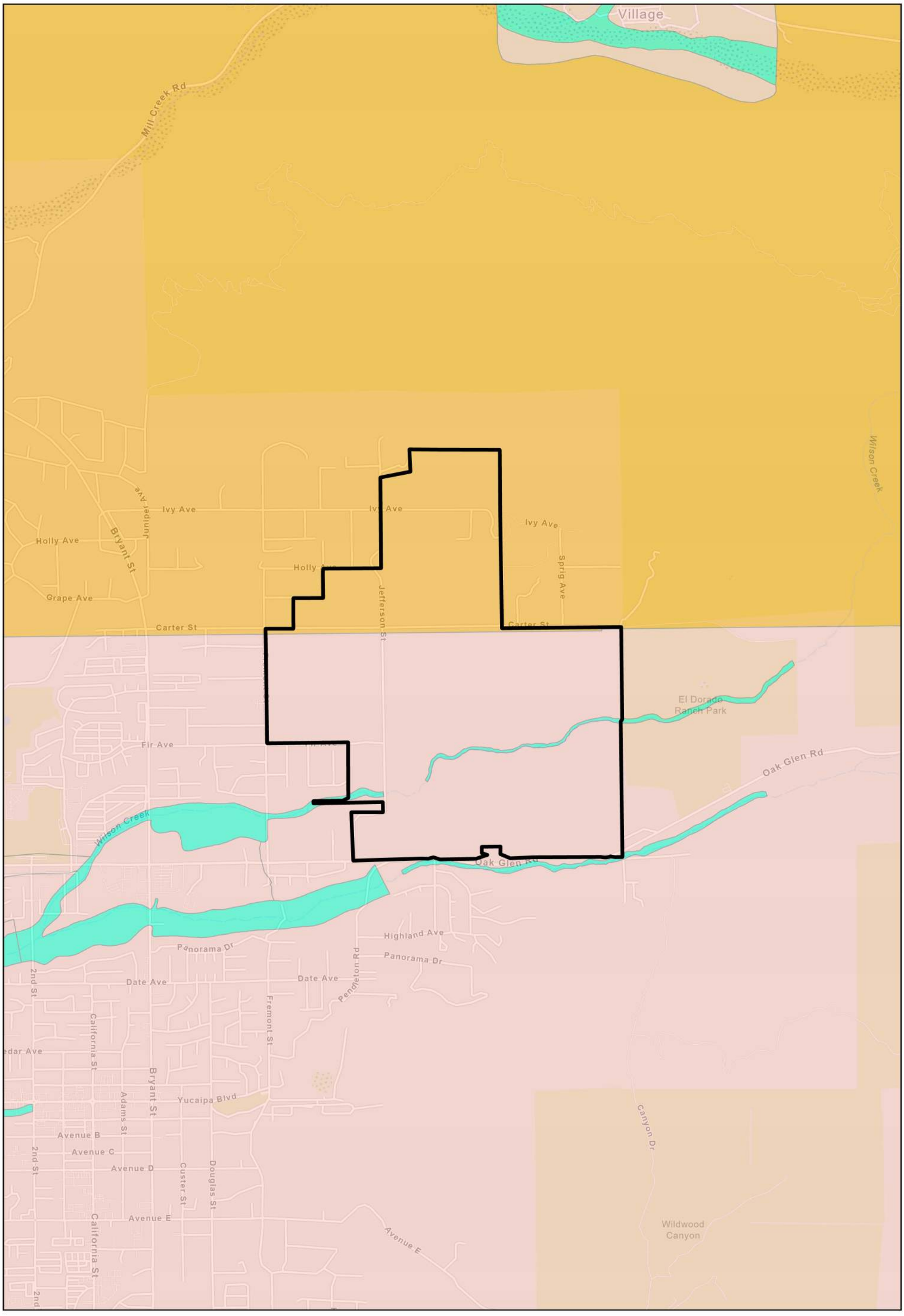
1.4.3 EXISTING FLOODPLAIN MAPPING

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 majority of the project are lies within Zone X (unshaded) which indicates an area of minimal flood hazard outside the 500-year flood plain. However, Wilson Creek runs in a southwesterly direction through the southern half of the site and is designated as Zone A. Zone A represents areas with a 1% annual chance of flooding and a 26% chance of flooding over the life of a 30-year mortgage. The northern portion of the project area is identified as Zone D that represents areas with possible but undetermined flood hazards. FEMA has not conducted a flood hazard analysis for this area.

Zone A shading 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 Wilson Creek. See Figure 9 for a map of the FEMA flood zones within the WCSP.



Wine Country Specific Plan FEMA Zones

Figure 9

1/11/2023

Yucaipa, Ca

FUSCOE ENGINEERING
Full circle thinking

- Project Boundary
- 100-Year FEMA Flood Boundary (Zone A)
- Areas with possible but undetermined flood hazards (Zone D)
- Area with minimal flood hazards and outside 500-year flood plain (Zone X)

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1 inch = 2,000 feet

0 2,000 4,000 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 WCSP. All projects within WCSP 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[15] (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 Best Management Practices (BMPs) in project planning and design is to 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.

[15] 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

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[16] (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 WCSP 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 WCSP. The comparison is helpful as potential runoff is directly related to the percent of impervious cover for various land uses, time of concentration and soil types. The soil types are the same for both the MPD and WCSP and time of concentrations are similar leaving the impervious cover as the key factor in evaluating changes in runoff between the existing General Plan use and the proposed WCSP.

Under the existing condition land use, the entire area is zoned for Rural Living (RL-1) which allows 1 unit to the acre. In accordance with the original 1993 Master Plan of Drainage and subsequent updates, the impervious ratio is identified as 20% or 0.2. Under WCSP, the zoning for residential will allow 2 units per acre for "Estates" and 4 units to the acre for "Villas" which have respective imperious ratios associated with each as identified in the 1993 MPD (0.3 & 0.4 respectively). In addition to the residential component, there will also be impervious cover associated with the proposed wineries and estimates are provided below.

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

Table 9 - Wine Country Specific Plan Total Impervious Area

Land Use	Area (acres)	Impervious Ratio	Total Impervious Area (acres)	Notes / References
Existing Condition General Plan Land Uses				
RL-1	1093	0.2	~219	1993 MPD
Proposed Condition WCSP Land Uses				
Estates	232.4	0.3	~70	1993 MPD
Villas	315	0.4	~126	1993 MPD
Wineries	30	0.5	~15	WCSP Chapter 4 Site Concepts
Total			~211	

The impervious condition analysis shows similar impervious conditions for the existing and proposed land uses associated with the WCSP and confirms the proposed condition will not significantly differ from the original assumptions in the 1993 MPD and the more recent updates.

It should be noted that higher impervious areas are likely to occur and can be dealt with at the project level. To confirm impervious area assumptions, an GIS infrared analysis was performed over two areas of the City where RL-1 zoning is currently built out as well as RS-20 (~4 units/acre) to determine impervious percent cover. Two built out RL-1 areas were also evaluated. The RL-1 sites ranged from 20-30% impervious while the RS-20 sites were approximately 40%. The analyses confirm the general impervious factors are consistent with the MPD although higher impervious ratios can occur and none of these analyses account for the roadway networks supporting the residential homes which can add 15-20%. Therefore, all development projects within WCSP should use detailed impervious calculations specific to the proposed site improvements including all roadway improvements versus generalized impervious assumptions. For example, the proposed Wilson Creek Estates Wine Country Subdivision Project assumes a 50% impervious condition which is higher than the generalized impervious assumption for this housing density. The 50% impervious ratio accounts for the roadway improvements and the hydrology analysis does as well.

All proposed developments within WCSP must conform to the 2012 MPD approved by the City of Yucaipa and the San Bernardino County Flood Control. In general, all major projects that occur with WCSP 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.

For example, the Wilson Creek Estates Wine Country Subdivision Project prepared a preliminary hydrology study. The proposed project occurs within sub-basin 22 of the MPD. Peak flow rates were determined for existing and proposed conditions for the 100-year, 24-hour storm event. The table below summarizes the impact of the three proposed detention basins to attenuate

flows. The runoff will be collected by the three basins to the west of the residential development. These basins will improve both water quality and flood attenuation.

Table 10 - Wilson Creek Estates Wine Country Subdivision Project Hydrology Summary

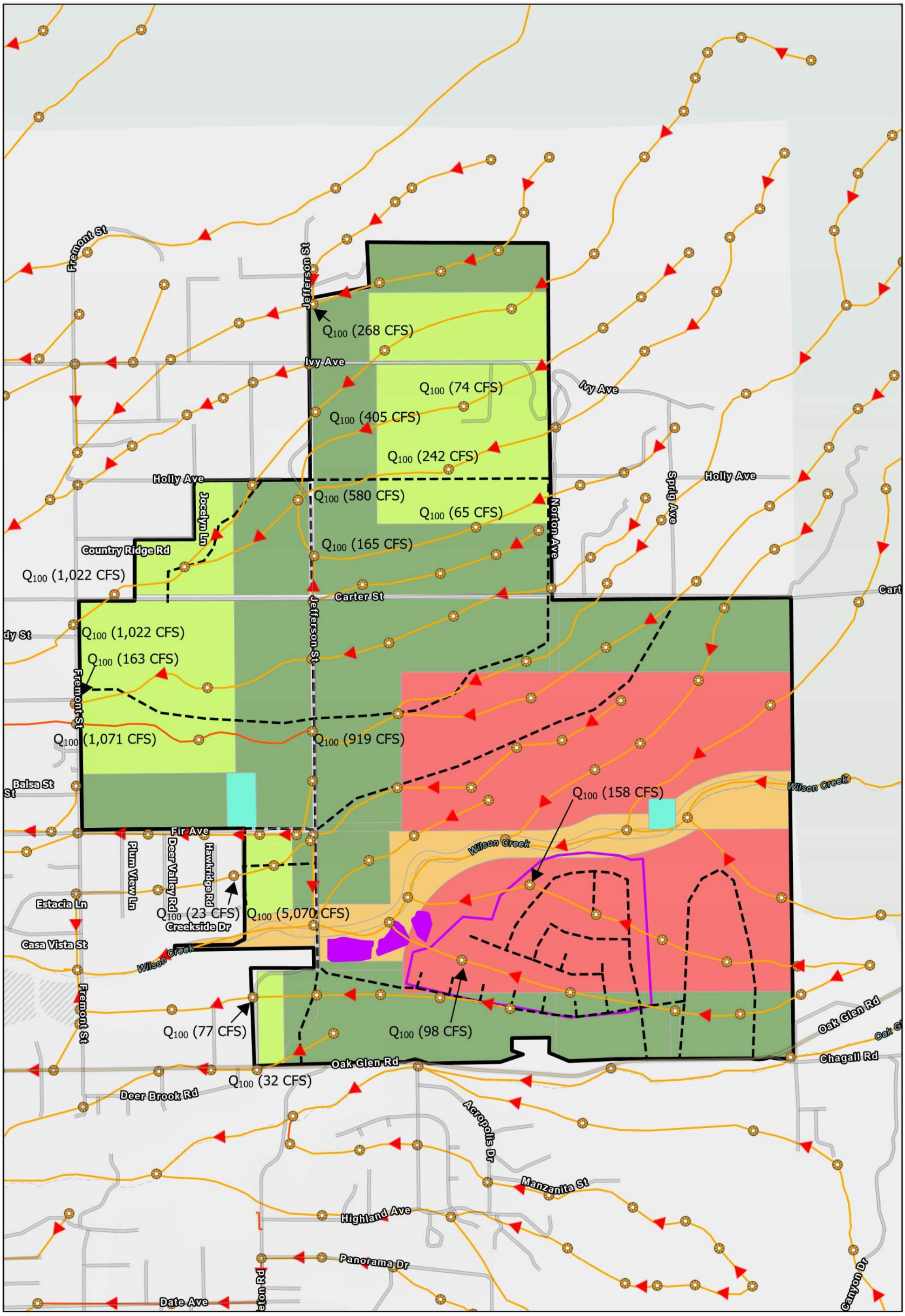
Existing Hydrology			Proposed Hydrology			
Drainage ID	Area (acres)	Peak Flow (cfs)	Drainage ID	Area (acres)	Peak Flow (cfs)	Net Reduction
A1	43.31	125.19	Area 1	59.83		
A2	34.66	89.22	Area 2	22.81		
Totals	**77.97**	**214.41**	**Totals**	**82.64**	**260.38**	
			Basin Routing	82.64	164.58	95.8 CFS/37% Reduction

The proposed project is consistent with the 2012 MPD. The portion of Sub-basin 22 impacted by the project identifies a peak flow of 260 CFS discharging into Wilson Creek based on the ultimate condition. Through the use of the proposed detention basins, the project will result in less flows than assumed in the MPD which will have a beneficial effect on downstream basins and channel stability.

1.4.6 PROPOSED STORM DRAIN INFRASTRUCTURE

Based on the types of development anticipated within WCSP, the use of detention basins with infiltration of the design capture volume (required volume for treatment) are anticipated to be the primary BMP type. These BMPs are consistent with other developments throughout the City and are also part of the MPD. The Wilson Creek Estates Wine Country Subdivision Project south of Wilson Creek within the WCSP is a good example where two to three large scale basins are being used for debris entrapment, flood control and infiltration for water quality purposes.

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 to manage off-site flows and route them through the project area. Figure 10 identifies key peak flow assumptions from the MPD that will be utilized to ensure that in the ultimate buildout of WCSP, flows do not exceed the prescribed flow rates from the MPD. The callouts identified are oriented around the proposed residential area of development.



Wine Country Specific Plan Proposed Drainage Condition Exhibit

Figure 10

3/23/2023

Yucaipa, Ca

FUSCOE ENGINEERING

Full circle thinking

Proposed Land Use
- 10000 SF Residential
- Half Acre Residential
- Vineyards
- Wilson Creek and Associated Buffer
- Water District

- Storm Channels
- Flow Direction
- Hydrologic Nodes per MPD
- Proposed Improvements

- Wilson Creek Estates Wine Country Subdivision Project
- Mitigation Basins
- Project Boundary
- Proposed Streets

N

1 inch = 1,000 feet

0 1,000 2,000 Feet

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1.4.7 WATER QUALITY REQUIREMENTS

Water quality standards will be met for new development associated with the WCSP 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.[17]

Based on the types of development anticipated within WCSP, the use of detention basins with infiltration of the design capture volume (required volume for treatment) are anticipated to be the primary BMP type. These BMPs are consistent with other developments throughout the City and are also part of the MPD. The Wilson Creek Estates Wine Country Subdivision Project south of Wilson Creek within the WCSP is a good example where two to three large scale basins are being used for debris entrapment, flood control and infiltration for water quality purposes. The proposed plan conceptually identifies a water quality design volume of 3.9 ac-ft for infiltration within the proposed basins. Other smaller LID measures such as permeable pavement, raingardens, bioretention facilities, and infiltration trenches for smaller residential projects or within the wineries but all are likely to include some component of infiltration. Implementation of infiltration based BMPs is considered the highest and best use based on the LID hierarchy identified in the MS4 Permit and accompanying technical documents. Additionally, developments that are identified as PLUs must adhere to the statewide Trash Provisions that requires implementation of BMPs that mitigate or abate trash to improve surface water quality. PLUs are defined as, "high density residential, industrial, commercial, mixed urban, and public transportation stations."

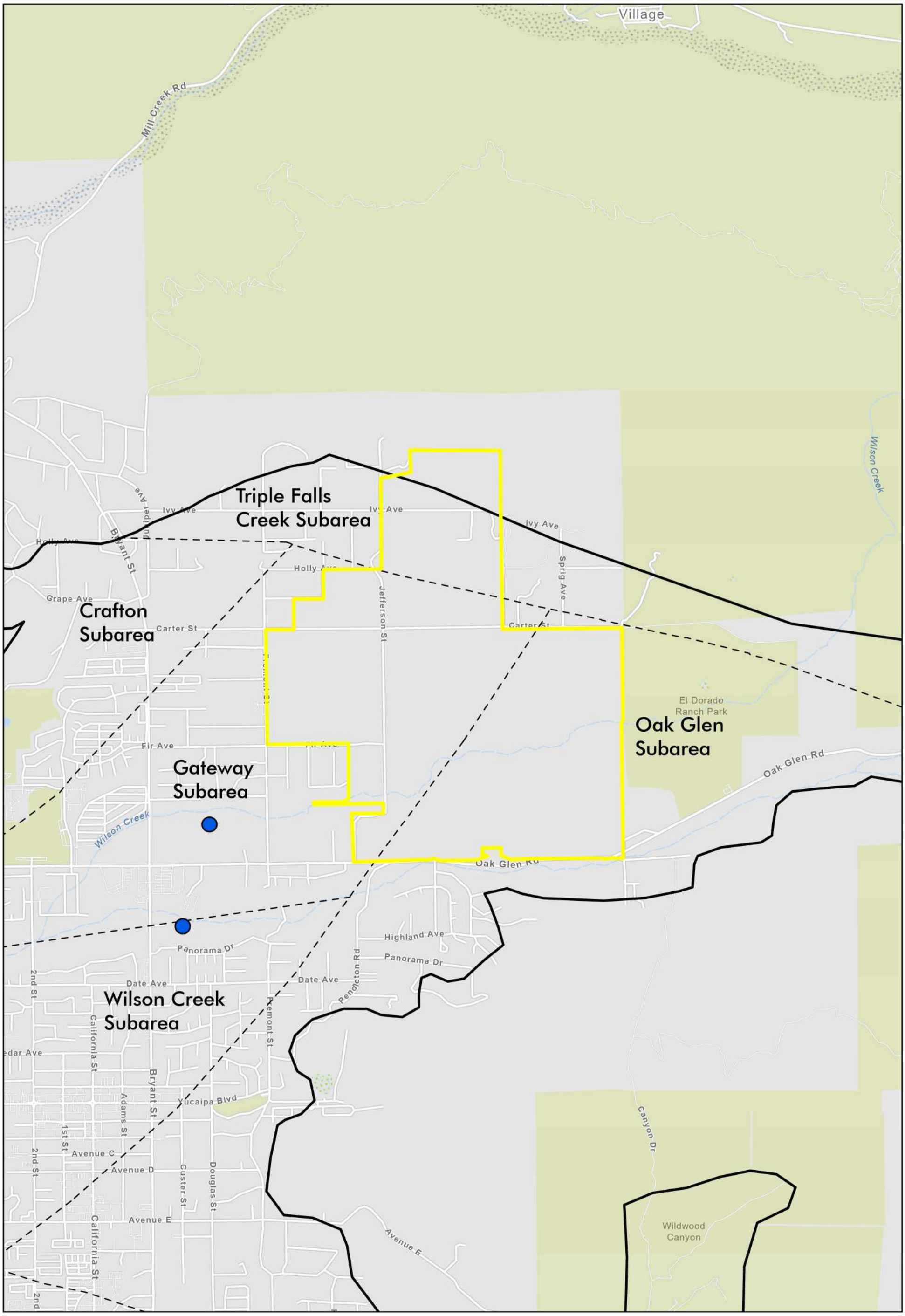
WCSP area overlays several groundwater sub-basins within the jurisdiction of the District and San Bernadino Valley Municipal Water District (SBVMWD) including Triple Falls Creek sub-area, Gateway Subarea and Oak Glen Subarea. To determine if these subbasins are capable of infiltrating State Water Project Water and stormwater runoff SBVMWD partnered with the District to conduct infiltration tests throughout the region[18]. Three of the approved infiltration tests sites are located northeast and southeast of Bryant Street and Oak Glen Road, which border the WCSP. These tests sites are determined to be favorable for recharge and will support the WCSP'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 11 shows groundwater basins local to the WCSP.

[17] 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

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

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



Wine Country Specific Plan Groundwater Basins — **Exhibit 11**

12/7/2022

Yucaipa, Ca

FUSCOE ENGINEERING — Full circle thinking

Project Boundary
Yucaipa Basin
Subbasin Boundaries
Infiltration Test Site

N

1 inch = 2,000 feet

0 — 2,000 — 4,000 Feet

X:\Projects\511\38\mxd\yucaipaSubbasins_221206.aprx

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 WCSP with a focus on project-specific basins for flow attention and water quality via infiltration. Additionally, the City is subject to the statewide Trash Provisions. New developments within the WCSP will be required to install trash abatement/mitigation BMPs if identified as a PLU. 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 infiltration basins is a common accepted practice for the region. All construction within the WCSP will be performed in accordance to the Construction General Permit and all associated requirements to ensure surface water quality is not impacted by construction activities.

Furthermore, all winery operators who choose to manage processed wastewater on-site must follow the CA State Water Resources Control Board General Waste Discharge Requirements for Winery Process Water (Winery Order) or meet pre-treatment requirements to send the flows to the traditional sewer system.

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 the City of Yucaipa and 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 WCSP 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 County and local approval agency regulations on floodplain and floodway management which includes conformance with FEMA regulations for Special Flood Hazard Areas. Wilson Creek is the primary floodway within WCSP 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. Additionally, increased instability and erosion due to increased runoff volumes, flow durations, and higher stream velocities, also known as "hydromodification impacts," will need to be mitigated. Individual projects within WCSP 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. As such, 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 WCSP will result in similar impervious assumptions from what was assumed under the current General Plan buildout. Increases in impervious surfaces result in increased the rate and amount of surface runoff. All proposed projects will be subject to the provisions in the 2012 MPD which identifies maximum peak flows throughout the WCSP that projects will be responsible to meet through the use of on-site detention basins and other LID facilities. All projects will be evaluated based on project-specific impervious surface calculations to ensure proper mitigation of runoff is met. The use of detention basins will be utilized. The detention basins will serve to control on-site and off-site flooding, debris and provide infiltration for groundwater recharge. 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 consistent with the 2012 MPD 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 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 WCSP 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 WCSP shall comply with County and local approval agency regulations on floodplain and floodway management which includes conformance with FEMA regulations for Special Flood Hazard Areas. Wilson Creek (Zone A) is the primary floodway within WCSP 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.

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 WCSP 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 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. 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 WCSP is developed in conformance with the proposed land uses. Therefore, no significant impacts are anticipated for drainage and water quality conditions for WCSP.

2 TECHNICAL APPENDICES

Appendix A Water Demand and Sewer Flow Calculations

Appendix A: Water Demand and Sewer Flow Calculations

Yucaipa WCSP Water and Sewer Demand Calculations

	Exisiting Zoning (RL-1)									
Exisiting General Plan	Project Size	Housing Density	Residential Units[6]	Potable Water Demand Factor[1]	Recycled Water Demand Factor[2]	Potable Water Demand	Recycled Water Demand	**Total Water Demand**	Residential Sewer Demand Factor[7]	**Total Residential Sewer Demand**
	Acres	DU/Acre	DU	GPD/DU	GPD/DU	GPD	GPD	**GPD**	GPD/DU	**GPD**
	1,093.6	1	1,091	300	700	327,300	763,700	**1,091,000**	250	**272,750**

	WCSP Proposed Zoning											
WCSP Project Area	Project Size	Housing Density[5]	Residential Units	Total Proposed Park Size	Total Proposed Vineyard Size	Total Non-Residential Project Size						
	Acres	DU/Acre	DU	Acres	Acres	Acres						
	1,093.6	2-4	1,091	12.6	435.5	564.2						
	SFR Potable Water Demand Factor[3]	SFR Recycled Water Demand Factor[4]	SFR Potable Water Demand	SFR Recycled Water Demand	Total SFR Water Demand	Park Recycled Water Demand Factor	Total Park Recycled Water Demand[8]	Total Vineyard Recycled Water Demand[8]	Total Winery Potable Water Demand[8]	Total Non-Residential Recyled Water Demand	Total Non-Residential Potable Water Demand	**Total Water Demand**
	GPD/DU	GPD/DU	GPD	GPD	GPD	GPD/Acre	GPD	GPD	GPD	GPD	GPD	**GPD**
	280	420	305,480	458,220	763,700	2,800	35,239	732,277	31,046	767,516	31,046	**1,562,262**
	Residential Sewer Demand Factor[7]	Residential Sewer Demand	Non-Residential Sewer Demand Factor	Non-Residential Sewer Demand	**Total Sewer Demand**							
	GPD/DU	GPD	Ratio	GPD	**GPD**							
	250	272,750	1.0	31,046	**303,796**							

Total Water and Sewer Demands (GPD)	
Exisiting Water Demand	1,091,000
Exisiting Sewer Demand	272,750
WCSP Proposed Water Demand	1,562,262
WCSP Proposed Sewer Demand	303,796

Total Water and Sewer Demand Change (GPD)	
Water Demand Change	+471,262
Sewer Demand Change	+31,046

Total Water Demand Change (GPD)	
Existing Potable Water Demand	327,300
Existing Recycled Water Demand	763,700
WCSP Propose Potable Water Demand	336,526
WCSP Propose Recycled Water Demand	1,225,736

Total Water Demand Change (GPD)	
Potable Water Demand Change	+9,226
Recyled Water Demand Change	+462,036

Notes	
Potable Water Demand Factor[1]	Yucaipa Valley Water District Design Criteria for Potable Water System Facilities **(Single Family Units with Lots Equal to or Greater than 20,000 Square Feet)**
Recycled Water Demand Factor[2]	Yucaipa Valley Water District Design Criteria for Recycled Water System Facilities **(Single Family Units with Lots Equal to or Greater than 20,000 Square Feet)**
Potable Water Demand Factor[3]	Adjusted Yucaipa Valley Water District Design Criteria for Potable Water System Facilities **(Single Family Units with Lots 20,000 Square Feet or Less)**; given by YVWD
Recycled Water Demand Factor[4]	Adjusted Yucaipa Valley Water District Design Criteria for Recycled Water System Facilities **(Single Family Units with Lots 20,000 Square Feet or Less);** given by YVWD
Housing Density[5]	The WCSP proposes multiple densities that range from 2-4 DU/Acre. This calculation assumes that each lot is less than 20,000 SF.
Residential Units[6]	Maximum allowed units per the 2016 City of Yucaipa General Plan
Residenial Sewer Demand Factor[7]	Yucaipa Valley Water District Design Criteria for Sewer System Facilities **(Single Family)**
Total Vineyard/Winery/Park Water Demand[8]	Total water demand for vineyards, wineries, and parks were given by Placeworks
1 Acre = 43,560 Square Feet; DU = Dwelling Unit; GPD = Gallons per Day	