Appendix 4.14-2:

Water Supply Assessment Report for the Greentree Development Project

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Prepared For:

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INTRODUCTION

The Greentree Development Group, Inc. is proposing a major development in the City of Vacaville that is subject to requirements outlined in the California Water Code which require that the City or County identify any public water system that may supply water to the proposed project and request the public water system to determine whether the projected water demand associated with the proposed project was included as part of the most recently adopted Urban Water Management Plan per California Water Code Section 10910.

This Water Supply Assessment has been prepared to meet the applicable requirements of state law as set forth in Senate Bill 610 (SB610), California State Water Code Sections 10910-10915. Primary references and data for this assessment are from the 2020 Urban Water Management Plan (UWMP) and the General Plan.

Current and Projected City Population

Per the City's current 2020 UWMP, the population of Vacaville was approximately 97,500 people in 2020. Within the City, the average household size was 2.77. and the median age of Vacaville residents was 37.3 years, which is slightly older than the overall statewide median average of 36.3 years (U.S. Census Bureau, 2018).

Approximately 73 percent of Vacaville's population identified as white, 13 percent identified as black, 11 percent as Asian, 2.4 percent as American Indian, and 1.5 percent as Hawaiian or other Pacific Islander. Approximately 25 percent identified as being of Hispanic origin and 8 percent reported being two or more races. Of Vacaville residents, approximately 12 percent identified as foreign-born and 20 percent reported a primary home language other than English (U.S. Census Bureau, 2018).

At the time the 2020 UWMP was prepared, it was anticipated the population would increase by an additional 34% by year 2045 from approximately 98,855 to approximately 132,492. The projection was based on the current general plan and was consistent with projections obtained from the Association of Bay Area Governments, projections 2013.

Climate / Precipitation

The City's climate is characterized by dry, warm to hot summers, with wet, cool winters. The City is located on the edge of the Bay Area and occasionally experiences the cooling influence of marine air through the Carquinez Strait during otherwise warm springs, summers, and early falls. Winters are at times foggy and cold, but snow is exceedingly rare.

1. PURPOSE

The purpose of this Water Supply Assessment (WSA) Report is to satisfy the requirements under Senate Bill 610 (SB610), Water Code Section 10910 et seq., Senate Bill 221 (SB221), and Government Code Section 66473 that adequate water supplies are or will be available to meet the water demand associated with the proposed project. SB610 focuses on the content of a water supply agency's Urban Water management Plan (UWMP) and stipulates that when an Environmental Impact Report (EIR) is required in connection with a project, the appropriate water supply agency must provide an assessment on whether its total projected water supplies will meet the projected water demand associated with the proposed project. SB610 applies to a proposed residential development of more than 500 dwelling units, or large commercial industrial or mixed use development. SB221 requires water supply verification when a tentative map, parcel map, or development agreement for a project is submitted to a land use agency for approval. SB221 applies to proposed residential development of more than 500 dwelling units with some exceptions. The need for an assessment of verification is determined by the lead agency for the project.

SB610 requires the water purveyor of the public water system prepare a water supply assessment to be included in the environmental documentation of certain proposed projects. SB221 requires affirmative written verification from the water purveyor of the public water system that sufficient water supplies are available for certain residential subdivisions of property prior to approval of a tentative map.

1.1 PROJECT DESCRIPTION

The following information was obtained from the Greentree Development Project, dated June 30, 2021, prepared by EMC Planning Group. Based on review of the study, the project is comprised of two areas including the portion located "north of Sequoia Drive" and the area located "south of Sequoia Drive. The distinction between the two areas is due to the differing character of development proposed within each area and the supporting uses and infrastructure/facilities needed to support each proposed development type.

The primary proposed land uses in the area north of Sequoia include higher density residential, general commercial retail, and a family oriented park while detached, single-family senior residential development and a senior oriented park is proposed for the area located south of Sequoia Drive.

An estimated 1,149 dwelling units are proposed, with 950 units of higher density housing of diverse product types located north of Sequoia and 199 units of detached, single family senior housing located south of Sequoia. Commercial building capacity for the area north of Sequoia is estimated to be up to 300,000 square feet. Approximately 6.0 acres in the area north of Sequoia are planned to function as a neighborhood park, 4.5 acres south of Sequoia are planned to function as a pocket park, and 19.4 acres to function as trail corridor/open space.

The site as intended for development requires a General Plan Amendment and Zone Change to conform to the density and use of the project. This Water Supply Assessment will no longer be valid if modifications to the project requires greater water demand than to serve what is described above. A revised Water Supply Assessment Report will then be required, which the developer will need to request through the City's Utilities Department. The proposed project population is summarized in the Table 1 below.

Development Area	Dwelling Units	Persons/Household	Population
North of Sequoia	950	2.7	2,565
South of Sequoia	199	2.0	398
Total	**1,149**	–	**2,963**

Source: Project Description Summary, Greentree Development Project, June 2021

According to the Greentree Project study, the project site is designated in the General Plan as Commercial Highway and Private Recreation. Illustrated in Figure LU-1 of the General Plan, the current land use is designated as Private Recreation and Vacant. Per the study, the Greentree Project will encompass approximately 185.4 acres.

2. EXISTING AND PLANNED WATER SOURCES

2.1 OVERVIEW OF WATER SUPPLY FACILITIES AND SOURCES

According to the 2018 Water Master Plan, the existing City water system is comprised of two surface water treatment plants, thirteen groundwater wells (ten active), nine storage tanks (reservoirs), six booster pump stations (BPS), and over 292 miles of distribution and transmission pipelines ranging from 4-inches to 30-inches in diameter.

2.1.1 Water Supply Facilities

The water distribution system consists of one main pressure zone (Main Zone) plus several higher elevation pressure zones (upper zones) in various areas of the City. These upper zones include: 1) Vine Street; 2) Hidden Valley; 3) and Wykoff and Tranquility (a hydropneumatic system). The City's system consists of transmission and distribution pipelines, storage reservoirs, wells, pumping facilities, and water treatment facilities. Illustrated in Figure 3-1 of the 2018 Water Master Plan is a schematic of the City's existing facilities.

2.1.2 Water Supply Sources

The City receives water from several sources, including the Solano Project from Lake Berryessa, the State Water Project (SWP), Settlement Water from the North Bay Aqueduct (NBA), and groundwater from local City wells. Surface water from Lake Berryessa is provided through a contract between the US Bureau of Reclamation and the Solano County Water Agency (SCWA) and is delivered by Solano Irrigation District (SID). This water is treated at either the North Bay Regional Water Treatment Plant (NBR Plant) or at the City diatomaceous earth filter water treatment plant (DE Plant). Groundwater is treated at the wellhead with chlorine to disinfect for pathogens and is then placed directly into the distribution system. All water is treated to meet Federal and State drinking water standards prior to customer use. Below is a summary of the various water supply sources as also detailed in the 2020 UWMP.

2.1.2.1 Groundwater

According to the 2020 UWMP, the City operates 10 active wells, 9 of which withdraw water from the deep aquifer in the basal zone of the Tehama Formation located in the Solano Subbasin of the Sacramento Valley Basin in the Sacrament River Hydrologic Region. Well 1 is the only well in operation that extracts water from the Markley Formation located west of the English Hills fault. Approximately 5,500 ac-ft/yr of groundwater is withdrawn.

The primary source of groundwater supply for municipal use is the basal zone of the Tehama Formation, which is a highly confined aquifer. The overlying Quaternary alluvial deposits and upper and middle zones of the Tehama Formation are not suitable for high production municipal water supply. However, they are used for some domestic and agricultural purpose in unincorporated areas of Vacaville. East of the Vacaville area, these aquifers are utilized by SID to supplement surface water supplies and for shallow groundwater pumping for drainage purposes.

Historic Groundwater Pumping

The City is the primary groundwater user within the Vacaville City limits area as defined by the General Plan. Between 1968 and 1983, the City's annual groundwater pumping as varied from a low of 2,862

ac-ft in year 1968 to a high of 8,165 ac-ft. Total annual groundwater pumping by the City from 1995 through 2015, including all wells, is summarized in Table 3-7, *City of Vacaville Historical Groundwater Pumping*, of the 2018 Vacaville Water Master Plan and Table 6-H of the 2015 UWMP. Approximately 5,000 AF of groundwater is withdrawn each year. Groundwater production for each of the last five (5) years is summarized in Table 6-6 of the 2020 UWMP.

Projected Groundwater Pumping

Based on normal water years, project groundwater supplies are summarized in Table 1. Total City groundwater pumpage in normal years is projected to increase to 8,100 AF in 2040 as new City wells come on line.

TABLE 1
GROUNDWATER – SUPPLY VOLUME PROJECTED TO BE AVAILABLE (ACRE-FEET/YEAR)
(NORMAL WATER YEAR)

Basin Names	Aquifer Unit	2020	2025	2030	2035	2040
Sacramento Valley Basin / Solano Subbasin	Basal Zone	6,900	7,200	7,600	8,000	8,000
Sacramento Valley Basin / Solano Subbasin	Non-Basal Zone	100	100	100	100	100
Total Groundwater Projected		**7,000**	**7,300**	**7,700**	**8,100**	**8,100**

Source: Groundwater Supply Sufficiency, City of Vacaville

Table 2 includes a summary of the projected water supply demands in future dry water years (single-dry and/or multiple dry water years).

TABLE 2
GROUNDWATER – SUPPLY VOLUME PROJECTED TO BE AVAILABLE (ACRE-FEET/YEAR)
(DRY WATER YEARS)19,813

Basin Names	Aquifer Unit	2020	2025	2030	2035	2040
Sacramento Valley Basin / Solano Subbasin	Basal Zone	8,220	8,220	8,220	8,220	8,220
Sacramento Valley Basin / Solano Subbasin	Non-Basal Zone	100	100	100	100	100
Total Groundwater Projected		**8,320**	**8,320**	**8,320**	**8,320**	**8,320**

Source: Groundwater Supply Sufficiency, City of Vacaville

The City anticipates the addition of three (3) wells during the period from about 2020 to 2040 if the general plan is built out as predicted.

2.1.2.2 Surface Water

Solano Project Water (Vacaville Supply, SID Agreement)

The Solano Project consists of Monticello Dam, the Putah South Diversion Dam, the Putah South Canal, and associated ancillary features. The water rights permits for the Solano Project are retained by the Bureau of Reclamation in trust for the Solano water users.

The primary component of the Solano Project is Lake Berryessa, created by the construction of Monticello Dam across Putah Creek, which provides for storage of 1.6 million acre feet (ac-ft) of water. Water from Lake Berryessa is diverted through the Putah Diversion Dam to the 32-mile Putah South Canal, which transports water to the eight SCWA-member unit contractors for Solano Project water.

The Solano County Water Agency (SCWA) is the water wholesaler for the Bureau of Reclamation and has entered into water supply agreements with cities, districts, and state agencies to provide water from the Solano Project. The Solano Project contracting agencies are: Fairfield, Suisun City, Vacaville, Vallejo, SID, Maine Prairie Water District, University of California at Davis, and California State Prison - Solano. Vacaville has an annual allocation of 5,750 ac-ft/yr of water from the Solano Project.

In addition to its own annual allocation (entitlement) from SCWA, Vacaville purchases Solano Project water annually from SID through a master water agreement (MWA) executed in 1995 and amended in June 2010. Pursuant to the terms of the MWA, Vacaville will purchase water from SID according to a set water purchase schedule. The schedule incrementally increases the annual entitlement to 10,050 ac-ft/yr in 2040. The amended MWA allows Vacaville to request additional water if needed to support growth. The MWA provides for changes in the delivery schedule, making the maximum entitlement of 10,050 ac-ft/yr available earlier than the year 2040 if desired by the City. Table 3-2, *Annual Water Schedule for SID Agreement*, in the WMP includes a summary of the annual water schedule for SID water available to the City.

State Water Project (North Bay Aqueduct)

The primary source of water for the State Water Project (SWP) is the annual snowpack in the Sierra Nevada and consists of over 20 dams and 700 miles of canals, pipelines, and tunnels that provide over 2.4 million ac-ft of water annually users. The SWP is managed by the California Department of Water Resources (DWR), which contracts with SCWA to sell water to the contracting member agencies, including the City of Vacaville.

The 8,978 ac-ft/yr entitled for the City comes from several water allocations including an annual allocation of SWP water (6,100 ac-ft/yr) and water purchased from the Kern County Water Agency (2,878 ac-ft/yr).

Settlement Water (DWR Agreement)

Settlement Water consists of surface water from the Sacramento River and Sacramento-San Joaquin Delta Estuary. In a settlement of area-of-origin water right application by the City of Vacaville and other cities; DWR, provides "settlement water" to Vacaville with an annual allocation to the City of 9,320 ac-ft/yr.

2.1.2.3 Recycled Water

The City owns and operates the Easterly Wastewater Treatment Plant (EWWTP). Treated effluent from EWWTP discharges into Old Alamo Creek, then to the New Alamo Creek, into to Cache Slough, and into the Sacramento-San Joaquin River Delta.

EWWTP's treatment process consists of headworks, primary sedimentation basins, activated sludge aeration basins, secondary clarifiers, tertiary filtration, chlorination contact basins, and dechlorination facilities. The aeration basins provide nitrification and denitrification in addition to biological secondary treatment. The City's National Pollutant Discharge Elimination System (NPDES) wastewater permit for the EWWTP requires tertiary treatment seasonally, from May 1 to October 31. Deep bed sand and anthracite filters provide tertiary filtration treatment in compliance with California Code of Regulations, Title 22. Easterly is rated for an average dry weather flow capacity of 15 million gallons per day (mgd) and a peak wet weather flow capacity of 55 mgd.

Documented in the 2020 UWMP, the City adopted the *Recycled Water Master Plan Feasibility Study* in April 2021 which outlines a proposed recycled water project which would provide approximately 2,830 AF of tertiary treated recycled water for a variety of beneficial use including agricultural irrigation, urban irrigation, and industrial reuse. Of the 2,830 AF, 1,825 AF would be used within the City's existing and project service area while the remainder would be for sale to entities outside of the City's service area. However, prior to implementing the Recycled Water Master Plan the City must complete specific and regulatory mandated tasks.

3. WATER DEMAND ANALYSIS

Findings documented in the 2018 Water Master Plan note that water demands per capita in the City have decreased primarily as a result of conservation in response to the extended drought conditions in California, specifically from 2012 through 2016. A detailed summary of the analysis performed of existing and projected water demands is included in Chapter 5 of the Water Master Plan and findings are summarized below.

3.1 DEMAND FACTORS

An analysis of historical water consumption against the projected demands, which was based on previous demand factors, identified that the projected water demand was 37% greater than the actual 5-year demand. Thus, the findings of the analysis served to justify a reduction in demand factors. A 20% reduction was recommended and applied to the water demand factors to account for long-term water conservation.

Recommended demand factors are summarized in Table 5-7, *Recommended Existing and Growth Water Demand Factors*, of the 2018 Water Master Plan. The recommended and approved demand factors were applied to estimate existing and projected water demands.

3.2 EXISTING DEMANDS

Table 5-6, *Estimated Existing Water Demand with 20% Reduction in Previous Demand Factors*, of the 2018 Water Master Plan includes a summary of the estimated existing water demand based on the December 2016 land use database. Applied is a 20% reduction to the previous demand factors. Thus, the updated existing demands are summarized below in Table 3.

TABLE 3
ESTIMATED EXISTING WATER DEMANDS

Land Use	Unit	Existing Demand, GPD
Residential	DU	9,604,360
Non-Residential	AC	3,672,552
	Subtotal	13, 276,912
Special Users		1,339,728
	Total	14,616,640

Source: Table 5-6, 2018 Vacaville Water System Master Plan

3.3 SUMMARY OF PROJECTED WATER DEMANDS

Applying the revised demand factors, Table 4 includes a summary of the projected water demands for the Greentree Project.

TABLE 4
PROJECTED WATER DEMANDS FOR THE GREENTREE PROJECT

Land Use	Proposed Land Use	Land Use Designation	Unit	Water Demand Factors GPD/Unit[1]	Projected Development Capacity			Projected Demand		
					Residential (DU)	Commercial (AC)	Park (AC)	Residential (gpd)	Commercial (gpd)	Park (gpd)
North of Sequoia Residential, Commercial and Recreation										
Residential	Residential Medium	Residential Medium (RM)	DU	265	172	0	0	45,580	0	0
Residential	Residential Medium High	Residential Medium High (RMDM)	DU	230	350	0	0	80,500	0	0
Residential	Residential High	Residential High (RH)	DU	230	428	0	0	98,440	0	0
Commercial	General Commercial	General Commercial (CG)	AC	1,230	0	19.9	0	0	24,477	0
Park	Public Park	Open Space	AC	1,250	0	0.0	6.0	0	0	7,500
				Subtotal	**950**	**19.9**	**6**	**224,520**	**24,477**	**7,500**

TABLE 4
PROJECTED WATER DEMANDS FOR THE GREENTREE PROJECT CONT.

Land Use	Proposed Land Use	Land Use Designation	Unit	Water Demand Factors GPD/Unit[1]	Projected Development Capacity			Projected Demand		
					Residential (DU)	Commercial (AC)	Park (AC)	Residential (gpd)	Commercial (gpd)	Park (gpd)
South of Sequoia Residential, Commercial and Recreation										
Residential	Residential Low	Residential Low (RLD)	DU	335	82	0	0	27,470	0	0
Residential	Residential Low Medium	Residential Low Medium (RLMD)	DU	295	117	0	0	34,515	0	0
Park	Public Park	Open Space (OP)	AC	1,250	0	0	4.5	0	0	5,625
Subtotal					**199**	**0**	**4.5**	**61,985**	**0**	**5,626**
TOTAL					**1,149**	**19.9**	**10.5**	**286,505**	**24,477**	**13,125**

[1] Factors from Table 5-7 of 2018 Water System Master Plan

Applying the peaking factors defined in the 2018 Water Master Plan, Table 5 includes a summary of the projected average day, maximum day, and peak hour demand for the Greentree Project.

TABLE 5
PROJECTED WATER DEMAND FOR THE GREENTREE PROJECT

Land Use	Unit	Estimated Demand		Max Day Demand		Peak Hour Demand	
		Greentree Project (GPD)	Greentree Project (ac-ft/yr)	GPD[1]	ac-ft/yr	GPD[2]	ac-ft/yr
Residential	DU	286,505	320.93	487,059	544.67	1,002,768	1,123.25
Non-Residential/ Commercial	AC	24,477	27.42	41,611	46.61	85,670	95.96
Parks	AC	13,125	14.70	24.99	0.03	45,938	51.48
Subtotal		**324,107**	**363.05**	**528,6944**	**592.22**	**1,134,375**	**1,270.69**
Special Users		0	0	0	0	0	0
Total		**324,107**	**363.05**	**528,694**	**592.22**	**1,134,375**	**1,270.69**

[1] Average Day x 1.70; [2] Average Day x 3.50

Table 6 includes a summary of the existing water demands including the estimated demand for the Greentree Project. The total demand of 14.70 MGD equates to approximately 16,470,ac-ft/yr. Note that the existing demand reflects a reduction of demand for 185.4 acres of Private Recreation in Non-Residential.

TABLE 6
EXISTING WATER DEMANDS INCLUDING THE GREENTREE PROJECT

Land Use	Unit	Existing Demand		Estimated Demand		Total	
		GPD	ac-ft/yr	Greentree Project (GPD)	Greentree Project (ac-ft/yr)	GPD	ac-ft/yr
Residential	DU	9,604,360	10,758.29	286,505	320.93	9,890,865	11,079.22
Non-Residential	AC	3,435,240	3,847.97	24,477	27.42	3,459,717	3,875.39
Park	AC	0.00	0.00	13,125	14.70	13,125	14.70
Subtotal		**13,039,600**	**14,606**	**324,107**	**363.05**	**13,363,707**	**14,696.32**
Special Users		1,339,728	1,501	0.00	0.00	1,339,728	1,501
Total		**14,379,328**	**16,107.96**	**324,107**	**363.05**	**14,703,435**	**16,470.01**

3.3.1. Projected Water Demands at Buildout

Table 2-2 of the 2018 Master Plan includes a summary of the anticipated water demands at build out conditions. Table 5-8, *Estimated Buildout and Growth Demands with Recommended Demand Factors,* includes a detailed breakdown of the estimated water demand based on anticipated growth under build out conditions. The projected water demand at buildout was estimated by applying the revised demand factors.

However, since the preparation of the Master Plan, the City's projected water demands for ultimate buildout conditions are expected to significantly decrease at the horizon year of 2040 than previously expected. Table 7 includes a summary of the anticipated demands for build out conditions based on the anticipated change in growth.

TABLE 7
ESTIMATED WATER DEMAND AT BUILDOUT

Land Use	Unit	Total Buildout Demand, GPD	Total Buildout Demand, ac-ft/yr
Residential	DU	13,044,100	14,611.31
Non-Residential [1]	AC	4,319,675	4,838.67
	Total	**17,363,775**	**19,449.98**

[1] Includes Special Users

To reflect the proposed Greentree Project under buildout conditions, the equivalent acreage of 185.4 acres of Private Recreation, Retail Service, Public Open Space, and Miscellaneous land uses and the associated projected water demands were proportionally removed from the total projected demands. Therefore, the total estimated demand in Table 7 above, would be reduced from 17,363,755 to 17,098,866 GPD due to the change in Non-Residential demand.

The projected demands for the Greentree Project are then included to reflect the revised build out condition. Table 8 includes a summary of the estimated water demand at buildout including the estimated demand for the Greentree Project. Overall, it is estimated that 19,513 ac-ft/yr will be required.

TABLE 8
ESTIMATED DEMAND AT BUILDOUT INCLUDING THE GREENTREE PROJECT

Land Use	Unit	Total Existing and Buildout		Estimated Demand		Estimated Total Demand	
		GPD	ac-ft/yr	Greentree Project (GPD)	Greentree Project (ac-ft/day)	GPD	ac-ft/yr
Residential	DU	13,044,100	14,611.31	286,505	320.93	13,330,605	14,932.24
Non-Residential[1,2]	AC	4,054,786	4,541.98	37,602	42.12	4,092,388	4,584.08
Total		**17,098,886**	**19,153.27**	**324,107**	**363.05**	**17,422,993**	**19,516.31**

1 Includes Special Users
2 Demand reflects reduction of demand for 185.4 acres of Private Recreation in Non-Residential

Table 9 includes a summary of the buildout average day, maximum day, and peak hour demand estimates, including the Greentree Project. The estimated buildout average day demand, including the Greentree Project is 17.42 MGD (19,516 ac-ft/yr), the maximum day demand is 29.62 MGD (33,178 ac-ft/yr), and peak hour demand is 60.98 MGD (69,307 ac-ft/yr).

TABLE 9
BUILDOUT AND GREENTREE PROJECT DEMAND

Condition	Demand, GPD		
	Average Day	Maximum Day[1]	Peak Hour[2]
Total Existing and Buildout	17,098,886	29,068,106	60,773,213
Greentree Project	324,107	550,982	1,134,375
Total	**17,422,993**	**29,619,088**	**60,980,476**

[1] Average Day x 1.70
[2] Average Day x 3.50

4. WATER SUPPLY RELIABILITY ANALYSIS

The analysis performed for development of 2020 UWMP concluded that the City has sufficient water supply available to meet the existing and projected water demands through year 2040 based on the population growth projections.

In May 2016, the City commissioned the preparation of a groundwater supply analysis in support of the City's Urban Water Management Plan Update. The Technical Memorandum (TM), titled *Groundwater Supply Sufficiency,* and dated May 2016, serves to document the use and sufficiency of the City's groundwater supplies that are available to meet the City's projected groundwater demands. The TM also includes a description of the groundwater pumped during the five (5) years prior and the planned utilization of groundwater supply which is through the planning horizon of 2040.

The following includes a summary of the information available and reviewed to determine the projected available water supply from the various sources over the 20 year planning horizon extending from 2020 to 2040.

4.1 GROUNDWATER

Table 1, *Groundwater- Supply Volume Projected to be Available, Normal Water Year*, and Table 2, *Groundwater-Supply Volume Projected to be Available, Dry Water Years*, included above and in the TM include a summary of the projected well water supply sources available during normal and future dry year conditions (single-dry and/or multiple-dry water years) through year 2040, respectively. Generally, the volume available during normal water years increases from 7,000 ac-ft/yr in 2020 to 8,100 ac-ft/yr in 2040 while during dry water years, the supply available is projected to be 8,320 ac-ft/yr.

4.2 WATER SUPPLY

Table 10 includes a summary of the projected available water supply for an average year, single dry-year, and multi-dry years from 2020 through 2040. The information was obtained from Tables 7-1, 7-2, 7-3 and 7-4 of the 2020 UWMP, as well as supplemental information provided by City staff, and reflects the respective reliability for each source supply for each scenario. Also included in Table 10 is a summary of the projected well water supply sources summarized above and the projected recycled water supply to be available.

TABLE 10
SUMMARY OF PROJECTED AVAILABLE WATER SUPPLY THROUGH 2040

Sources of Supply, ac-ft/yr	2020			2025			2030*			2035*			2040*		
	Average Year	Single Dry Year	Multi-Dry Years	Average Year	Single Dry Year	Multi-Dry Years	Average Year	Single Dry Year	Multi-Dry Years	Average Year	Single Dry Year	Multi-Dry Years	Average Year	Single Dry Year	Multi-Dry Years
Solano Project	9,875	9,727	9,164	11,307	11,204	8,916	12,798	12,682	9,164	14,289	14,159	9,164	15,705	9,727	9,164
State Water Project	7,451	449	2,693	7,451	449	2,693	7,451	449	2,693	7,451	449	2,693	7,451	449	2,693
Settlement Water	1,454	0	433	1,454	0	433	1,454	0	433	1,454	0	433	1,454	0	433
Groundwater	7,000	8,320	8,320	7,300	8,740	8,740	7,700	9,160	9,160	8,100	9,700	9,700	8,100	9,700	9,700
Recycled Water	0	0	0	0	0	0	745	745	745	745	745	745	1,140	1,140	1,140
Subtotal	**27,512**	**18,496**	**20,610**	**25,121**	**18,916**	**21,030**	**25,521**	**19,336**	**21,450**	**25,921**	**19,876**	**21,990**	**25,921**	**19,876**	**21,990**

4.3 RECYCLED WATER

Documented in the Vacaville Water Master Plan is the City's intent to initiate development of a Recycled Water Plan which is to include three primary elements including a Recycle Water Feasibility Study, a supporting programmatic environmental document or EIR, and a Recycled Water Implementation and Financing Plan. At the time this study was prepared, the City had adopted the *Recycled Water Master Plan Feasibility Study* in April 2021 which outlines a proposed recycled water project which would provide approximately 2,830 AF of tertiary treated recycled water for a variety of beneficial use including agricultural irrigation, urban irrigation, and industrial reuse. For planning purposes, the study includes the projected availability of recycled water beginning in year 2030.

4.4 SUMMARY OF WATER SUPPLY

Summarized in Table 10 above is the projected available water supply to serve the City's needs. To serve the estimated existing average day demand and the Greentree project, an estimated 16,470 ac-ft/yr) is required and is well below the existing 25,721 ac-ft/yr of available annual water supply. Additionally, the projected water demand at buildout, including the Greentree project is estimated to be 19,516 ac-ft/year, also below the available 33,850 ac-ft/yr in year 2040.

5. COMPARISON AND DETERMINATION OF SUFFICIENT SUPPLY

The City is implementing plans that include projects and programs to help ensure that the existing and planned water users within the City's service area have an adequate supply of water. The projected water demands summarized in Table 8, which includes the demand of 324,107 GPD or 363.05 ac-ft/yr for the proposed Greentree Project are compared with the projected supplies within the City's service area summarized in Table 10. Table 10 demonstrates there will be adequate water supplies to serve the proposed project development along with existing and other future planned uses under average year conditions.

6. REFERENCES

EMC Planning Group, 2018. *Project Description Summary, Greentree Development Project*, June 31, 2021.

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