SAN JOSE WATER

Winchester Ranch Residential Project
Water Supply Assessment

June, 2019

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San Jose Water (SJW) is one of the largest privately owned water systems in the United States, providing high-quality water and exceptional service to more than one million residents of Santa Clara County since established in 1866.

BACKGROUND & PURPOSE

The Winchester Ranch Residential Project (Project) site is currently developed with 111 single-story mobile home units and an associated clubhouse and parking. The site is comprised of a single parcel (APN 303-38-001) located at the northwest corner of the Winchester Boulevard and Interstate 280 intersection in the City of San Jose. The Project would demolish the existing structures, hardscape, and landscaping on-site and construct up to 691 residential units and an approximately 0.5-acre public park on a 15.7-gross acre site.

This WSA describes the relationship between existing and future water supplies and presents SJW's strong ability to provide a diverse water supply to match build-out water demands under both normal and dry years. This diverse supply consists of local surface water from SJW's Santa Cruz Mountain sources, groundwater, treated surface water from Santa Clara Valley Water District's (Valley Water's) local and imported supplies, and non-potable recycled water. Based on water supply projections reported in Valley Water's 2015 Urban Water Management Plan,[1] conservation methods currently employed, and on SJW's active commitment to these methods, SJW is able to meet the needs of the service area through at least 2035 for average and single-dry years without a call for mandatory water use reductions.[2] This assumes reserves are at healthy levels at the beginning of the year and that projects and programs identified in Valley Water's Water Supply and Infrastructure Master Plan (WSIMP)[3] are implemented. If reserves are low at the beginning of a single-dry year, Valley Water might call for water use reductions in combination with using reserves.

Valley Water is evaluating water supply projects and programs to minimize the need to call for water use reductions to mitigate water shortages that would otherwise occur in the event of a multiple-dry year scenario. SJW is committed to actively working with Valley Water in the development of these projects and programs. Projects and programs may include additional long-term water conservation savings, water recycling, recharge capacity, storm water capture, reuse, banking, and storage.

This WSA is written in response to California Senate Bill 610 (SB 610) and Senate Bill 221 (SB 221); legislation which requires water retailers to demonstrate whether their water supplies are sufficient for certain proposed subdivisions and large development projects subject to the California Environmental Quality Act. SB 610 includes the requirements for detailed water supply assessments, and SB 221 includes the requirement for written verification of sufficient water supply based on substantial evidence. SB 610 requires that a WSA be prepared by the local water retailer and submitted within 90 days to the requesting agency. SJW's adoption and submittal of this assessment does not create a right or entitlement to water service or impose or expand SJW's obligation to provide water service. The City of San Jose has an independent obligation to assess the sufficiency of water supply for the Project. SB 610 provides that the City of San Jose is to determine, based on the entire record, whether projected

[1] https://www.valleywater.org/your-water/water-supply-planning/urban-water-management-plan
[2] San Jose Water 2015 Urban Water Management Plan.
[3] https://www.valleywater.org/your-water/water-supply-planning/water-supply-master-plan

water supplies will be sufficient to satisfy the demands of the Project, in addition to existing and planned future uses.

SERVICE AREA & POPULATION

SJW's service area spans 139 square miles, including most of the cities of San Jose and Cupertino, the entire cities of Campbell, Monte Sereno, Saratoga, the Town of Los Gatos, and parts of unincorporated Santa Clara County.

The population of SJW's service area, including growth associated with this Plan Area, is shown in the following table. These projections are based on the Association of Bay Area Governments' population projections and were included in SJW's 2015 Urban Water Management Plan.

Table 1: Current and Projected SJW Service Area Population

2015	2020	2025	2030	2035	2040
982,750	1,034,396	1,087,273	1,142,484	1,201,289	1,262,356

CLIMATE

The San Jose area experiences a low-humidity moderate climate with an annual average rainfall total of about 14 inches. Maximum monthly average temperatures range from the mid 60's to the low 80's (°F) in spring and summer and from the high 50's to low 60's (°F) in the winter.[4] Most precipitation in the area occurs between November and March with January and February typically being the wettest months as shown in Table 2. According to Valley Water's 2015 UWMP, the annual average evapotranspiration rate for the San Jose area is about 50 inches per year. Evapotranspiration measures the loss of water to the atmosphere by evaporation from soil and plant surfaces and transpiration from plants. Evapotranspiration serves as an indicator of how much water plants need for healthy growth.

Table 2: Climate Data

	Jan	Feb	Mar	Apr	May	Jun
Average High Temperature (°F)	58	62	66	69	74	79
Average Low Temperature (°F)	42	45	47	49	52	56
Average Precipitation (in)	2.8	2.6	2.3	1.1	0.4	0.1
Evapotranspiration (in)	1.5	1.9	3.5	5.0	6.0	6.8

	Jul	Aug	Sept	Oct	Nov	Dec	Annual
Average High Temperature (°F)	82	82	80	74	64	58	70.7
Average Low Temperature (°F)	58	58	57	53	46	42	50.4
Average Precipitation (in)	0.0	0.0	0.2	0.7	1.5	2.5	14.3
Evapotranspiration (in)	7.0	6.3	4.8	3.5	1.9	1.4	49.6

[4] Monthly temperature totals from www.weather.com

PAST, CURRENT AND FUTURE SYSTEM WATER USE

The majority of connections to SJW's distribution system are either residential or commercial. SJW also provides water to industrial, institutional, and governmental connections. SJW's customer database does not differentiate between single-family and multi-family residential accounts, but estimates 15 percent of all residential accounts are multi-family. The resale category represents the small mutual water companies, in which SJW provides a master water service and where the mutual water company is responsible for distributing the water.

SJW has developed demand projections from 2015 to 2040 based on population and per capita usage projections. The Association of Bay Area Governments (ABAG) census tract population projections were used to estimate population growth. It was assumed that population growth after 2010 would be within new, high water efficiency developments with a demand of 100 gpcd. It is expected that on average the per capita usage for the existing 2010 population will experience an annual decline of 0.2 percent until 2040.

Table 3: SJW Water Use by Customer Type (AF/yr)

Customer Type	2015	2020	2025	2030	2035	2040
Single Family	47,789	63,443	65,536	67,752	70,155	72,677
Multi Family	8,433	11,195	11,567	11,956	12,380	12,825
Commercial	36,434	48,369	49,965	51,652	53,485	55,409
Industrial	700	930	961	991	1,028	1,065
Institutional / Governmental	4,984	6,617	6,834	7,065	7,316	7,580
Sales / Transfers / Exchanges	408	543	559	580	598	620
Other	150	199	206	212	221	230
Total	98,898	131,296	135,626	140,208	145,183	150,406

SJW's total demand is not limited to metered usage. Non-revenue water is the sum of (a) water losses, (b) unbilled metered consumption, and (c) unbilled unmetered consumption.

(a) Water losses are separated into two categories: apparent losses and real losses. Apparent losses include all types of inaccuracies associated with customer metering, theft, as well as data handling errors. Real losses are physical water losses from the pressurized system and the utility's storage tanks, up to the customer meter. For example, this might include lost water through leaks, breaks and overflows.

(b) Unbilled metered consumption might include metered consumption by the utility.

(c) Unbilled unmetered consumption is any kind of authorized consumption, which is neither billed nor metered. This typically includes items such as firefighting, flushing mains, and draining water storage facilities.

Over the last ten years (2009 – 2018) SJW averaged less than seven percent non-revenue water as a percent by volume of water supplied, based on the American Water Works Association (AWWA) Water Audit Software. This consistently low level of non-revenue water indicates SJW has an

efficient, well-maintained water system. SJW is committed to continuing to reduce its non-revenue water loss percentages through investments in acoustic leak correlation and logging equipment, advanced metering infrastructure, as well as a prudent water main replacement program that ranks pipelines for replacement primarily based upon their propensity to leak.

Table 4: SJW Total System Demand (AF/yr)

	2015	2020	2025	2030	2035	2040
Customer Metered Demand	98,898	131,296	135,626	140,208	145,183	150,406
Non-Revenue Water	7,553	9,139	9,440	9,759	10,106	10,471
Total System Demand	106,451	140,435	145,066	149,967	155,289	160,877

ESTIMATED PROJECT WATER USE

Total water usage for this Project is estimated at 222,120 gallons per day (gpd) which is equivalent to an annual usage of approximately 249 acre-feet of water. However, the site being developed as part of this Project has existing water usage, which will be eliminated. Water usage at the existing site is on average 15,360 gpd or about 17 acre-feet per year. Therefore, the annual net demand increase in water usage associated with this Project is 232 acre-feet, which represents a 0.16% increase over the pre-drought system wide 2013 water production of 146,776 acre-feet. The Project demand is within normal growth projections for water demand in SJW's system. Furthermore, the Project is located in one of SJW's highest producing groundwater zones and the distribution system has been engineered to be hydraulically redundant and can easily transport water from other pressures zones to supplement additional demand, if needed.

Table 5: Total Water Demand Estimated for Project

Residential Units	Residential Demand Factor (gpd per Unit)[1]	Public Park (Acres)	Public Park Demand Factor (gpd per Acre)	Project Demand (gpd)	Existing Demand (gpd)[2]	Total Project Demand (AF/yr)
691	320	0.5	2,000	222,120	15,360	232

[1]Based on a demand factor of 100 gallons per capita per day for all new residents and 3.2 people per residential unit based on 2018 population estimates from the California Department of Finance. http://www.dof.ca.gov/Forecasting/Demographics/Estimates/E-5/

[2]Existing daily demand based on 2013 average usage

SYSTEM SUPPLIES

This section describes and quantifies the current and projected sources of water available to SJW. A description and quantification of recycled water supplies is also included.

Imported Treated Surface Water – In 1981, SJW entered into a 70-year master contract with Valley Water for the purchase of treated water. The contract provides for rolling three-year purchase schedules establishing fixed quantities of treated water to be purchased during each period. Water is

treated at one of three Valley Water -operated treatment plants (Rinconada, Penitencia and Santa Teresa). SJW and Valley Water currently have a three-year treated water contract for fiscal years 2017/2018 – 2019/2020, with an annual contract supply of 68,114 AF/yr.

Groundwater – SJW draws water from the Santa Clara Valley Subbasin (basin) in the north part of Santa Clara County. The basin is 22 miles long and 15 miles wide, with a surface area of 225 square miles and an operational storage capacity estimated to be 350,000 acre-feet.

The following chart shows groundwater elevation in the basin since the mid 1930's using the well surface elevation as the datum. In 2012, the groundwater basin level was high and well prepared for the effects of a multi-year drought. The high groundwater levels were a result of less pumping, an increased use of imported water, and recharge of water into the aquifer by Valley Water. During the recent drought, which officially ended in the State of California on April 7, 2017, SJW relied more heavily on groundwater, which caused the groundwater elevation to decline. However, as can be seen in Chart 1 below, the groundwater elevation has since rebounded and storage in the basin is now in the normal range.

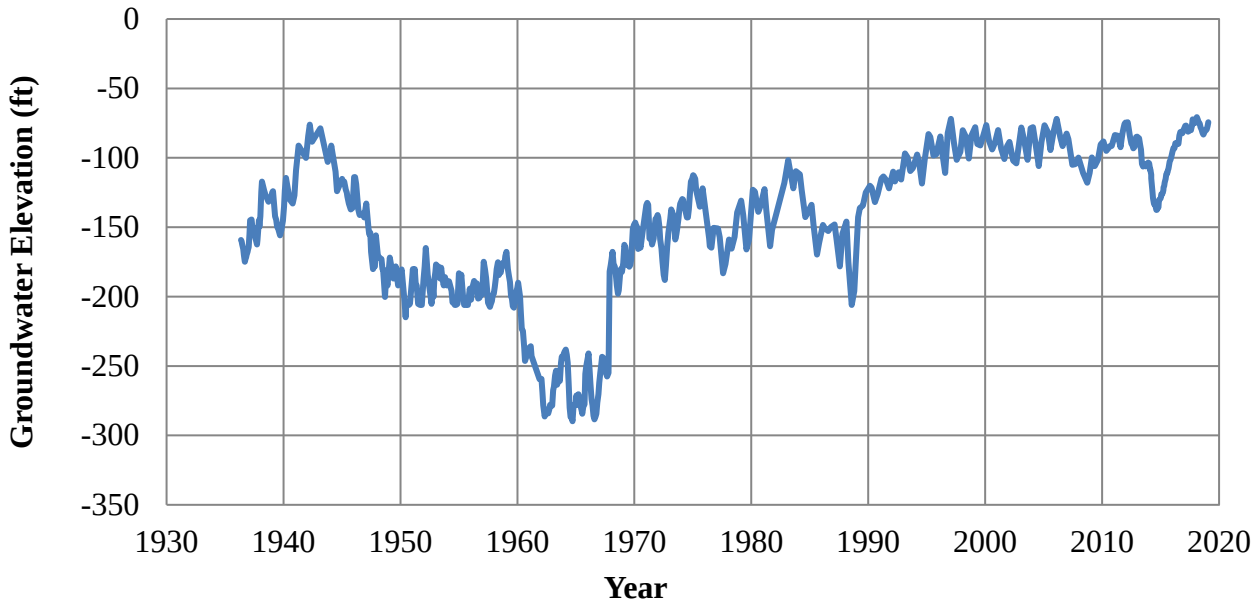


Chart 1: Groundwater Elevation in Santa Clara Valley Subbasin (Well ID: 07S01W25L001)

Groundwater from the basin is a substantial source of water for SJW and in 2014 groundwater accounted for about 57% of SJW's total potable supply. The following table shows the groundwater SJW pumped from the basin from 2011 to 2015.

Table 6: Amount of Groundwater Pumped by SJW (AF/yr)

Basin Name	Metered or Unmetered	2011	2012	2013	2014	2015
Santa Clara Valley Subbasin	Volumetric meter data	38,500	39,696	57,707	74,552	37,888
Groundwater as a percent of total potable water supply		28.3%	28.2%	39.3%	56.8%	35.8%

Surface Water – SJW has "pre-1914 surface water rights" to raw water in Los Gatos Creek and local watersheds in the Santa Cruz Mountains. Prior to 1872, appropriative water rights could be acquired by simply taking and beneficially using water. In 1914, the Water Code was adopted and it grandfathered in all existing water entitlements to license holders. SJW filed for a license in 1947 and was granted license number 10933 in 1976 by the State Water Resources Control Board to draw 6,240 AF/yr from Los Gatos Creek. SJW has upgraded the collection and treatment system that draws water from this watershed which has increased the capacity of this entitlement to approximately 11,200 AF/yr for an average rain year.

Montevina Surface Water Treatment Plant (Plant) is the primary supply source for Town of Los Gatos, and the surrounding communities. The Plant uses microfiltration membrane technology and is capable of treating up to 30 million gallons of water per day.

Recycled Water – South Bay Water Recycling (SBWR) has been serving Silicon Valley communities since 1993 with a sustainable, high-quality water supply. SBWR was created to reduce the environmental impact of freshwater effluent discharge into the salt marshes located at the south end of the San Francisco Bay, and to help protect the California clapper rail and the salt marsh harvest mouse.

In 1997, SJW entered into a Wholesaler-Retailer Agreement with the City of San Jose to provide recycled water to SJW's existing and new customers nearby SBWR recycled water distribution facilities; whereas, the City of San Jose is the wholesaler and SJW is the retailer. At the time, the involvement of SJW was largely to assist the City in meeting its wastewater regulatory obligations. In accordance with the terms of this agreement, SJW allowed SBWR to construct recycled water pipelines in its service area, SJW would only own the recycled water meters, while SBWR would own, operate, and maintain the recycled water distribution system.

In 2010, this Wholesaler-Retailer Agreement was amended to allow SJW to construct recycled water infrastructure that would be owned, operated, and maintained by SJW. Then in 2012, this Wholesaler-Retailer Agreement was again amended to allow SJW to construct additional recycled water infrastructure.

Summary of Existing and Planned Sources of Water – SJW and Valley Water have worked to develop a variety of local and imported water supplies to meet demands. As demands increase with the region's growth, and imported water supplies potentially become more restricted, these planned supplies will increase in importance. In particular, groundwater, which has historically been a vital source of supply for SJW, was all the more critical during the recent drought. The following table

shows the actual amount of water supplied to SJW's distribution system from each source in 2015 as well as projected amounts until 2040.

Table 7: Current and Projected Water Supplies[1] (AF/yr)

	2015	2020	2025	2030	2035	2040
Valley Water Treated Water	63,796	76,670	79,383	82,255	85,376	88,651
SJW Groundwater	37,888	54,160	56,078	58,106	60,307	62,621
SJW Surface Water	4,766	9,606	9,606	9,606	9,606	9,606
Recycled Water	1,964	4,072	6,853	8,350	8,369	8,369
Total System Demand	108,415	144,508	151,919	158,318	163,658	169,246

[1]Projected potable water supply volumes based on a 10-year average (2006-2015) of usage by type and holding surface water constant @ 10-year average.

WATER SUPPLY VULNERABILITY

SJW has identified multiple sources of water for the Project, which would provide a high quality, diverse and redundant source of supply. For added backup, SJW incorporates diesel-fueled generators into its facilities system, which will operate wells and pumps in the event of power outages. Since Valley Water influences over 90% of SJW's annual water supply, SJW will continue to work with Valley Water to ensure water supply for this Project is reliable, while the impact to the existing Santa Clara Valley Subbasin is minimal.

Valley Water recommends in their 2003 Integrated Water Resources Planning Study that water supply sources be maintained at 95% reliability during significant water shortages that occur during multiyear droughts. To accomplish this, SJW can use less groundwater in certain areas or zones to achieve the overall balance, which best meets the operational goals of Valley Water and SJW.

TRANSFER AND EXCHANGE OPPORTUNITIES

SJW's distribution system has interties with the following retailers in the San Jose area: City of Santa Clara, City of San Jose Municipal Water, City of Milpitas, and Great Oaks Water. SJW currently has no plans to use these interties for normal system operation as they are exclusively used for potential emergency sources.

WATER SUPPLY RELIABILITY

To assess water supply reliability it is critical to first identify constraints on water sources and compare total projected water use with expected water supply.

Constraints on Water Sources – SJW has three sources of potable water supply: groundwater, imported treated surface water and local surface water. These three sources of supply are constrained

in one or more ways, driven by legal, environmental, water quality, climatic, and mechanical conditions. Additionally, there is a potential for interruption of supply caused by catastrophic events.

Table 8: Factors Resulting in Supply Inconsistency

Supply	Legal	Environmental	Water Quality	Climatic	Mechanical
Local Surface		x	x	x	x
Ground Water		x	x	x	x
Valley Water Treated Water	x	x	x	x	x

Legal - Valley Water is responsible for managing water resources in Santa Clara County, including the long-range planning for additional supplies and/or conservation needed to meet future water demands. SJW and other retailers work closely with Valley Water to coordinate the purchase of treated imported water and the extraction of groundwater from retailer-owned wells. This activity is important to the operation of the countywide water supply and distribution system and the retailers are dependent on Valley Water's long-range resource planning.

In determining the long-range availability of water, considerations must also be given to decisions at the state or federal level that are out of the Valley Water's control. Valley Water has contracts for water deliveries with both the State Water Project (SWP) and the Federal Central Valley Project (CVP). Due to flow restrictions for the protection of water quality and the habitat of fish and wildlife in the Delta, water deliveries may be reduced from previous levels. During critical dry periods the Valley Water can expect additional reductions in water deliveries. Long-range planning success depends on the Valley Water's ability to obtain adequate imported water supplies and on proper management of the local groundwater basin.

Environmental & Climatic - Valley Water contracts with the State of California to receive raw water from the California Central Valley through the State Water Project (SWP). Water supplied through this aqueduct (which originates from the Sacramento-San Joaquin Delta) may be limited because of subsidence problems, which are beginning to occur in that area and due to pumping restrictions associated with the protection of endangered species. Valley Water has also contracted with the Federal Central Valley Project (CVP) to supply raw water from the San Joaquin Valley via the Santa Clara Conduit. The reliance of water from inland sources through the SWP or the CVP is very critical; the loss of any or all of these sources due to pipe failure, levee failure, earthquake, or human intervention can have an extreme effect on SJW's water supply. Given the above factors which could result in an inconsistent water supply, it is crucial that SJW have sufficient backup wells and pumping capacity to supply customers for as long as several months solely from groundwater sources. SJW believes it has this capacity in an emergency if mandatory conservation is enacted.

Water Quality - The quality of groundwater in the basins, surface water from the Santa Cruz Mountains, or the raw water supply to Valley Water's treatment plants could decrease or be contaminated such that existing treatment facilities are not adequate to meet current drinking water standards. Contamination could cause a source of supply to become unusable until further treatment techniques are utilized, or the contamination is no longer a threat to the source of supply.

Mechanical Failures - All sources of water require mechanical equipment to bring water to the public. Mechanical failures may cause water service shutdowns until repairs are made. To reduce the occurrence of failures, SJW routinely inspects above-grade facilities at all stations. In addition, SJW has created and implemented infrastructure replacement programs for all wells, pumps, and pipelines. To reduce the impact of mechanical failures, SJW's maintenance department is staffed 24-hours, seven-days a week to respond to and repair any water related emergency.

Groundwater Supply Reliability – Groundwater supplies are often a reliable supply during normal and short-term drought conditions because they are local and their large storage retains available supply when surface flows become limited. However, groundwater supply availability does become threatened when overdraft occurs and when recharge and inflow decrease.
Some threats to groundwater supply reliability include:

- *Overdraft* – Under extended supply pressures, groundwater basins can enter overdraft conditions, which can have a series of consequences including subsidence.
- *Climate Change* – Climate change could increase the potential for overdraft by increasing demand, reducing other sources of supply, and reducing natural recharge and inflows from surface water and precipitation. Climate change is having a profound impact on California water resources, as evidenced by changes in snowpack, sea level, and river flows. These changes are expected to continue in the future and more precipitation will likely fall as rain instead of snow. This potential change in weather patterns will exacerbate flood risks and add additional challenges for water supply reliability.
- *Regional Growth* – Population growth could increase demands on groundwater supplies, potentially creating risk of overdraft. Regional growth could also increase the amount of contaminants entering groundwater basins as a result of increased urban runoff or other activities. Growth can also impact recharge areas by expanding impervious surfaces into areas that would otherwise represent entry points for surface water recharging local aquifers.

The Santa Clara Valley Subbasin is able to store the largest amount of local reserves and Valley Water, as the groundwater management agency for Santa Clara County, is tasked with maintaining adequate storage in this basin to optimize reliability during extended dry periods. As groundwater is pumped by SJW and other retailers and municipalities in Santa Clara County, Valley Water influences groundwater pumping reductions and thus reliability through financial and management practices to protect groundwater storage and minimize the risk of land subsidence.

Imported Treated Surface Water Supply Reliability – Valley Water was founded in 1929 and is the primary wholesale water supplier for Santa Clara County. Some of their core responsibilities are to provide safe, clean water for a healthy life, environment and economy. Valley Water's supply originates from several sources including local reservoirs, the State Water Project and the federally funded Central Valley Project San Felipe Division. Water is piped into SJW's system at various turnouts after being treated at one of three treatment plants owned and operated by Valley Water.

Valley Water's current water supply reserves are insufficient to meet SJW needs throughout an extended drought. In addition, there are increasing concerns about the reliability of imported treated

surface water during average years, driven by risks associated with climate change, reductions in imported water supplies, revenue requirements, and threats to infrastructure.

- *Climate Change* – In Santa Clara County, climate change is anticipated to decrease the frequency of precipitation events, but the intensity of precipitation events may increase. Climate change is expected to decrease imported water supplies as a result of reduced snow pack. Potential effects of climate change on Delta-conveyed imported water supply availability have been incorporated into Valley Water's water supply projections. However, potential climate change effects on local supplies and demands were not incorporated into their current 2012 Water Supply and Infrastructure Master Plan (WSIMP) but were included in their 2015 UWMP.
- *Reductions in Imported Water Supplies* – Over the last 15 years, major changes to state and federal water project operations have resulted from regulations to protect Delta water quality and help the recovery of endangered and threatened fish species. These regulations result in a reduction of Delta exports at certain times of the year. There is a possibility that Delta exports will be further impacted by future regulations.
- *Revenue Requirements* – Increased funding will be required for Valley Water to implement a program of activities to ensure water supplies are diversified and reliable to meet current and future demands and that treated water quality standards are met.
- *Threats to Infrastructure* – Valley Water's imported supply infrastructure must travel large distances to reach turnouts. As California is a seismically active state, infrastructure could be damaged and the result would be a disruption to water supply availability. California's water supply infrastructure is also potentially a target for acts of terrorism.

Valley Water's WSIMP is currently being updated and is scheduled for completion in 2019. SJW will actively work with Valley Water to ensure the following principles are considered:

- Promote additional sources of local water supply, such as indirect potable reuse, direct potable reuse, desalination, additional conservation, and an expanded recycled water distribution system
- Coordinate operations with all retailers and municipalities to ensure as much surplus water as possible is available for use in dry years
- Continue to pursue innovative transfer and banking programs to secure more imported water for use in dry years
- Increase public awareness about water supply issues

Valley Water's previous call for a 30 percent reduction during the recent drought and current call for a 20 percent reduction in water usage highlights that more investments in local water sources are necessary to ensure a reliable source of supply during multiple-dry water years.

Supply Reliability by Type of Water Year – Valley Water's Urban Water Management Plan identified average, single-dry, and multiple-dry years for water supply reliability planning. According to Valley Water, these years correspond to:

- Average Year (1922 – 2015): average supply over the hydrologic sequence of 1922 – 2015.
- Single-Dry Year (1977): Within the historic record, this was the year with the estimated lowest amount of total supply
- Multiple-Dry Years (2013 – 2015): this is a multiple dry year period that puts the most strain on the county's water supplies

Water supplies presented below are based on Valley Water's water evaluation and planning system model. According to Valley Water, this model simulates their water supply system comprised of facilities to recharge the county's groundwater basins, local water systems including the operation of reservoirs and creeks, treatment and distribution facilities, and raw water conveyance systems. The model also accounts for non- Valley Water sources and distribution of water in Santa Clara County such as imported water from San Francisco Public Utilities Commission, recycled water, and local water developed by other agencies.

Table 9: Basis of Water Year Data

Year Type	Base Year	% of Average Supply
Average Year	1922-2015	100%
Single-Dry Year	1977	100%
Multiple-Dry Years 1st Year	2013	95%
Multiple-Dry Years 2nd Year	2014	85%
Multiple-Dry Years 3rd Year	2015	66%

Average Water Year – The average water year represents average supply over the hydrologic sequence of 1922 through 2015. SJW anticipates adequate supplies for years 2020 to 2040 to meet system demand under average year conditions.

Table 10: Supply and Demand Comparison – Average Water Year (AF/yr) [1]

	2020	2025	2030	2035	2040
Demand	140,435	145,066	149,967	155,289	160,877
Demand Met by Water Supply	140,435	145,066	149,967	155,289	160,877
Demand Met by Conservation	0	0	0	0	0

[1]Does not include recycled water or raw water and includes demands associated with this Project

Single-Dry Water Year – The single-dry year was the year with the lowest amount of total supply. Table 11 shows supplies, with the use of reserves, can meet demands during a single-dry year through 2035 assuming reserves are at healthy levels at the start of a year and projects and programs identified in Valley Water's 2012 WSIMP are implemented. If reserves are low at the beginning of a single-dry year, Valley Water may call for water use reductions in combination with using reserves. As later discussed within the Water Demand Management Measures section, SJW has filed with the California Public Utilities Commission (CPUC), water-waste provisions promoting conservation that would go

into effect during a drought. The result of these provisions would assume to be a reduction in anticipated demand due to conservation such that demand equals available water supplies.

Table 11: Supply and Demand Comparison – Single-Dry Water Year (AF/yr) [1,2]

	2020	2025	2030	2035	2040
Demand	140,435	145,066	149,967	155,289	160,877
Demand Met by Water Supply	140,435	145,066	149,967	155,289	151,308
Demand Met by Conservation	0	0	0	0	9,569

[1]Does not include recycled water or raw water and includes demands associated with this Project.
[2]In 2040, there is a shortage of water available compared to the demand typical of that type of year. Valley Water has established a level of service goal of 100% during normal years and 80% during drought years to minimize water rates, and thus a 20% call for conservation will meet this deficit.

Multiple-Dry Water Years – The multiple-dry year period used in this analysis assumes a repetition of the hydrology that occurred in 2013 through 2015, which is the multiple-dry year period that puts the most strain on the county's water supplies. During multiple-dry year droughts, voluntary and mandatory conservation will be needed. Valley Water will continue to work on reducing multiple-dry year deficits by securing more reliable or diverse water supplies.

Table 12: Supply and Demand Comparison – Multiple-Dry Water Years (AF/yr) [1,2]

		2020	2025	2030	2035	2040
First Year	**Demand**	140,435	145,066	149,967	155,289	160,877
	Demand Met by Water Supply	140,435	145,066	149,967	155,289	160,877
	Demand Met by Conservation	0	0	0	0	0
Second Year	**Demand**	140,435	145,066	149,967	155,289	160,877
	Demand Met by Water Supply	125,373	144,471	138,815	132,742	131,428
	Demand Met by Conservation	15,062	595	11,152	22,547	29,449
Third Year	**Demand**	140,435	145,066	149,967	155,289	160,877
	Demand Met by Water Supply	97,550	122,945	112,926	100,779	95,089
	Demand Met by Conservation	42,885	22,121	37,041	54,510	65,788

[1]Does not include recycled water or raw water and includes demands associated with this Project.
[2]In the second and third year of the worst-case historical multi-year droughts, there is a shortage of water available compared to the demand typical of that type of year. Valley Water has established a level of service goal of 100% during normal years and 80% during drought years to minimize water rates, and thus there can be up to a 20% call for conservation to meet this deficit (or more short-term conservation until additional water supplies are secured).[5] Over the next 20 – 30 years, Valley Water is pursuing over $1 billion in water supply projects to meet the 80% level of service goal for all drought years.

Regional Supply Reliability – Valley Water's Ensure Sustainability water supply strategy has three key elements:

[5] Valley Water Board Agenda Memorandum, January 14th, 2019.

1. Secure existing supplies and facilities
2. Optimize the use of existing supplies and facilities
3. Expand water use efficiency efforts

As part of this strategy, Valley Water's 2012 WSIMP estimates water conservation and recycling, combined, will increase from about 15 percent of the county's water supply mix to about 26 percent by 2035. Developing these local sources and managing demands reduces reliance on imported water supplies. In addition, Valley Water is working with multiple water agencies to investigate regional opportunities for collaboration to enhance water supply reliability, leverage existing infrastructure investments, facilitate water transfers during critical shortages, and improve climate change resiliency. Projects to be considered will include interagency interties and pipelines; treatment plant improvements and expansion; groundwater management and recharge; potable reuse; desalination; and water transfers. This program may result in the addition of future supplies for Valley Water.

WATER DEMAND MANAGEMENT MEASURES

SJW is a signatory of the California Urban Water Conservation Council (CUWCC) and signed the CUWCC Memorandum of Understanding (MOU) in February 2006. The CUWCC is a partnership of water suppliers, environmental groups, and others interested in California water supply who have come together to agree on a set of Best Management Practices (BMPs) for water conservation in the state. Additionally, SJW has its own water-waste provisions that come into effect when there is a water shortage. The CPUC has set forth the rules regarding water waste and water shortages governing investor owned utilities such as SJW. The CPUC rule relating to this is Rule 14.1.[6] This rule states that when there is a low-level water shortage that prompts a call for voluntary conservation by customers, a list of water-waste provisions goes into effect. Rule 14.1 also has provisions for high-level water shortages when mandatory conservation measures are deemed necessary.

SJW provides a full range of water conservation services to both residential and commercial customers. The cornerstone of SJW's conservation programs is the water audit program. The audit program is an excellent method for customers to learn about ways to reduce their consumption, as well as identify and fix any leaks they may have. The audits are performed at a customer request, typically in response to a high water bill concern and/or in response to marketing efforts. Audits are performed for both residential and commercial customers.

Valley Water offers conservation programs, such as rebates for high efficiency toilets and washing machines. SJW takes advantage of all regional rebate programs and all of Valley Water's rebate programs are offered to SJW customers. Typically, customers are directed to specific rebate programs during the course of a water audit based on a customer's need. Customers can also access rebates directly from retail outlets when purchasing equipment such as high efficiency washing machines. SJW collaborates with Valley Water on public outreach and education including such items as customer bill inserts and conservation campaign advertising.

[6] https://www.sjwater.com/customer-care/help-information/tariff-book

SJW has also increased the outreach and educational programs on outdoor water use. SJW constructed a water-smart demonstration garden that is open to the public (see photo to the right). Customers can visit the garden in person or take a virtual tour on SJW's website. SJW also developed a dedicated water wise landscaping website where customers can access a plant information database that includes hundreds of low water use plants as well as a photographic database of water wise gardens in the San Jose-Santa Clara County area. The landscaping website and the demonstration garden tour can be accessed from the SJW home web page.

In addition to these programs, SJW engages in other activities that contribute to the overall goal of reducing water waste, but are not specifically designated as conservation or water management programs. These include SJW's meter calibration and replacement program, corrosion control program, valve exercising program and metering all service connections.

SUMMARY

This Water Supply Assessment represents a comprehensive water supply plan for the Winchester Ranch Residential Project. In summary:

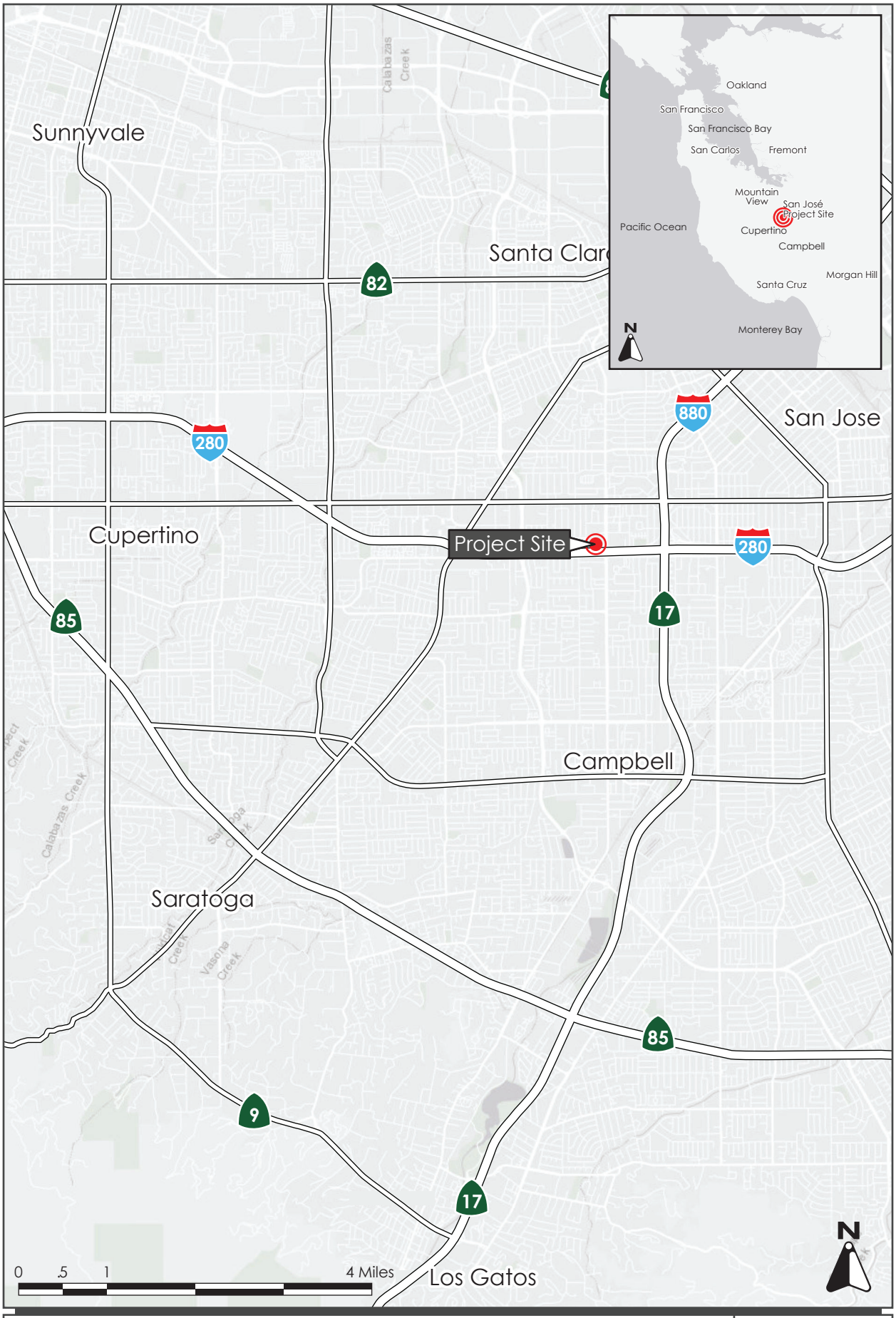
(1) Total net potable water demand for this Project is estimated at 232 acre-feet per year. Water usage associated with this Project represents a 0.16% increase in total system usage when compared to SJW's pre-drought 2013 potable water production. The increased demand associated with this Project is consistent with SJW's 2015 Urban Water Management Plan, which projected a 12.3% increase in total system demand between actual 2013 demand and projected 2040 demand.

(2) SJW currently has contracts or owns rights to receive water from the following sources:
1. Groundwater – from the Santa Clara Valley Subbasin
2. Imported and local surface water – from Valley Water
3. Local surface water – from Los Gatos Creek, Saratoga Creek, and local watersheds
4. Recycled water – from South Bay Water Recycling

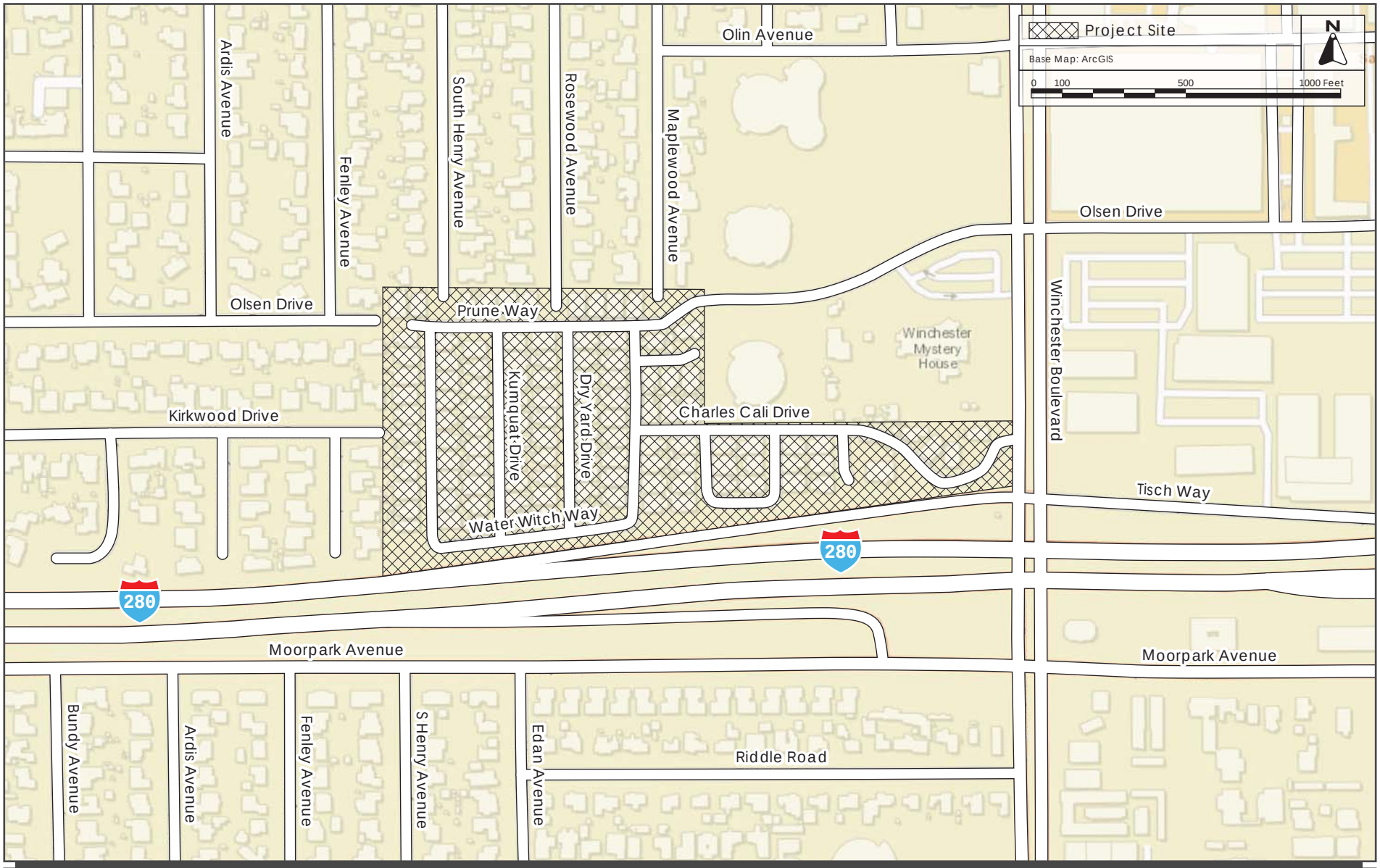
(3) SJW works closely with Valley Water to manage its demands and imported water needs. The projected water demand for this development is within previously determined growth projections for water demand in SJW's system.

SJW is able to meet the needs of the service area through at least 2035 for average and single-dry years without a call for water use reductions. This Project alone will not determine that water shortages would occur in the event of a multiple-dry year based on projections by SJW and Valley Water. According to Valley Water, it is pursuing water supply solutions to ensure that no more than 20 percent conservation will be required during any future drought, and SJW is committed to working with Valley Water to meet future demand and mitigate future shortages. After comparing the estimated increase in

total system demand associated with this Project to water supplies, based on both the SJW and Valley Water Urban Water Management Plans, SJW has determined that the water quantity needed for this project is within projections of normal growth and there is sufficient water available to serve the Winchester Ranch Residential Project.

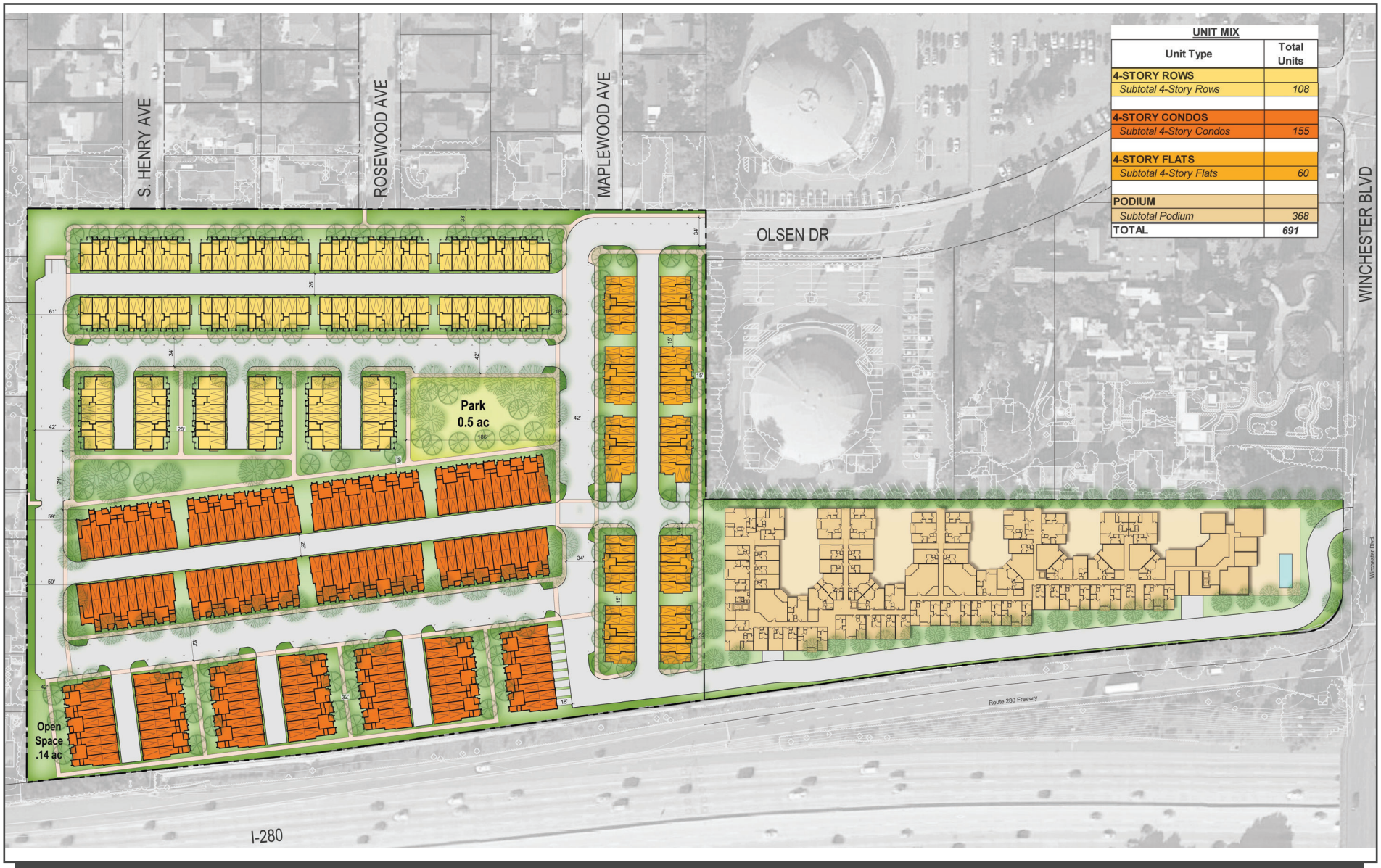


REGIONAL MAP | FIGURE 1



VICNITY MAP

FIGURE 2



UNIT MIX

Unit Type	Total Units
4-STORY ROWS	
Subtotal 4-Story Rows	*108*
4-STORY CONDOS	
Subtotal 4-Story Condos	*155*
4-STORY FLATS	
Subtotal 4-Story Flats	*60*
PODIUM	
Subtotal Podium	*368*
TOTAL	***691***

CONCEPTUAL SITE PLAN

FIGURE 3