Appendix J

Water Supply Analysis

DRAFT

WATER SUPPLY ASSESSMENT

OLSEN/SOUTH CHANDLER RANCH SPECIFIC PLAN

PASO ROBLES

August 28, 2019

TODD GROUNDWATER

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1. INTRODUCTION

This Water Supply Assessment (WSA) was prepared for the Olsen/South Chandler Ranch Specific Plan (Project) in the City of Paso Robles. The Project includes 1,293 dwelling units with 1,125 single family homes and 168 townhomes and multifamily units and a small amount of neighborhood commercial development. The area encompasses about 357 acres in the southeast portion of the City (**Figure 1**). About 163 acres are designated residential; 102 acres are for parks, recreational areas, open space and water quality basins; and 92 acres are roadways (Rincon, 2019). The Project will also include trails, bike lanes, and vineyards. The City of Paso Robles will supply water and sewer to the Specific Plan area.

Currently, the Project site contains 16 residences; 3 on the southern portion of the site (Olsen property) and 13 in an area called Our Town, a 1960 subdivision tract. These residences are supplied water from private wells. In the past, an agricultural well on the Olsen property was used to irrigate crops such as beets, barley, oats, alfalfa and grasses. This well has not been used in some time although the actual date it became inactive is unknown. The wells on the site will be properly abandoned when development occurs (Wallace, April 2019). Light industrial uses lie to the west of the South Chandler property and a residential area lies to the west of the Olsen property. Agricultural lands lie to the north, east and south. The proposed Beechwood Specific Plan area lies to the southwest.

The Project will be built in phases. Water supply will be potable water from the City of Paso Robles, which operates and owns a public water system. The City will also provide recycled water and wastewater collection.

This WSA was prepared in accordance with the City's Rules and Regulations for implementing projects subject to the California Environmental Quality Act (CEQA). The primary purpose of this WSA is to provide an independent evaluation of the Project's water needs and impacts on City water supplies. It documents Project water demand and provides information to verify that the City has sufficient water supply to meet future water demands within the Project area and within the City's water supply service area under normal and dry hydrologic conditions for the next 20 years.

1.1. PROPOSED PROJECT

The proposed Project encompasses about 357 acres with residential uses on about 163 acres and parks, recreational areas, open space, water quality basins and roadways consisting of about 194.2 acres (**Table 1**). The Project will include 1,293 dwelling units:

- 1,125 single family homes
- 108 townhomes, and
- 60 apartments.

The proposed development has been divided into 23 Planning Areas (PAs). **Figure 2** is a land use plan for the Project and includes the Planning Areas. Most of the Planning Areas will contain residential development (PAs 1-5, 8-13, 15, 17-20, and 23). PAs 6, 7 and 16 are designated for recreation and PAs 14, 21 and 22 are community parks.

The Project will include the following community amenities:

- The Farmstand (information and sales center; later a farmstand and community supported agriculture farm with one-acre planting area)
- The Poolhouse (recreational facility with a pool, spa and kiddy pool or splash pad)
- Olsen Creek Park
- The Overlook (recreational facility with clubhouse, fitness club, pool(s), kitchen, event space, outdoor bar and terrace, deli and coffee shop)
- Oak Knoll Park
- Meadowlark Park, and
- The Vines (PG&E easement for trails, vineyards, and open spaces).

Figure 3 shows the location of these amenities and housing types.

The Project is proposed to be constructed in three phases. The actual phasing will depend upon market conditions and the need for housing at the time of development. Phase 1 would be the development of PAs 1-7, 11, 12, and 14-16. Phase 2 would be the development of PAs 13, 17-19, 20, and 22. Phase 3 would be development of PAs 21 and 23. **Figure 2** shows the locations of these PAs. These phases would likely occur between 2021 and 2025 (Wallace, July 2019). PAs 8 (Neighborhood Commercial Overlay District), 9 (School Overlay District), 10A (Medium Density Residential) and 10B (existing Our Town subdivision) were not included in the phasing plan described in the Vinedo Specific Plan (Olsen Ranch 212, LLC, 2019). It was assumed that development of these areas would coincide with Project development.

Table 1. Land Use, Olsen/South Chandler Ranch Specific Plan Area, Paso Robles

Development Component	Area (acres)	Number of Dwelling Units
Residential		
Low Density Residential	105.9	586
Medium Density Residential	47.6	539
High Density Residential	9.4	168
Other		
Community Parks	45.3	-
Neighborhood Open Space	33.8	-
Private Recreation	17.1	-
Water Quality Basins	5.7	-
Framework Roadways	40.8	-
In-Tract Roadways	51.5	-
Total	**357.1**	**1,293**

Information from Vinedo Specific Plan Table 2.0.1 (Olsen Ranch 212, 2019) and Rincon (2019)

1.2. BACKGROUND

The City of Paso Robles requires that certain CEQA documents (e.g., an Environmental Impact Report or Mitigated Negative Declaration) be informed by an independent evaluation of the project's water supply needs and impacts on the City's water supply. This requirement applies to all general plan amendments that propose an increase in residential, commercial, and/or industrial intensity and all annexations that have not been approved by the City Council as of January 1, 2014. Each independent evaluation is to be prepared by a consultant of the City's choice based on demonstrated competence in water supply assessment and evaluation and familiarity with the UWMP. The applicants are requesting a general plan amendment to combine the Olsen Ranch and the southern portion of the Chandler Ranch property into one planning area, re-designate business park land use to residential on the South Chandler Ranch property, reallocate 60 units from the Uptown/Town Center Specific Plan to the Olsen/South Chandler Specific Plan, and to relocate the commercial component of the land use designation on the Chandler Ranch (Paso Robles, RFP, 2018 and Rincon, 2019).

The California Water Code Section 10910 (also termed Senate Bill 610 or SB610) requires that a Water Supply Assessment (WSA) be prepared for a project that is subject to CEQA and subject to SB610 as defined in Water Code Section 10912. The Olsen/South Chandler Ranch Specific Plan is subject to CEQA and SB610 because it is a residential development of more than 500 dwelling units. Under SB610, documentation of water supply sources, quantification of water demands, evaluation of drought impacts, and provision of a comparison of water supply and demand are required to assess water supply sufficiency. This WSA follows the guidelines set out in the Guidebook for Implementation of Senate Bill 610 and Senate Bill 221 (DWR, 2003).

A foundational document for preparation of a WSA is an UWMP; the City has prepared and adopted a 2015 UWMP (Todd, 2016) in compliance with the Water Code. The 2015 UWMP details City water supplies and demands to buildout (2045 or later) and includes projected increases in water demand of both residential and non-residential land uses located within the City limits. The Olsen/South Chandler Ranch Specific Plan area is designated in the City's General Plan Land Use Element to allow up to 1,233 dwelling units (673 on the Olsen Ranch Specific Plan area and 560 on the South Chandler Ranch Specific Plan area). The Project includes a General Plan amendment to reallocate 60 units from the Uptown/ Town Centre Specific Plan to the Olsen/South Chandler Specific Plan area. If the proposed General Plan amendment is approved, the water demand associated with the 1,293 residential dwelling units and 10 acres of non-residential development that are included in the UWMP projections for the South Chandler area would be allocated to the Olsen/South Chandler Project (Gonzalez, 2019 and Bersbach, 2019).

1.3. WSA PURPOSE AND ORGANIZATION

The purpose of this WSA is to document the City's existing and future water supplies for its service area and to compare them to the area's future water demand, including that of the proposed Project. This comparison, conducted for both normal and drought conditions in five-year increments over the next 20 years, is the basis for assessing water supply sufficiency in accordance with SB610.

The WSA incorporates current and future water supply and demand information from the City's 2015 UWMP, available City and County documents regarding water supplies (groundwater, Nacimiento supply, recycled water), current water use, and estimated water use of the Project and other approved

and proposed projects. The analysis extends to 2045 (assumed to be City buildout), addresses water demands in five-year increments, and provides information consistent with SB610 WSA requirements.

While fulfilling SB610 information requirements, this WSA is organized to be easily read and understood, as follows:

- Section 1 introduces the Project and provides background.
- Section 2 focuses on the current and proposed water demands of the Project that is the subject of this WSA.
- Section 3 documents the City's existing and future supplies and demands in normal and drought years. The City currently relies on groundwater, surface water, and Lake Nacimiento water. Recycled water will be available in the future. Section 3 also includes a summary of the status of the development of a Sustainable Groundwater Management Plan for the Paso Robles Groundwater Basin and provides a discussion of the degree of certainty associated with available water supplies.
- Section 4 provides the comparison of water supply and demand (in normal and drought years) that fulfills the intent of SB610.
- Section 5 summarizes the report's conclusions.

2. PROJECT WATER DEMAND

This section addresses water demands for the existing property and presents water demand estimates for the proposed development.

2.1. CURRENT WATER USE

The Olsen/South Chandler Ranch Specific Plan area currently relies on groundwater for its water supply. Current water use is shown in **Table 2**. Current groundwater use at the Project site was estimated at approximately 6.4 acre-feet per year (AFY). The three existing residences on the Olsen property[1] are supplied water from one private domestic well. This well and two other inactive wells on the Olsen property will be properly abandoned when development occurs. In the past, crops such as beets, barley, oats, alfalfa and grasses have been grown on the site but no information on acreages, dates or irrigation rates is available (Wallace, April 2019). There are 13 existing homes on the Our Town property (PA 10B on **Figure 2**). These homes are also supplied water through a private well or wells. These wells will also be properly abandoned when development occurs.

Table 2. Current Water Use, Olsen/South Chandler Ranch Specific Plan Area, Paso Robles

Water Use Category on Project Site	Current Number of Units	Current Total Water Use (Private Wells) AFY	Water Use Rate
Single Family Homes (on Olsen Property)	3	1.20	0.40 AF/unit; typical usage in Paso Robles for older rural residential
Single Family Homes (on Our Town Property)	13	5.20	0.40 AF/unit; typical usage in Paso Robles for older rural residential
Total Current Water Use		**6.40**	**-**

AFY=acre-feet per year
Number of units from Wallace Group email communication (April 22, 2019) and Athey (2019)

The three homes on the Olsen property will be demolished for the development and some of the homes on the Our Town property will likely be retained and others demolished and rebuilt.

[1] The Olsen property is the southeastern portion of the Olsen/South Chandler Ranch Specific Plan area.

2.2. ESTIMATED FUTURE WATER DEMAND

The Project is proposed to be constructed in three phases. These phases would likely occur between 2021 and 2025 (Wallace, July 2019). **Table 3** shows the buildout water demands of the Project. It includes the type and number of dwelling units, commercial building area, or irrigated areas in the column next to the development component. The next two columns list the amounts of potable or recycled water each component will use at buildout. The last column (right-hand side) shows the water rates used to determine these buildout water demands.

Residential demands are shown in the top portion of the table and are based on water use rate projections used for future development in the City's 2015 UMWP (0.2 AFY for single family homes and 0.18 AFY for multifamily units) (Gonzalez, 2018). Non-residential demands are shown in the bottom portion of the table. Recycled water will be used for irrigation of community parks, neighborhood open space, water quality basins, and the vineyards. Potable water will be used for irrigation on the Farmstand land and on the Private Recreational Areas. A seven percent increase was applied to these water uses to include unaccounted-for (non-revenue) water in the total water demands. Unaccounted-for water is water that represents main flushing or firefighting, meter error, and leaks. At buildout, total potable demand was estimated to be 348.1 AFY and a total recycled water demand was estimated to be 230.8 AFY.

The Project includes a school overlay district on PA 9 (Centex parcel). This property could either be developed as a school or housing. If a school is built on this site, then the total housing could potentially be less than 1,293 units. However, to be conservative, this WSA assumed that an elementary school is included on the site and still included all 1,293 residential units.

Table 3. Future Water Use, Olsen/South Chandler Ranch Specific Plan Area, Paso Robles

Development Component	Planned Number of Units or Area in Acres	Buildout Water Use Sources, AFY		Water Use Rate[1]
		City Supplied Potable Water	Recycled Water	
Residential	**dwelling units**			
Single Family Homes	1,125	225.0	0.0	0.20 AF/unit applicant and 2015 UWMP
Townhomes	108	19.4	0.0	0.20 AF/unit applicant and 2015 UWMP
Apartments	60	10.8	0.0	0.18 AF/unit applicant and 2015 UWMP
Residential Units or Use	**1,293**	**255.2**	**0.0**	-
Non-Revenue Water[2]	-	19.2	0.0	-
Total Residential Use	**-**	**274.5**	**0.0**	-
Non-Residential	**acres**			
Commercial/Retail (building area)[3]	0.23	2.5	0.0	0.232 gpd/sf=11.32 AFY/acre
The Farmstand	1.0	3.0	0.0	3 AFY/acre
Pool House	Facilities on the Private Recreation areas	3.0	0.0	applicant provided
Overlook Rec Center		3.5	0.0	applicant provided
Spa		5.0	0.0	applicant provided
Club		7.5	0.0	applicant provided
Event Barn		4.4	0.0	applicant provided
Pool Service Building		2.0	0.0	applicant provided
CSA Maintenance Shed and Dog Wash		0.1	0.0	applicant provided
Elementary School - 495 students[3]	Included in residential total areas	3.3	0.0	12 gallons/day per student, 180 days/year
Private Recreational Areas (irrigation)	17.1	34.2	0.0	2 AFY/acre
Community Parks (irrigation)	45.3	0.0	90.6	2 AFY/acre
Neighborhood Open Space (irrigation)	33.8	0.0	67.6	2 AFY/acre
Water Quality Basins (irrigation)	5.7	0.0	11.4	2 AFY/acre
Vineyards (irrigation)	30.0	0.0	45.0	1.5 AFY/acre
Non-Residential Use	**-**	**68.5**	**214.6**	-
Non-Revenue Water[2]	-	5.2	16.2	-
Total Non-Residential Use[4]	**-**	**73.7**	**230.8**	-
Total Project Water Use	**-**	**348.1**	**230.8**	-

Information from Wallace Group (July 31, 2019), Frace (2019), and working draft EIR Section 2 (Rincon, 2019).

1. Future demand projections in the 2015 UWMP had a rate of 0.20 AFY for single family homes and 0.18 AFY for multifamily homes.
2. Non-revenue (unaccounted-for) water was assumed to be 7% of potable and 7% of recycled demands to be consistent with the 2015 UWMP and includes water used for main flushing or firefighting, meter error, and leaks.
3. The gross area of the commercial overlay district (PA-8) is 1.1 acres and is projected to contain a 0-23-acre commercial building(s) and 7 medium density residential units (Frace, 2019). The gross area of the school overlay district is 11.8 acres (PA-9) and may contain a school and up to 119 medium residential units (Frace, 2019).
4. 16.8 AFY of potable water demand is included in the 2015 UWMP for non-residential development included in the General Plan for 10 acres of commercial development that was planned in the vicinity of South Chandler Ranch. No other non-residential development was included for the South Chandler or Olsen Ranch areas at the time of the 2015 UWMP, therefore 56.9 AFY of the proposed 73.7 AFY of non-residential water use by the Project was not accounted for in the 2015 UWMP (Gonzalez, 2019).

3. CITY OF PASO ROBLES WATER SUPPLY AND DEMAND

3.1. CITY SUPPLY AND DEMAND OVERVIEW

The City has relied on groundwater from the Paso Robles Groundwater Basin, water from the Salinas River, and more recently, Lake Nacimiento water for its water supply. The City has fulfilled water demand in years that have included both extreme dry years (such as 2013) and prolonged severe drought extending over seven years (1984-1990) (see **Figure 4** for annual rainfall data). Recycled water is planned for the future. Discussion of current and projected City water demand and supplies has recently been updated and documented in the City's 2015 UWMP and will only be summarized here. The UWMP can be found on the City's website: https://prcity.com/467/Urban-Water-Management-Plan-PDF.

Table 4 summarizes projected population and water demands to buildout and the supplies projected to be used to meet those demands.

Table 4. City of Paso Robles Supply and Demand Projections

	2020	2025	2030	2035	2040	Buildout (2045 or later)
Population	32,300	34,400	37,700	39,900	41,900	44,000
Water Demands (AFY)	7,089	7,575	8,061	8,546	9,032	9,519
Water Supply Sources to Meet Demands (AFY)						
Basin Wells	2,600	2,506	2,602	2,124	2,610	2,200
River Wells	3,100	3,500	3,800	4,558	4,558	4,558
Nacimiento Water from Water Treatment Plant	1,120	1,120	1,120	1,120	1,120	2,017
Nacimiento Water from the Recovery Well	269	269	269	269	269	269
Recycled Water for Potable Offset	0	180	270	475	475	475
Total Supply	7,089	7,575	8,061	8,546	9,032	9,519

Note: Supply amounts shown above do not reflect total supply available to the City from each source, nor do they reflect any limits on the City's groundwater rights, but instead the water planned to supply projected demand.

The water demand projections in the 2015 UWMP were developed using representative water demand factors, anticipated future conservation, and City General Plan growth assumptions and buildout conditions. Projected water conservation savings are included in these demand projections. Water demand at buildout is projected to be 9,519 AFY (Todd, 2016).

The supply amounts listed in the table above represent the water planned to supply projected demands and are not the total supply available to the City from each source. More detail on supply sources is provided below.

3.2. CITY OF PASO ROBLES SUPPLIES

3.2.1. Climate

Climate has a notable influence on water availability and demand on a seasonal and annual basis. During drought, influences include greater water demand for outdoor uses, specifically landscape irrigation, and less supply availability because of reduced precipitation and greater evaporation.

Representative climate data for the Paso Robles area are summarized in **Table 5** below, including average monthly rainfall, temperature, and evapotranspiration (ETo). The area has a Mediterranean climate, with moderate temperatures year-round, dry summers and wetter winters. Most of the rainfall occurs between November and April.

Table 5. Climate Data

Month	Average Rainfall[1] (inches)	Average ETo[2] (inches)	Average Temperature[3] (°F)
January	3.45	1.69	46.89
February	3.01	2.24	50.02
March	2.46	3.72	52.98
April	1.01	4.76	56.60
May	0.34	6.03	61.71
June	0.06	6.56	67.44
July	0.05	6.60	71.55
August	0.05	6.30	71.26
September	0.16	4.94	68.12
October	0.59	3.50	61.22
November	1.36	2.02	52.66
December	2.53	1.51	46.76
Average Calendar Year Total	**14.77**	**49.87**	**-**
Monthly Average	**1.26**	**4.16**	**59.01**

1. Precipitation at Paso Robles Station 046730 (Jan 1894-Dec 2018) (WRCC, 2019). Note that *Average Calendar Year Total* is not the sum of numbers above but rather historical annual average.
2. ETo=Average Evapotranspiration at CIMIS Station 163 Atascadero (CIMIS, 2019).
3. Temperature at Paso Robles Station 046730 (Jan 1894-Dec 2018) (WRCC, 2019).

Figure 4 shows annual rainfall for the 1931 to 2018 period with average annual rainfall at 14.63 inches for the 1931 to 2018 period. Historical average rainfall for the 1894 through 2018 period is 14.77 inches.

3.2.2. Water Supplies

The City of Paso Robles has historically relied on groundwater from the Paso Robles Groundwater Basin and Salinas River water for its municipal water supply as shown below. This has been supplemented in recent years with water from Lake Nacimiento; recycled water is planned for the future. **Table 6** presents the amount of supply used from each source for the last seven years. A description of the supplies available to the City is provided in the following sections.

Table 6. Past City of Paso Robles Supplies Used to Meet Demands

Water Source (AFY)	2011	2012	2013	2014	2015	2016	2017
Paso Robles Groundwater Basin – Basin Wells	2,327	2,880	3,257	3,497	2,045	951	842
Salinas River – River Wells	4,069	3,814	3,743	2,772	3,021	2,448	3,348
Nacimiento Water Treatment Plant*	0	0	0	0	87	1,763	1,622
Total Groundwater and Surface Water	6,396	6,694	7,000	6,269	5,153	5,162	5,812

Note: Supply amounts shown above do not reflect total supply available to the City from each source, nor do they reflect any limits on the City's groundwater rights, but instead the water used to supply projected demand.
* Nacimiento Water Treatment Plant amount shown does not include surface water augmentation with Nacimiento Project Water during periods of drought.

Groundwater

Groundwater from the Paso Robles Groundwater Basin has been and will continue to be an important component of the City's water supply. The City operates deep wells that pump percolating groundwater from California Department of Water Resources (DWR) Basin No. 3-4.06 (Paso Robles Groundwater Basin) (**Figure 1**). The Paso Robles Groundwater Basin has not been adjudicated but it has been designated as high priority and critically overdrafted by the State, requiring management under the Sustainable Groundwater Management Act. The Paso Robles Groundwater Basin is the water-bearing portion of the upper Salinas River drainage area. The Salinas River system drains the basin area and surrounding uplands and flows north along the western edge of the drainage area.

The major aquifers (or water-bearing units) in the basin include alluvial deposits and the Paso Robles Formation. The alluvial deposits are up to 100 feet in depth and include recent stream-laid sands and gravels along the floodplains of the Salinas River and its tributaries, and older finer-grained terrace deposits along the Salinas River and Estrella River. Wells in alluvium typically produce in excess of 1,000 gallons per minute (gpm) (Fugro, 2002).

The Paso Robles Formation is the most extensive aquifer and consists of sedimentary layers extending from the surface to depths of more than 2,000 feet. It is typically unconsolidated and generally poorly sorted. The water bearing sediments in the basin are 700 to 1,200 feet thick and typically extend to sea level. Paso Robles Formation sediments are relatively thin, often discontinuous sand and gravel layers interbedded with thick layers of silt and clay. Wells generally produce several hundred gpm (Fugro, 2002).

The City operates 13 deep wells that are dispersed across the City east of the Salinas River. All are screened in the Paso Robles Formation as are the many nearby rural residential and agricultural wells surrounding the City.

Groundwater Quality. A general measure of groundwater quality is total dissolved solids (TDS). For drinking water purposes, water with a TDS concentration of 500 mg/L or less is recommended, but can be usable up to 1,000 mg/L. In Paso Robles Groundwater Basin wells, TDS concentrations generally range from 300 to 1,000 mg/L (Fugro, 2002 and 2005).

A survey of local groundwater quality was conducted by the United States Geological Survey (USGS) as part of its Groundwater Ambient Monitoring and Assessment (GAMA) Program (USGS, 2007). The USGS sampled eleven randomly-selected wells located along the major river valleys, including four in or near the City. While trace amounts of pesticides, arsenic, and boron were reported, no constituents of concern were detected above regulatory thresholds.

In general, City water quality is good, but has relatively high TDS and hardness. In response to the hardness, many residents use home water softeners. However, use of water softeners results in addition of salts to the City's wastewater. Nacimiento water is lower in hardness and TDS than groundwater and its provision to City customers may reduce the use of residential water softeners. Reducing or eliminating the use of water softeners will help preserve the quality of local groundwater and advance the use of recycled water for irrigation.

Groundwater Levels and Flow. Groundwater levels in the Paso Robles Groundwater Basin range between 1,500 feet above mean sea level (msl) around the basin margins to below 600 feet msl in the Estrella subarea and along the Salinas River north of the City (Todd, 2007 and GEI, 2011). Groundwater flows generally from the margins toward the center of the basin and to the northwest, where the outlet to the lower Salinas Valley is located.

Surface Water

River Wells. The City currently pumps Salinas River water from river wells pursuant to appropriative surface water rights and a permit issued by the State Water Resources Control Board. The City has eight river wells and one Nacimiento water recovery well. Approximately half of the City's current water supply comes from its shallow Salinas River wells in the Atascadero Area. Groundwater basin boundaries

were modified by the DWR in 2016 and now define the Atascadero Area of the Salinas Valley Groundwater Basin (DWR Basin No. 3-004.11). The City's Permit allows the City to take up to eight cubic feet per second (3,590 gpm) with a maximum diversion of 4,600 AFY (January 1 to December 31). The permit designates a moveable point of diversion within a specific reach of the Salinas River.

Nacimiento Water. The City of Paso Robles holds a 6,488 AFY delivery entitlement for Lake Nacimiento water with the San Luis Obispo County Flood Control and Water Conservation District. In order to directly use its Nacimiento supply, the City constructed a 2.4 million gallon per day (mgd) surface water treatment plant which became fully operational in early 2016. The City anticipates operating the plant approximately five to nine months out of the year to serve peak summer demands, yielding about 1,120 AFY to 2,017 AFY. Treatment plant operation could be increased to provide up to 2,688 AFY.

In addition to direct deliveries, Nacimiento water also can be utilized by the City through a recovery well. This operation allows Nacimiento water to be turned into the Salinas River channel and captured through the recovery well (as distinct from River water that the City produces pursuant to its water rights permit issued by the State Board). The recovery well will be operated at a rate of 400 gpm for five months out of the year, averaging 269 AFY.

Finally, Nacimiento water can be used to augment surface water and improve water supply reliability. Similar to the operation of the recovery well, Nacimiento water can be turned into the Salinas River channel adjacent to City's river wellfield. This allows the river wells to operate when native supplies are low.

Recycled Water

Municipal recycled water is wastewater that has been treated to a specified quality to enable it to be used again. The City currently does not use recycled water but is actively pursuing such use. In 2014, the City completed a Recycled Water Master Plan update (AECOM, 2014) that identified potential recycled water customers, estimated recycled water quality and blending needs, identified recycled water distribution system possibilities, and developed preliminary cost options.

The Recycled Water Master Plan identified the potential to provide approximately 1,530 AFY of recycled water to customers within City boundaries to irrigate City parks, schools, and local government facilities; residential, commercial, and industrial landscape irrigation; and golf course irrigation. This estimate of total recycled water includes potential deliveries that offset potable water demand otherwise served by the City, and deliveries that would offset private well use. This estimate also accounts for blending recycled water with lower salinity sources to make it suitable for agricultural and golf course irrigation.

Recycled water amounts shown in **Table 4** would offset potable water demand (475 AFY by 2035). Additional recycled water that is not needed within City boundaries will be available for use outside City boundaries for such uses as agricultural and vineyard irrigation and groundwater recharge.

The City of Paso Robles is currently designing a recycled water distribution system that will serve irrigation demands in the City and will also allow regional recycled water use. Recycled water will benefit the City and regional users by providing a drought-resilient supplemental water supply that can be used to offset irrigation demands and contribute to sustainable use of groundwater. The first phase of the City's recycled water distribution system will consist of construction of a five to six-mile pipeline in 2020.

Recycled water will be piped from the treatment plant to the City's east side with a reservoir in Barney Schwartz Park. Construction may take 18 months. In the interim, the recycled water will be released into the Salinas River at the current discharge site for treated wastewater. The recycled water will be available to large centralized irrigation uses within the City like golf courses, parks, and commercial landscaping areas. The system will be expanded in the future to serve additional landscape uses in the City and agricultural irrigation.

3.3. SUSTAINABLE GROUNDWATER MANAGEMENT ACT

The Sustainable Groundwater Management Act (SGMA), which became effective on January 1, 2015, provides a framework for sustainable management of groundwater resources by local agencies, defined as a local public agency with water supply, water management, or land use responsibilities within a groundwater basin.

SGMA establishes a process and timelines for local agencies to achieve sustainable groundwater management in basins designated as medium or high priority by the DWR. The Paso Robles Groundwater Basin is on the following accelerated timeline because it is designated as critically overdrafted:

- Local agencies must form local groundwater sustainability agencies (GSAs) by 2017;
- GSAs must prepare and adopt groundwater sustainability plans (GSPs) by 2020; and
- Once GSPs are adopted, GSAs must implement them and achieve sustainability within 20 years.

In January 2015, the County of San Luis Obispo and Flood Control District Board adopted a SGMA Strategy to "establish community focused Groundwater Sustainability Agencies (GSA) based on cooperative interagency and stakeholder relationships in order to comply with SGMA requirements." Subsequently, five GSAs were formed and, in September 2017, entered into a Memorandum of Agreement to prepare the Groundwater Sustainability Plan for the Paso Robles Groundwater Basin. The five overlying GSAs, called the Cooperative Committee, are:

- City of Paso Robles
- Paso Basin - County of San Luis Obispo
- San Miguel Community Services District
- Shandon - San Juan Water District
- Heritage Ranch Community Services District

The GSP is in the process of being written and sections are available for review on the Paso Robles Groundwater Communication Portal: http://pasogcp.com. The Portal also provides meeting information and updates on other SGMA-related activities in the Paso Robles Groundwater Basin. Additional information on the Paso Robles Groundwater Sustainability Plan can be found on the County's website: https://www.slocounty.ca.gov/Departments/Public-Works/Committees-Programs/Sustainable-Groundwater-Management-Act-(SGMA)/Paso-Robles-Groundwater-Basin.aspx. Compliance with SGMA means that the GSP document will be completed by 2020 and sustainability will be achieved by 2040.

3.4. WATER SUPPLY FACTORS

The City has a diverse water supply portfolio that increases overall City water supply reliability. It has a Water Conservation and Water Shortage Contingency Plan that establishes mandatory and permanent water management requirements to conserve water, enable effective water supply planning, provide for reasonable and beneficial use of water, and prevent waste, unreasonable use, and unreasonable methods of use of water. However, various factors have the potential to affect the City's water supply, including legal, environmental, water quality, and climatic factors, or a combination thereof.

3.4.1. Legal

The City is taking steps to increase the reliability of its surface water and groundwater supplies. For example, and in addition to other efforts described herein, the City is an active party in the development of a GSP for the Paso Robles Groundwater Basin. Under SGMA, the five GSAs in the Paso Robles Groundwater Basin have the legal authority to implement the GSP throughout the entire plan area.

In addition, the City has developed policies that apply to the management of non-City wells within City limits. These policies outline permit requirements for the development and use of private wells within City boundaries, establish policies for recycled water use, and extend the City's Water Conservation and Water Shortage Contingency Plan to these private wells. The policies also require that private wells be maintained and operated in a manner to prevent cross-connection with the City water system and be properly abandoned to prevent migration of surface contaminants to groundwater.

In 2013, a quiet title water rights lawsuit was filed by a small group of North County property owners in San Luis Obispo County Superior Court who argued that their overlying groundwater rights and right to continue pumping from the basin is equal or superior to the rights of the County and other governmental entities that also pump from the basin. The case was moved to the Santa Clara County Superior Court because of the court's experience with complex water law. A jury trial in 2018 found that public water suppliers had acquired prescriptive groundwater rights to the Paso Robles Groundwater Basin during times of groundwater shortage conditions. The next phase of the case will determine how much water public water suppliers have a right to pump.

3.4.2. Environmental

Environmental factors that could affect City's water supply may arise from increased pumping by other groundwater basin users. As noted above, DWR already has designated the Paso Robles Groundwater Basin as a critically overdrafted basin. SGMA regulation will guide the Paso Robles Groundwater Basin water users in the future sustainable management of groundwater resources to prevent SGMA-defined undesirable results (e.g., chronic lowering of groundwater levels, reduction of groundwater storage, degraded water quality, land subsidence, and surface water depletions with adverse impacts on beneficial uses.)

Earthquakes (such as the 2003 San Simeon earthquake) also are an environmental event that could affect supply consistency in the short term as repairs are made to potentially damaged facilities (e.g., storage tanks, pipelines, wells). Heat waves have resulted in power outages in Paso Robles that can temporarily disrupt water supply. The City has backup generators at some but not all City wells. In the past, the City has rented additional generators during power failures.

In addition to the Water Conservation and Water Shortage Contingency Plan, the City has a Water System Emergency/Disaster Response and Notification Plan to respond to emergencies affecting water system operation. The City also has a Local Hazard Mitigation Plan that assesses risks posed by natural and human-caused hazards and includes a mitigation strategy for reducing the City's risks.

Environmental impacts associated with supplying water to the Project will be minimal. The City's main infrastructures for groundwater, surface water and Nacimiento water supplies are already established. The Environmental Impact Report for the Project will address potential environmental impacts associated with construction of the water delivery system on the Project site. Regional water supply-related impacts are being addressed through the SGMA process for the management and use of groundwater in a manner that can be maintained during the planning and implementation horizon without causing undesirable results. The Paso Basin GSP is in the process of finalizing a set of Sustainable Management Criteria and subsequent projects and management actions to avoid significant and unreasonable undesirable results related to chronic lowering of groundwater levels, reduction of groundwater storage, degradation of groundwater quality, land subsidence affecting land use and depletion of interconnected surface affecting beneficial use.

3.4.3. Water Quality

It is not anticipated that the current or projected quality of surface water, groundwater, Nacimiento water, or recycled water will affect the volume of water available for use by the City. Nacimiento water can improve the quality of the City's water supply with respect to lowering the total dissolved solids (TDS) content of the supply.

While all but one of the Salinas River wells are clustered in two well fields, the remaining City wells are distributed widely. Accordingly, the response to contamination of a well field or one or more wells would be cessation of pumping in the affected wells and greater temporary reliance on the remaining wells (as well as Nacimiento water and recycled water supply as applicable). Wellhead treatment is also an alternative that could be implemented in response to a specific water quality issue. Currently, the Ronconi Well Field has a microfiltration wellhead treatment system and Sherwood 9 and Sherwood 11 wells have treatment systems to remove arsenic and hydrogen sulfide.

The City's supply sources are potentially vulnerable to agricultural drainage, auto repair shops, gas stations, home manufacturing, low-density septic systems, sewer collection systems, dry cleaners, metal plating/finishing/fabricating, animal operations, agriculture and irrigation wells, and plastic and synthetics producers. Despite these potential vulnerabilities, all water supplied by the City consistently meets all applicable drinking water standards.

The potential for contamination of City wells is reduced through preparation of a Drinking Water Source Assessment and Protection Program (DWSAP), a federally-mandated program being coordinated by the California State Department of Health Services. The City has prepared DWSAs for all of its wells. For each well, the DWSAs:

- Delineate source protection areas for both surface water and groundwater;
- Identify all potential sources of significant contamination in source protection areas; and
- Determine the susceptibility of water sources to contamination within protection areas.

Additionally, the City has employed several protection measures to reduce potential for contamination which have included increased monitoring, and abatement or remediation of identified sources of potential contamination. These activities, and the regional policies and ongoing programs listed below directly or indirectly reduce the vulnerability of the City's supplies to contamination or the potential for contamination:

- City and County ordinances prohibiting discharge of contaminants and pollutants
- City and County code enforcement
- City's industrial waste, and pretreatment and source control programs
- Stormwater pollution prevention programs
- Strict adherence to DWR well abandonment procedures for public and private wells.

The City's Water Shortage Contingency Plan can be used if unforeseen water supply interruptions occur due to water quality problems. Water supply wells are dispersed throughout the City and it is unlikely that more than one cluster of wells would be impacted at the same time. As mentioned before, the City's diverse water supply portfolio greatly bolsters overall water supply reliability.

With regard to regional groundwater quality, the Salt/Nutrient Management Plan (SNMP) for the Paso Robles Groundwater Basin (RMC, 2015) has characterized groundwater basin conditions, documented salt and nutrient sources, and estimated loading with a focus on TDS, chloride and nitrate. The SNMP indicated that overall groundwater quality was generally stable and could be improved with additional use of Nacimiento supply. Reduction of salt loading has been a long-term goal of the City, which has pursued the reduction of home water softener use, strategic use of City wells with lower salt concentrations, and implementation of an industrial waste discharge ordinance.

3.4.4. Climatic

The climatic events most likely to affect water supply are droughts. Future climate change can bring additional challenges to water supply management.

While the City's surface water supplies are not dependent on snowmelt (which is most likely to be affected by climate change and global warming), effects of climate change may include increased evapotranspiration losses, including increased irrigation water demand and evaporation from Lake Nacimiento. Effects on the water system of increased irrigation demand can be minimized through water conservation measures and provision of recycled water.

4. COMPARISON OF SUPPLY AND DEMAND

To determine water supply sufficiency, water supply assessments must include a comparison of supply and demand during normal, single dry and multiple dry years during a 20-year projection. **Tables 7** and **8** compare City supply and demand projections in five-year increments between 2020 and buildout (anticipated to occur after 2045) for normal and dry climatic years. These tables are based on 2015 UWMP tables. On an annual basis, the City has been able to provide sufficient supplies to meet demand during normal, single-dry, and multiple-dry year periods. Historical annual pumping has not been greatly affected by drought. The top portions of **Tables 7** and **8** show the City's supply and demands from the 2015 UWMP. Note that the supply totals represent the supply that will be used to meet 2015 UWMP demands.

As discussed in **Section 1.2**, the water supply needed to serve the Project's residential potable water demand and a portion of its non-residential demand is included in the 2015 UWMP. The City's General Plan Land Use Element includes up to 1,233 dwelling units (673 on the Olsen Ranch Specific Plan area and 560 on the South Chandler Ranch Specific Plan area) plus 60 dwelling units from the Uptown/ Town Centre Specific Plan and 10 acres of non-residential development in the vicinity of South Chandler Ranch which will be allocated to the Project with approval of the proposed Olsen/ South Chandler Specific Plan. The UWMP planned for 16.8 AFY of water supply for these 10 acres of non-residential development. Although the additional 56.9 AFY of non-residential demand proposed by the Project was not accounted for in the 2015 UWMP (shown in red in **Tables 7** and **8**), the City has 57 AFY of supply available from its water supply portfolio of Nacimiento water, groundwater from the Paso Robles Groundwater Basin and water from the Salinas River.

Table 8 shows supply and demand for single year droughts in five-year increments between 2020 and buildout (2045 or later). Although customer water use in drought years may increase initially as a result of increased irrigation, water use in a drought year was assumed to be the same as a normal year because water use restrictions would limit additional water use, especially for landscape irritation. Supply totals are the supply that will be used to meet demands. The amount of water supply available in times of drought is deemed the same as that available during normal years, and within historical pumping volumes.

Table 7. City of Paso Robles Normal Year Supply and Demand Projections

Acre-feet/year	2020	2025	2030	2035	2040	Buildout (2045 or later)
UWMP Supply and Demand Projections[1]						
Supply totals	7,089	7,575	8,061	8,546	9,032	9,519
Demand totals	7,089	7,575	8,061	8,546	9,032	9,519
Difference	0	0	0	0	0	0
Supply and Demand Projections (including portion of Project not included in UWMP)[1]						
Supply totals	7,089	7,575	8,061	8,546	9,032	9,519
Demand totals	7,089	7,632	8,118	8,603	9,089	9,576
Difference	0	57	57	57	57	57

Note: Supply totals are from the 2015 UWMP and represent the supply that will be used to meet 2015 UWMP demands.

1. Potable water for the Olsen/South Chandler Project's proposed residential use (274.5 AFY) and for a portion of the proposed non-residential use (16.8 AFY) is included in the 2015 UWMP projections (see Table 3). The City has the additional 56.9 AFY (73.7 - 16.8) of non-residential supply available from its water supply portfolio, however the supply amounts in this table were kept at 2015 UWMP-listed supplies.

Table 8. City of Paso Robles Single and Multiple Dry Year Supply and Demand Projections

Acre-feet/year	2020	2025	2030	2035	2040	Buildout (2045 or later)
UWMP Supply and Demand Projections[1]						
Supply totals	7,089	7,575	8,061	8,546	9,032	9,519
Demand totals	7,089	7,575	8,061	8,546	9,032	9,519
Difference	0	0	0	0	0	0
Supply and Demand Projections (including portion of Project not included in UWMP)[1]						
Supply totals	7,089	7,575	8,061	8,546	9,032	9,519
Demand totals	7,089	7,632	8,118	8,603	9,089	9,576
Difference	0	57	57	57	57	57

Note: Supply totals are from the 2015 UWMP and represent the supply that will be used to meet 2015 UWMP demands.

1. Potable water for the Olsen/South Chandler Project's proposed residential use (274.5 AFY) and for a portion of the proposed non-residential use (16.8 AFY) is included in the 2015 UWMP projections (see Table 3). The City has the additional 56.9 AFY (73.7 - 16.8) of non-residential supply available from its water supply portfolio, however the supply amounts in this table were kept at 2015 UWMP-listed supplies.

Currently, about 6.4 AFY of groundwater is used on the Project site (**Table 2**). If approved, at buildout, the Project will use 348.1 AFY of City-provided potable water and 230.8 AFY of City-provided recycled water (**Table 3**). Subtracting current use from proposed Project demand results in a net water use increase of about 341.7 AFY (348.1 -6.4).

5. CONCLUSIONS

The findings of this WSA are summarized below.

- The Olsen/South Chandler Specific Plan Project will be built on a 357-acre site that currently has 16 existing residences in southeast Paso Robles. A portion of the site had also been used for agriculture in the past.
- The Project includes 1,239 dwelling units with 1,125 single family homes, 108 townhomes, and 60 apartments. The site will also include a small commercial area, several community buildings, two recreational centers with pools, community parks, water quality basins, and a vineyard.
- The Project area currently relies on groundwater from private onsite wells for water supply and uses an estimated 6.4 AFY. These wells, and any inactive agricultural wells, will be properly abandoned when development occurs.
- Once completed, the Project will use an estimated 348.1 AFY of potable water resulting in a net increase of water use of 341.7 AFY.
- The Project will also use an estimated 230.8 AFY of recycled water. It is anticipated that recycled water will be available to the Project by buildout of the Project. In the event that recycled water is not available, development of the Project areas proposed to be served with recycled water may have to be postponed or modified to reduce water use. Serving the 231 AFY of recycled water demand with potable water has not been evaluated nor is it included in the UWMP.
- Potable water supply needed to serve the Project's residential water demand (274.5 AFY) is included in the 2015 UWMP. A portion of the water supply needed to serve the potable non-residential water demand (16.8 AFY) is also included in the 2015 UWMP. The City has the additional 56.9 AFY of potable non-residential water demand from its water supply portfolio of Nacimiento water, groundwater from the Paso Robles Groundwater Basin and water from the Salinas River.

In conclusion:

The City has adequate potable supply to provide a reliable long-term water supply for the Project under normal and drought conditions.

6. REFERENCES

AECOM, 2014, City of Paso Robles Recycled Water Master Plan Update, March. http://www.prcity.com/government/departments/publicworks/wastewater/index.asp

Athey, David, 2019, series of emails between David Athey, City of Paso Robles, and Chris Bersbach, Rincon, regarding housing unit numbers, August 5.

Bersbach, Chris, Rincon Associates, 2019, email to Kate White, Todd Groundwater, conveying City responses to questions, August 2.

California Department of Water Resources (DWR), 2003, Guidebook for Implementation of Senate Bill 610 and Senate Bill 221 of 2001, www.water.ca.gov/pubs/use/sb_610_sb_221_guidebook/guidebook.pdf

California Irrigation Management Information System (CIMIS), 2019, CIMIS Weather Station: 163 – Atascadero, https://www.cimis.water.ca.gov/WSNReportCriteria.aspx, accessed February 14.

Frace, Warren, City of Paso Robles, 2019, email to David Athey, City of Paso Robles and Joe Fernandez, Central Coast Transportation Consulting, regarding Housing Unit Number – Olsen South Chandler TIS, June 17, 2019.

Fugro and Cleath and Associates, 2002, Final Report, Paso Robles Groundwater Basin Study, Phase I, prepared for County of San Luis Obispo Public Works Department, August. http://www.slocountywater.org/site/Water%20Resources/Reports/

Fugro, ETIC Engineering, and Cleath and Associates, 2005, Final Report, Paso Robles Groundwater Basin Study, Phase II, Numerical Model Development, Calibration, and Application, prepared for County of San Luis Obispo Public Works Department, February. http://www.slocountywater.org/site/Water%20Resources/Reports/

GEI, 2011, Paso Robles Groundwater Basin Management Plan, March 2011. http://www.prcity.com/government/departments/publicworks/water/groundwater.asp or http://www.slocountywater.org/site/Water%20Resources/Reports/

Gonzalez, Kirk, City of Paso Robles, 2018, email to Kate White, Todd Groundwater, October 22.

Gonzalez, Kirk, City of Paso Robles, 2019, email to Kate White, Todd Groundwater, August 27.

Olsen Ranch 212, LLC, 2019, Vinedo Specific Plan, April.

Paso Robles, Request for Proposals (RFP), Olsen/South Chandler Ranch Specific Plan Environmental Impact Report, 2018.

Rincon, 2019, working draft of Section 2 (Project Description) of the Project EIR, August 5.

RMC, 2015, Salt/Nutrient Management Plan for the Paso Robles Groundwater Basin, May.

Todd Engineers, 2007, Update for the Paso Robles Groundwater Basin, Report to Paso Robles Groundwater Basin Committee, December.

Todd Groundwater, 2016, City of Paso Robles Final 2015 Urban Water Management Plan, July.

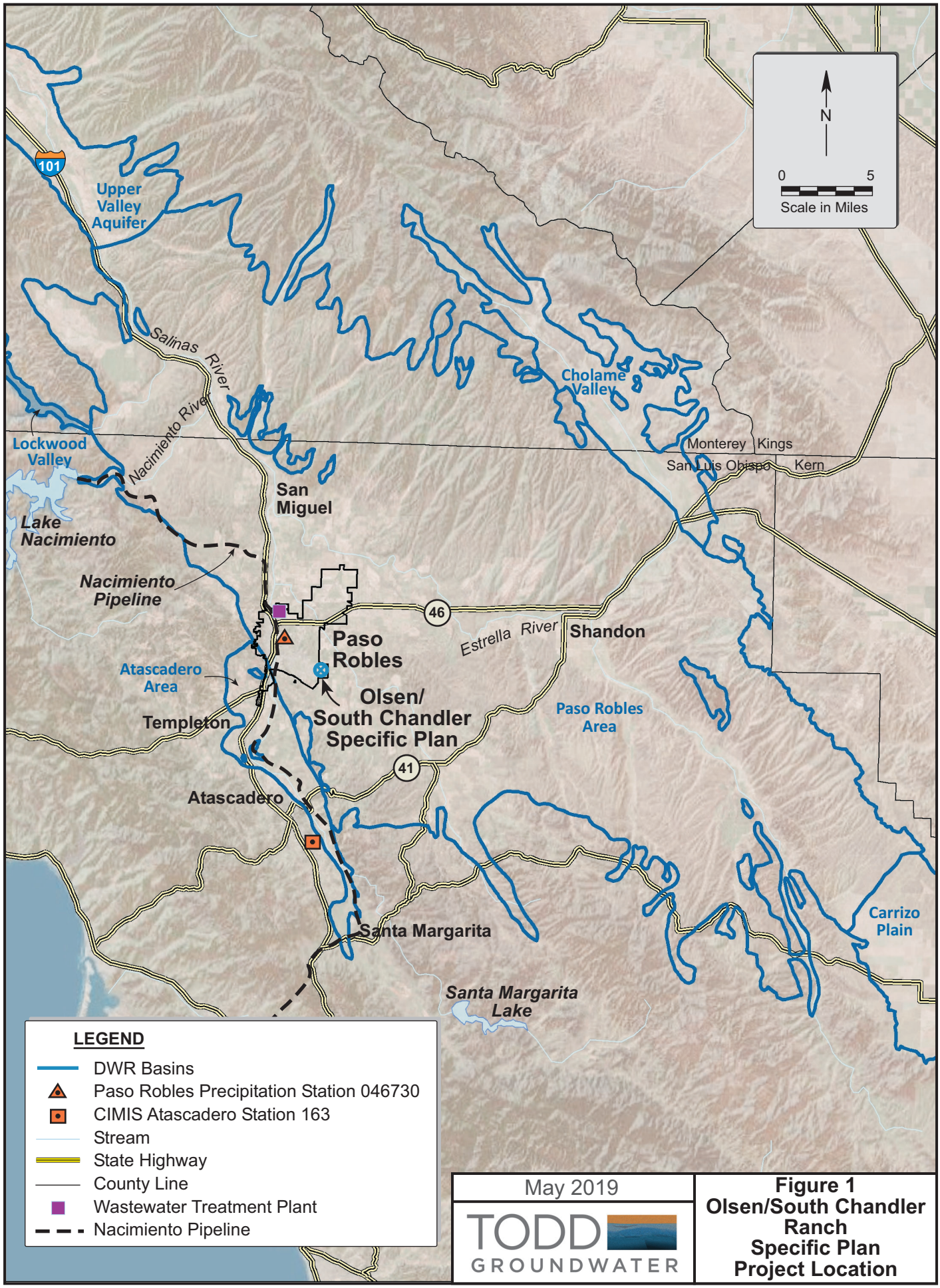
United States Geological Survey (USGS), 2007, Ground-Water Quality Data in the Monterey Bay and Salinas Valley Basins, California, 2005, Results from the California GAMA Program, Justin T. Kulongoski and Kenneth Belitz, prepared in cooperation with the California State Water Resources Control Board.

Wallace Group, April 2019, Byron Glenn email to David Athey, City of Paso Robles, April 22.

Wallace Group, July 2019, Olsen Chandler Development Water Demand Projections Memorandum, July 31.

Western Regional Climate Center (WRCC), 2019, Paso Robles Station 046730 Monthly Precipitation and Temperature Data, http://www.wrcc.dri.edu/cgi-bin/cliMAIN.pl?ca6730, accessed February 14.

FIGURES



May 2019

TODD GROUNDWATER

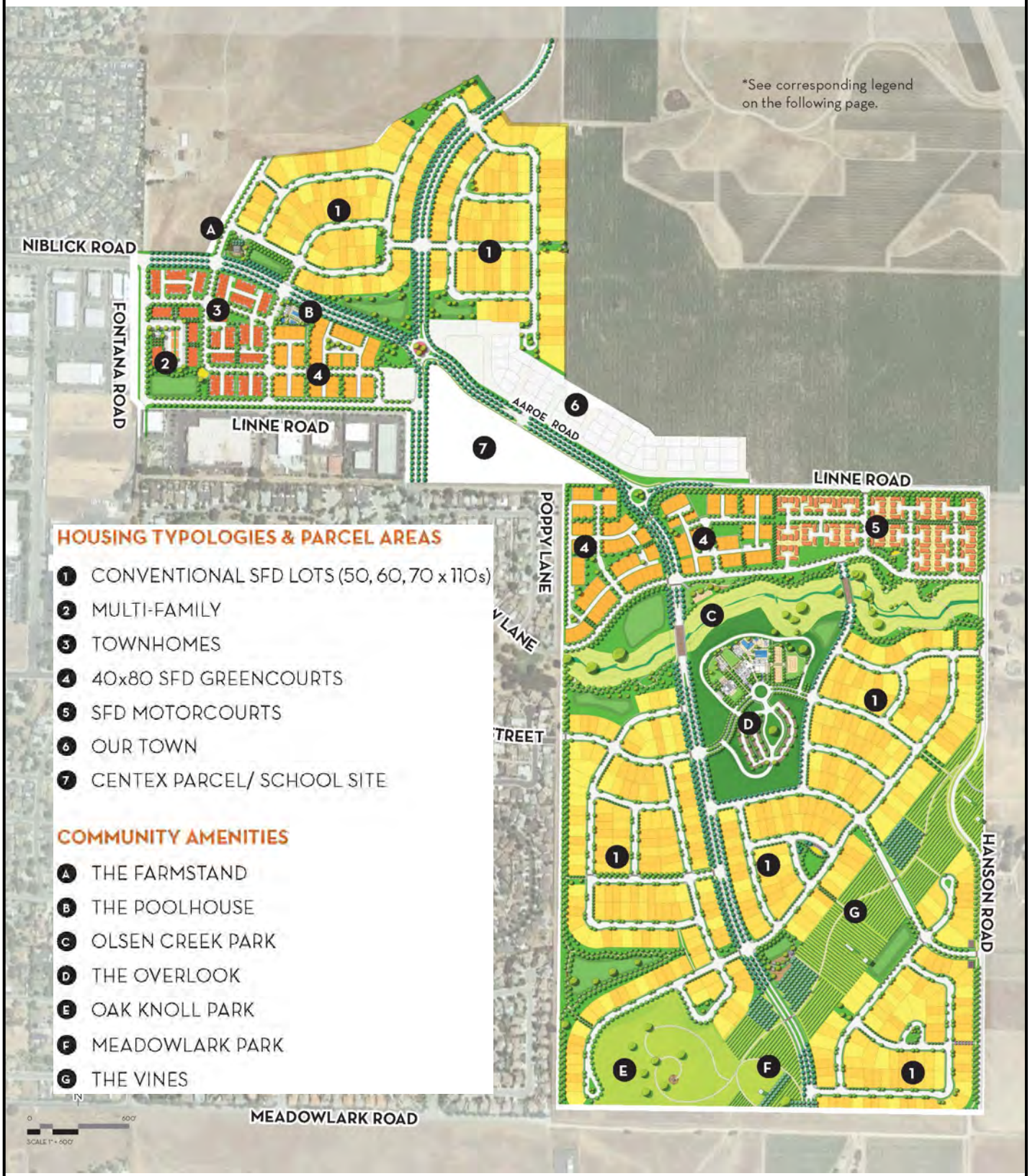
Figure 1
Olsen/South Chandler Ranch Specific Plan Project Location

From: Vinedo Specific Plan (Olsen Ranch 212, LLC, 2019)

August 2019

TODD GROUNDWATER

Figure 2
Olsen/South Chandler Ranch Specific Plan Land Use

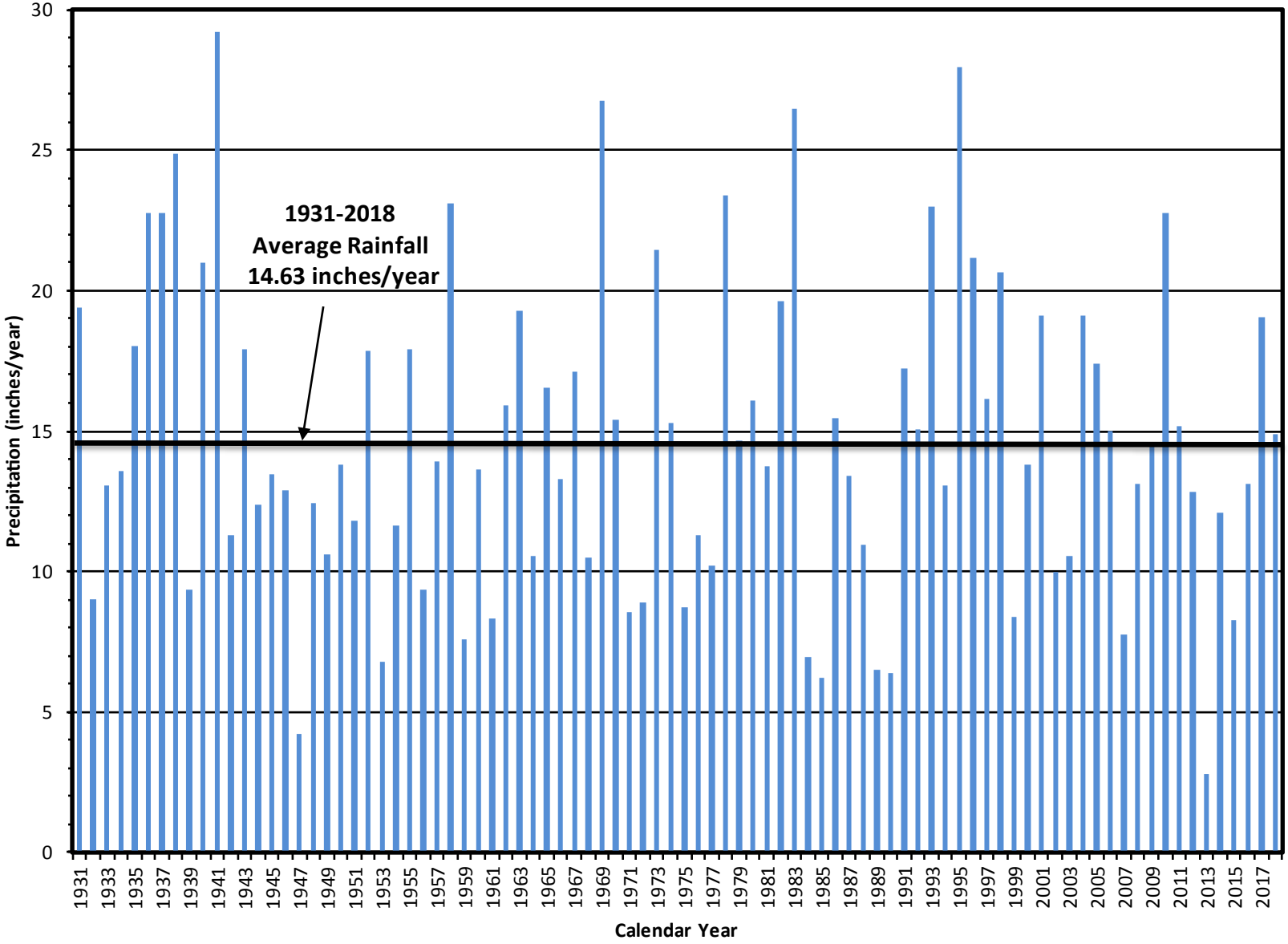


From: Vinedo Specific Plan (Olsen Ranch 212, LLC, 2019)

August 2019

TODD GROUNDWATER

Figure 3
Olsen/South Chandler Ranch Specific Plan
Conceptual Plan



Precipitation data from Paso Robles Station 046730 (WRCC, 2019)

May 2019

TODD GROUNDWATER

Figure 4
Paso Robles
Annual Rainfall