

2020 COMPREHENSIVE WATER RESOURCES REPORT

FINAL Report



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EXECUTIVE SUMMARY

Background and Purpose

In 2010 Public Works conducted a workshop with City Council that included information on the City's water supply issues. It was presented that with continued years of drought, tightening water restrictions and environmental responsibilities, Ventura's water supply was being impacted by several factors. A recommendation from the workshop was to provide a comprehensive evaluation of current and projected water supply needs. In June 2013, the first Comprehensive Water Resources Report (CWRR) was developed as a result. The CWRR is intended to be a tool in the development review process as it pertains to water supply and demand. The CWRR tracks proposed development projects, consistently calculates the anticipated increase in water demand associated with each proposed development project, and then evaluates the impact on the current water supply.

Previous Council Action

On June 10, 2013 the City Council approved the first 2013 Comprehensive Water Resources Report. In addition to approving the report, the City Council directed staff to provide an annual update on the City's projected water supply and demand; and to use the local water land use demand factors for the evaluation of all development and the standardized "Water Demand Impact Summary" matrix to quantify the water supply demand of each individual project and the cumulative water supply demand of all approved projects. City Council has subsequently approved/received annual Comprehensive Water Resources Reports for the Years 2014 through 2019.

2020 CWRR Updates

Major updates to the 2020 CWRR include the addition of updated draft water demand factors, replacement of the term "Normal Water Supply" with "Water Supply Capacity" where feasible, and an expanded Glossary. Per Water Commission request, an Acronyms and Abbreviations list and a new section clarifying water loss factors have been added. Additionally, the water loss factor for 2019 has been updated and water supply projections have been updated to consider drought conditions, recent regulatory changes, and operational constraints. Updates are further summarized below.

A summary of the most current and best information available on our water supply and demand is shown in Table ES-1 below.

Table ES-1

Summary of Water Supply and Demand

Projected	2020 Drought (AFY)	2021 Drought (AFY)	2022 Drought (AFY)	2025 (AFY)	2030 (AFY)
Supply	15,744	17,408	16,510	24,873	24,567 – 25,767
Demand*	15,789	15,974	16,158	16,616	17,074
Surplus/Deficit Supply	(45)	1,434	352	8,257	7,493 – 8,693

**Demand equals baseline 10 year average (15,605 AF) plus the estimated demand from the approved projects list for future years fully vested in 2024 and using an approximate 0.54% growth rate to 2030 (Table 3-9 & 6-1). Assumes a new supply source (VenturaWaterPure) starting in 2025.*

As shown in Table ES-1, the projected 2020 drought water supply number is slightly less than the projected water demand number. This indicates that in the near term, the spread between the current water demand and the current water supply is tight. The City's customers will need to continue to conserve and/or the City may be required to use water in excess of the anticipated amounts from the City's water supply sources which could result in the payment of penalties, (i.e. extraction of groundwater from the Oxnard Plain Groundwater Basin in excess of the City's extraction allocation). The City has always worked to address long-term water demands with effective planning and development of additional future water supplies. The City currently has two proposed water supply projects in the planning stages: VenturaWaterPure and the State Water Interconnection Project, which together would ensure that the City has adequate supplies for future demand under various climatic conditions.

Baseline Demand

Utilizing the previous 10-year (2010 to 2019) City annual average, the baseline water demand for the 2020 CWRR is 15,605 AF. The baseline water demand has been decreasing each year (with the exception of the Calendar Year 2016). In February 2014, City Council called for 10% voluntary conservation, followed by the September 2014 City declaration of a Water Shortage Emergency requiring customers to reduce their use by 20% due to the prolonged drought. In June 2015, the City Council confirmed a Stage 3 Water Shortage Event still existed and approved a four-tiered (drought) water rate structure. In June 2019, the City Council confirmed that the City remained in a Stage 3 Water Shortage Event.

The annual water consumption figures for the past 10 years are provided in subsection 3.D.

Proposed Draft Demand Factors

In the 2013 CWRR, water demand factors were developed for the City for five land use categories based

oncalendar year 2012 to evaluate whether the demand factors needed to be updated to reflect current water usage behavior and to establish additional relevant subcategories for customer classes. The updated draft proposed demand factors, which have been expanded to a total 23 categories, are in Section 3 Table 3-4. The proposed draft demand factors have been used to estimate future demands of proposed development projects.

Future Demand Projections (Year 2030)

This report projects growth through 2030. The proposed near-term development projects, that have been approved but are not yet connected to the City's water system, are used to project water demands for the next five years (to the Year 2024). In order to project the estimated demand to the Year 2030, an approximate growth rate of 0.54% (per City Planning Department based on the Department of Finance historical data for population) was used to estimate the increase in demand from the time all approved projects are projected to be completed (Year 2024) to the Year 2030.

Capacity of Water Supply Sources (without reductions)

The City's water supply capacity of each source in the City's portfolio is summarized in Table 4-1. The City's water supplies include Casitas Municipal Water District (Casitas), Ventura River/Foster Park, Mound Groundwater Basin, Oxnard Plain Groundwater Basin, Santa Paula Groundwater Basin, and Recycled Water.

- Casitas: In May 2017, the City Council approved the new Water Services Agreement between the City and Casitas. Based on the new agreement, the five year average normal (non-drought) water supply from Casitas is estimated to be 5,062 AFY. To calculate the supply capacity from Casitas, the demand from the proposed development projects that are anticipated to be utilizing water by Fiscal Year 2019 are added to the five year average normal (non-drought) water supply from Casitas of 5,062 AFY (past five non-drought fiscal years FY 09-10 to FY 13-14). Therefore, the water supply capacity from Casitas is estimated to be 5,421 AFY.
- Ventura River/Foster Park: The City's historical production based on the 50-year average production from 1950-2000 was 6,015 AFY. However, current operational constraints allow a diversion efficiency of up to 70 percent (average 4,200 AFY) to be obtained under the City's operations schedule, which can be considered reliable for planning purposes. Therefore, the City's water supply capacity from the Ventura River / Foster Park is 4,200 AFY.
- Mound Groundwater Basin: The City's average annual extraction from 2000 to 2009 was approximately 4,000 AFY. Therefore, the City's water supply capacity from the Mound Basin is 4,000 AFY.
- Oxnard Plain Groundwater Basin (Fox Canyon Aquifer): The City's historical allocation was set by the Fox Canyon Groundwater Management Agency (FCGMA) at 5,472 AFY, which was the average

extraction from the Golf Course Wells for the base period 1985 to 1989. In 2014, the FCGMA Board approved Emergency Ordinance E and the City's Temporary Extraction Allocation (TEA) was based on the operator's average annual reported extractions for 2003 through 2012. The City's TEA was set at 4,827 AFY. Phased reductions were set beginning July 1, 2014 with a 20% total reduction of the TEA on January 1, 2016. At the October 23, 2019 meeting of the Fox Canyon GMA Board of Directors, there was a unanimous vote to adopt the ordinance for a new pumping allocation system for the Oxnard and Pleasant Valley basins, effective October 1, 2020. The new well-based allocation will be the average pumping for the base period of 2005-2014. On December 12, 2019, the FCGMA Board voted to repeal Article 2.c. of Emergency Ordinance E. This action restores the City's pumping allocation in the Oxnard Plain Basin to 4,827 AFY effective January 1, 2020. Therefore, the City's water supply capacity from the Oxnard Plain Basin is 4,827 AFY for Calendar Year 2020.

- Santa Paula Groundwater Basin (Santa Paula Basin): In March 1996, the City ended a five-year stalemate over the use of the Santa Paula Basin. Under a court stipulated judgment, the United Water Conservation District (UWCD), the Santa Paula Basin Pumpers Association (SPBPA; an association of ranchers and businesses), and the City all have an interest in the Santa Paula Basin. The City can pump on average 3,000 AFY from the Santa Paula Basin. In addition, the City has acquired 40.9 acre-feet of water rights in the Santa Paula Basin. Therefore, the City's water supply capacity from the Santa Paula Basin is 3,041 AFY.
- Recycled Water: The City of Ventura's 2015 Urban Water Management Plan projected that annual recycled water demand would be 700 AFY in 2020.

The City's water supply capacity is 22,189 AFY and is summarized in Table 4-1.

Current Water Supply (2020)

The City's current water supply sources under existing conditions for calendar year 2020 is summarized in Table 4-2.

- Casitas: The May 2017 Water Services Agreement indicates that, in the event that Casitas must enact its Water Efficiency and Allocation Program (WEAP) due to a water shortage, Casitas may adjust the City's allocation consistent with the percentage reduction for the WEAP stage. As of February 2020, Casitas is currently in a Stage 3 water supply condition per Casitas Resolution No. 16-09. In order to be conservative, the 2020 CWRR assumes that Casitas will remain in a Stage 3 Condition and imposes a reduction of 30% to the City's Casitas supply consistent with the Stage 3 mandates. Therefore, the City's current water supply from Casitas is 3,794 AFY for calendar year 2020.

- Ventura River/Foster Park: Due to the continued drought conditions and heightened environmental requirements, the City's ability to draw water from the Ventura River continues to be significantly challenged and impacted. The City entered into a settlement with Santa Barbara Channelkeeper in 2019 which requires the City to modify its pumping based on reduced flows in the Ventura River for a pilot period. In order to determine the City's current water supply with the existing conditions, the average of the two most recent lowest production years (2015 and 2016) was selected. Therefore, the City's current water supply from Ventura River / Foster Park is 1,573 AFY for calendar year 2020.
- Mound Groundwater Basin: Due to operational constraints, production from the Mound Basin has been lower than the historical 10 year average. To determine the City's current water supply, the current average production rate of Mound Well #1 was utilized to estimate the 2020 production. Therefore, the City's current water supply from the Mound Basin is 2,400 AFY for calendar year 2020.
- Oxnard Plain Groundwater Basin (Fox Canyon Aquifer): Per approval of Emergency Ordinance E in 2014, the City's Temporary Extraction Allocation (TEA) is 4,827 AFY (based on an operator's average annual reported extractions for 2003 through 2012). Phased reductions were set beginning July 1, 2014 with a 20% total reduction of the TEA on January 1, 2016. On December 12, 2019, the FCGMA Board voted to repeal Article 2.c. of Emergency Ordinance E which applied a 20% reduction to the TEA. This action restores the City's pumping allocation in the Oxnard Plain Basin to 4,827 AFY effective January 1, 2020. Therefore, the City's current water supply from the Oxnard Plain is 4,827 AFY for calendar year 2020.
- Santa Paula Groundwater Basin (Santa Paula Basin): The Santa Paula Basin Judgment allows the City to utilize 3,000 AFY and the City has acquired water rights in the amount of 40.9 AFY. However, the City currently relies on Saticoy Well #3 for production and utilizes Saticoy Well #2 as an occasional back-up supply. Given the average production rate of Saticoy Well #3, the City's current water supply from the Santa Paula Basin is 2,450 AFY for calendar year 2020.
- Recycled Water: As stated in the 2015 Urban Water Management Plan, the City's projected annual recycled water demand for 2020 is approximately 700 AFY. Therefore, the City's current recycled water supply is 700 AFY for calendar year 2020.

The City's current water supply for 2020 (drought) is 15,744 AF and summarized in Table 4-2.

The above evaluation of the current conditions of each water supply source along with the triggers outlined in the Water Shortage Event Contingency Plan (WSECP) (see Section 5) indicates that the City remains in a water shortage event following consecutive years of drought. The WSECP specifies that the water shortage

stage trigger is calculated by comparing the Annual Supply Projection to the Normal Year Supply Projection. The WSECP also states that the Normal Year Supply Projection will not change for the duration of the shortage event. The annual supply projection from Table 4-2 in the 2020 CWRR is 15,744 AFY. The normal year supply projection from Table 4-1 of the 2013 CWRR is 19,600 AFY (see Table 5-1 of this report). Therefore, the annual supply projection is 19.67% below normal year supply and the City may declare a Stage 2 Water Shortage Event or continue to remain in Stage 3.

Projected Future Water Supply

This section evaluates the City's projected future water supply sources through 2030, assesses the current drought, and forecasts an additional two years of drought through 2023 (for a total duration of an 11 year drought). The projected future water supply also assumes that the City will revert to normal conditions in 2025 through 2030. The City's projected future water supply takes into account impacts from the Sustainable Groundwater Management Act of 2014. The City's projected future water supply is summarized in Table 4-3.

- Casitas: As mentioned previously, Casitas is currently in a Stage 3 water supply condition. This report assumes a reduction of 30% to the City's Casitas supply for the 2021 Supply Drought Impact and a 40% reduction for 2022. Therefore, the City's projected supply from Casitas for 2021 is 3,858 AFY (30% reduction) and 3,362 AFY in 2022 (40% reduction). The Casitas projected supply in 2025 and 2030 includes growth projections within Casitas' boundaries. Therefore, the City's projected supply from Casitas is 5,816 AFY for 2025 and 5,977 AFY for 2030.
- Ventura River/Foster Park: If the current drought continues through 2022, the supplies will be further impacted. To determine the 2021 supply drought impact, the average of the two most recent driest years (2015 and 2016) was used for the projections. To determine the 2022 supply drought impact, the most recent driest year (2015) was used for the projection. Therefore, the projected future water supply from the Ventura River / Foster Park for 2021 is 1,573 AFY and 2022 is 1,298 AFY.

The 2025 and 2030 projected future water supply assumes normal conditions. Production wells at Foster Park were destroyed during 2001 and 2005 storm events. These events have reduced the City's ability to extract water from Foster Park to a maximum capacity of 4,200 AFY. The 2020-2026 Capital Improvement Program includes the Foster Park Wellfield Production Restoration project, which is scheduled to be completed by 2025. The project involves the replacement of the destroyed wells and construction of new facilities to restore historical production capabilities of 6,700 AFY during wet years. Therefore, the projected future water supply for 2025 and 2030 from the Ventura River / Foster Park is 4,200 AFY. Regulatory actions and pending litigation may impact the amount and/or timing of water the City is able to utilize from the Upper Ventura River watershed in the future.

- Mound Groundwater Basin: Mound Wells 2 and 3 are anticipated to come online within the next few years. Thus, the projected water supply from the Mound Basin for the future is greater than the current 2020 supply of 2,400 AFY (discussed in the Current Supply section above). Although 2021 and 2022 future projections are evaluated under drought impact, the addition of Mound Wells 2 and 3 will help alleviate current operational constraints. Since Mound Well 3 is expected to be operational in 2021, the 10 year average (2000 to 2009) was used to calculate the 2021 , 2022, 2025, and 2030 supply numbers. Therefore, the projected future water supply from the Mound Basin from 2021 to 2030 is 4,000 AFY.
- Oxnard Plain Groundwater Basin (Fox Canyon Aquifer): As discussed in the Current Water Supply section, the City's current allocation is 4,827 AFY as of January 1, 2020. Therefore, the projected future supply from the Oxnard Plain Basin for 2021 is 4,827 AFY.

At the October 23, 2019 meeting of the Fox Canyon GMA Board of Directors, there was a unanimous vote to adopt the ordinance for a new pumping allocation system for the Oxnard and Pleasant Valley basins, effective October 1, 2020. On December 13, 2019, the Board of Directors of the Fox Canyon Groundwater Management Agency adopted the Groundwater Sustainability Plans (GSPs) for the Oxnard Subbasin, Pleasant Valley Basin, and Las Posas Valley Basin. Neither the allocation ordinance nor the GSP establish the pumping reductions that will take place to meet the sustainable yield for the Oxnard Plain Basin. However, the GSP suggests a linear ramp down from current pumping to the estimated sustainable yield by 2040. Based on these estimates, the City can expect (without additional projects being implemented) its allocation to decrease by 50% by 2040. Therefore, the projected future supply for the Oxnard Plain Basin for 2022, 2025, and 2030 is 4,700, 4,319 AFY and 3,684 AFY, respectively.

- Santa Paula Groundwater Basin (Santa Paula Basin): The Santa Paula Basin is subject to a stipulated judgment and is managed by the Santa Paula Basin Technical Advisory Committee (TAC) with equal representation from UWCD, SPBPA, and the City. The TAC is charged with various responsibilities including establishing a program to monitor conditions in the basin. If basin conditions change, then the City may have reductions in pumping allocations. Stage 2 reduces the City's pumping to 1,141 AFY, Stage 3 reduces the City's pumping allocations to 641 AFY, Stage 4 reduces the City's pumping allocations to 481 AFY and Stage 5 reduces the City's allocations to zero. Currently, the TAC is working on various basin management measures, including potential triggers for the above stages and potential projects to enhance the sustainable yield of the basin.

Based on recent work completed by the technical working group regarding conditions in the Basin, it is projected that no Stage reductions will be implemented even if the drought remains in effect through 2021.

The City currently relies on Saticoy Well #3 for production and utilizes Saticoy Well #2 as an occasional back-up supply. The estimated annual production capacity for Well #3 is only 2,450 AFY. The City is planning to construct Saticoy Well #4, which is not anticipated to be producing water until 2023. Therefore, the projected future water supply in 2021 and 2022 is 2,450 AFY. The projected future water supply in 2025 and 2030 is 3,000 AFY for the original City allocation and 40.9 AFY for City acquired water rights.

- Recycled Water: The estimated anticipated future water supply for recycled water is based on the 2015 Urban Water Management Plan projections for recycled water.
- VenturaWaterPure: The City of Ventura is currently in the planning phases for the proposed VenturaWaterPure Project which includes additional diversion of tertiary treated effluent to a new Advanced Water Purification Facility (AWPF) for potable reuse. Potable reuse is the proven use of recycled water to supplement drinking water supplies. After years of special studies, environmental assessment, demonstration facility testing, and stakeholder meetings, the City determined the best way to enhance environmental protection while improving local water quality and supply reliability is to divert highly treated wastewater discharges for reuse. The final product of this state-of-the-art AWPF would be a new, locally owned source of highly purified drinking water that provides Ventura with a long-term drought resilient water supply solution. On March 6, 2019, the City released the Ventura Water Supply Projects Draft Environmental Impact Report (EIR) for public review and written comment. On October 14, 2019, Ventura City Council unanimously voted to certify the EIR for the Ventura Water Supply Projects. The next steps include permitting, final design, and bidding for construction.

Based on the completion of the Special Studies and additional assessments detailed in the Final EIR, the future water supply provided by the VenturaWaterPure Project is projected to be 2,800 AFY in 2025 and 2,800 AFY to 4,000 AFY in 2030.

- State Water Project: The City has a 10,000 acre-foot per year allocation from the California State Water Project (SWP). To date, the City has not constructed the improvements necessary to receive direct delivery of its allocation. Ventura Water is pursuing the State Water Interconnection Project with Calleguas Municipal Water District (Calleguas), Casitas Municipal Water District (Casitas), and United Water Conservation District (United). On August 5, 2019, Ventura City Council voted to certify the State Water Interconnection Project Final Environmental Impact Report. As stated in the Final EIR, the project will enable delivery of SWP water by wheeling through Metropolitan Water District of Southern California and Calleguas to the City. The connection will also facilitate direct delivery of SWP water to United and direct or in-lieu delivery of SWP water to Casitas. The interconnection will be an approximately 7 mile pipeline used to transport water between Calleguas' and the City's distribution

systems.

The Final EIR also states that, although the proposed State Water Interconnection Project is not anticipated to increase water supply volume for the City, it would improve system reliability by acting as a replacement supply source for existing water supplies (Lake Casitas, Ventura River, and groundwater) that have been reduced or have become less available. Additionally, SWP water is a near-term option for providing the necessary water to dilute high Total Dissolved Solids (TDS) levels in groundwater to improve system water quality. Operational details will be developed through the project design and planning process and negotiations with project partners. These details will be reflected in future CWRRs when available.

While the City's water supply contract for SWP water provides the City with a maximum annual allocation of 10,000 AF, the actual allocation of available water is set by California Department of Water Resources (DWR) annually. Based on historical allocations the range of available SWP water has been 5% to 100% over the last 25 years. Given the uncertainty of SWP deliveries and the fact that capacity in MWD and Calleguas' systems must be available in order for water to be wheeled to the City, a range of zero to full allocation of the City's entitlement was selected for 2025 and 2030 projected supplies. In 2018 and 2019, the City executed agreements with San Geronimo Pass Water Agency (SGPWA) to exchange its State Water Project Allocation. As a result of these agreements, SGPWA is obligated to return 2,075 AF of water to City by 2029. Therefore, the projected available water supply for SWP water delivered by the State Water Interconnection Project is estimated to be 2,075 - 10,000 AF in 2025 and 0 - 10,000 AF in 2030.

Potential Additional Future Supply

This section describes any planned or proposed projects which may affect the water supply sources for the City.

Ocean Desalination: According to the Ventura Water Supply Projects Environmental Impact Report certified on October 14, 2019, if sufficient water is not available from the diversion of discharges to the SCRE, then the City may need to develop desalination facilities to meet 2035 water supply needs. This would be accomplished through either the expansion of the AWP as a first option pending regulatory approvals, or, if this option is not approved or does not meet the City's water supply needs, through construction of an ocean desalination facility. Since details of the ocean desalination project is in a preliminary stage, ocean desalination is identified as a potential additional future supply source.

CONCLUSION

The results of this Report indicate that, in the near term, the spread between the current water demand

and the current water supply is very tight. The City's customers will need to continue to conserve and/or pay penalties for overuse of the City's water supply sources while the City secures new water supplies. This presents short-term challenges for the City as it continues to allocate water supply to development projects that will generate additional water demands. The City will continue to perform the following on an annual basis and publish the results in the annual Comprehensive Water Resources Report:

1. Provide total water consumption for the previous calendar year.
2. Recalculate the 3-year, 5-year and 10-year water consumption averages.
3. Update the water supply portfolio.
4. Update the existing land use data.
5. Evaluate all future development projects based on current supply and demand conditions.
6. Use the City-specific water usage factors to calculate the water demand of all development projects as the projects proceed through the City process prior to approval.
7. Continue to develop water supply through demand side management, secure water rights, administer the Water Rights Dedication and Water Resource Net Zero Ordinance as approved in July 2016 and continue to integrate the new water supply sources into the City's water supply portfolio.

The City has always worked to address long-term water demands with effective planning and development of additional future water supplies. As discussed earlier, the City currently has two proposed water supply projects in the planning stages: VenturaWaterPure and the State Water Interconnection Project, which together would ensure that the City has adequate supplies for future demand under various climatic conditions. In planning for these projects, the City must consider the uncertainty in both the demand projections and the supply projections. Current demand projections are lowered by the conservation that has occurred during the multi-year drought that began in 2013. The draft proposed demand factors also reflect recent conservation and further lower the future demand projections. While the City continues to encourage conservation and the State has passed legislation to encourage "conservation as a way of life", the City has limited control over the amount of water its citizens utilize. In Section 6 of the report, Table 6-3 summarizes the uncertainty and sensitivity to climate variations of each water supply source, which illustrate that the City's water supplies are vulnerable to many factors outside of the City's control. Consequently, water supply projections past 2022 are highly uncertain. Table 6-4 presents additional water supply scenarios to illustrate the vulnerability of the City's existing water supplies and how the water supplied by the proposed State Water Interconnection and VenturaWaterPure projects would be utilized to meet water demands in the future. Figure 6-2 illustrates the potential future water supply scenarios presented in Table 6-4.

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APPENDIX A

Final Water Demand Factor Study, prepared by Wood Rodgers, dated April 8, 2020

List of Acronyms and Abbreviations

AB	Assembly Bill
AFY	Acre feet per year
AWPF	Advanced Water Purification Facility
AWWA	American Water Works Association
CDFW	California Department of Fish & Wildlife
CIP	Capital Improvement Program
CMWD	Casitas Municipal Water District or Casitas
CWRR	Comprehensive Water Resources Report
CY	Calendar year
DU/AC	Dwelling unit per acre
DWR	California Department of Water Resources
FCGMA	Fox Canyon Groundwater Management Agency
GPCD	Gallons per capita per day
GPD	Gallons per day
GPM	Gallons per minute
GPD/DU	Gallons per day per dwelling unit
GPD/KSF	Gallons per day per 1,000 square feet
GSA	Groundwater Sustainability Agency
GSP	Groundwater Sustainability Plan
HCF	Hundred cubic feet
JPA	Joint Exercise of Powers Agreement
LARWQCB	Los Angeles Regional Water Quality Control Board
MBGSA	Mound Basin Groundwater Sustainability Agency
MGD	Million gallons per day
SB	Senate Bill
SGMA	Sustainable Groundwater Management Act
SPBPA	Santa Paula Basin Pumpers Association
SWP	California State Water Project
SWRCB	State Water Resources Control Board
TAC	Santa Paula Basin Technical Advisory Committee
TEA	Temporary Extraction Allocation
UWCD	United Water Conservation District or United
UWMP	Urban Water Management Plan

List of Acronyms and Abbreviations

UVRGA	Upper Ventura River Groundwater Agency
VCFC	Ventura County Flood Control District
VWRF	Ventura Water Reclamation Facility
WSECP	Water Shortage Event Contingency Plan

Glossary

Built projects - These are projects that have completed construction and are utilizing water at a significant level of occupancy and have been connected to the water system for a majority of the year. If a project is no longer on the Pending's Project List because it has been constructed, but only partially occupied, or has not been connected to the water system for a majority of the calendar year, it will remain on Table 2-4 as "Under Construction".

Demand Factor Contingency – a planning-level increase of twenty percent added to the raw demand factor plus the water loss factor to account for the annual demand variations that are likely to occur.

Drought condition – Hydrologic conditions during a defined period, greater than one dry year, when precipitation and runoff are much less than average. (Department of Water Resources) Further discussion of drought is included in Section 5 of the report.

Entitled projects - Projects that have approval through Planning and any necessary discretionary body. Only projects that have been approved per Planning's Pending Project List are included in Table 2-4. This includes projects that fall into the categories of "All Planning Approvals" (including the "In Plan Check" category) and "Under Construction".

Normal Supply – The term normal supply was used in the 2013 to 2019 CWRRs and referenced Table 4-1. A normal (non-drought) supply is defined by the City's 2015 Water Shortage Event Contingency Plan (WSECP). When the stages of the 2015 WSECP are not activated, the City is experiencing normal supply conditions. In addition, under normal supply conditions, it is assumed that City facilities are fully functioning and not restricted for operational reasons.

Planned projects - Projects that are classified on Planning's Pending Project List as either "In Planning Process", "In Plan Check", "All Planning Approvals", or "Under Construction". For the purposes of Table 2-4 and the CWRR, the "In Plan Check" projects are combined into the "All Planning Approvals" category. Planning's definitions of their terms are:

- a. "In Plan Check" – The project has received all approvals; final plans have been submitted to the Inspection Services Division.
- b. "In Planning Process" – Project application has been filed for one or more discretionary approvals (Planned Development Permit, Change of Zone, Tentative Tract Map, etc.)

Residential projects of fewer than four units are not included unless Planning Commission approval is required, nor are non-residential projects that do not result in new development (e.g. new church use in an existing building).

- c. “All Planning Approvals” – The project has received all major discretionary and planning approvals from the City, with no appeals pending.

Sustainable yield (safe yield) – The maximum quantity of water, calculated over a base period representative of long-term conditions in the basin and including any temporary surplus, that can be withdrawn annually from a groundwater supply without causing an undesirable result. (Sustainable Groundwater Management Act (SGMA))

Water Loss – The difference between the water supplied (all source water produced and supplied to the Ventura Water system including purchases from Casitas) and consumption (billing records for all metered water that is delivered to customers).

Water Shortage Event – A water shortage event can be a single occurrence as short as twenty-four hours to a multi-year weather condition. Other events, besides drought, that could trigger a water shortage event include an earthquake, water system failures, fire, contamination, regional power outage, State restrictions, or other causes. (WSECP)

Water Shortage Stages – The City has six water shortage stages as defined in the WSECP. The stages may be activated when the Annual Supply Projection (Table 4-2 of the most current CWRR) is below the Normal Year Supply Projection (Table 4-1 of the 2013 CWRR) at varying trigger levels. The WSECP noted that the baseline supply value will not change through the duration of the event; thus, Table 4-1 of the 2013 CWRR is the baseline supply value.

Water Supply Capacity – Water supply capacity is defined as the amount of water that the City is able to produce dependent on well production rates, existing water services agreements, or groundwater basin allocations. In addition, water supply capacity means that City facilities are fully functioning and not restricted for operational reasons. This is a new term used in this 2020 CWRR.

1. INTRODUCTION

A. BACKGROUND

In the western United States, water resources are challenged by drought conditions, ecosystem habitat protection, and water quality concerns. The City of San Buenaventura (City) is no exception. Changing pressures on our local water sources have driven the need to create a more integrated approach to our water supply, demand, and infrastructure management. In 2010, a workshop on the City's water supply issues was held. As a result of the workshop, City Council directed the City to provide a comprehensive evaluation of current and projected water supply needs. Following this recommendation, Ventura Water and the Community Development Department worked together in late 2012 and early 2013 to provide input and expertise on what development had taken place since the 2005 General Plan through 2012, the projects currently approved for development within the City, and the potential for additional development through 2025.

In order to better determine the water demands from those developments, three existing documents were reviewed: 1) 2005 General Plan, 2005 General Plan Final Environmental Impact Report (FEIR) and 2007 Supplement, 2) 2010 Urban Water Management Plan (amended in 2011), and 3) 2011 Water Master Plan. The purpose of the review was to compare land use data (if applicable) and historical figures and future projections for water demand and water supply. A review of the three documents showed differences as each report was completed at a different time, with different data available, and for a specific purpose and/or audience. A summary of the purpose of the three reports and comparison for land use, water supply, and water demand is depicted in Table 1-1.

To reconcile the differences in the historical documents and establish a baseline of conditions in the City in 2012, Ventura Water and Michael Baker (formerly RBF Consulting) worked together to determine existing land use, existing demands, and normal supply. In order to look at future projections for land use, assumptions were made about future development (discussed further in the Land Use Section). In order to resolve conflicts identified in the previous reports related to future water supply / water demand projections, new demand factors were calculated based on calendar year 2012 data (refer to Water Demand Section D below) and the first Comprehensive Water Resources Report was developed in June 2013.

B. PURPOSE OF REPORT

In 2013, the Comprehensive Water Resources Report (CWRR) was developed as an annual water management tool. The CWRR is intended to be a tool in the development review process as it

pertains to water supply and demand. The CWRR provides an annual look at the City's water demand trends, current water demands, demand projections, and the current and future supply picture. The purpose of the CWRRs is to track proposed development projects, consistently calculate the anticipated increase in water demand associated with each proposed development project, and then evaluate the impact on the current water supply. The CWRRs specifically focus on water demand of approved (entitled) projects and on near-term demand changes. The annual CWRRs are an important tool that the City utilizes to update the City's annual projected water supply and demand outlook. The 2013 CWRR was approved by City Council in June 2013.

The 2013 CWRR was the first annual version of this report and included historical information related to the genesis of this report and previous studies prepared. The subsequent CWRRs include relevant information from the original 2013 CWRR, updates to existing land use information, water demand data based on the previous calendar year's data, and the City's future water supply portfolio based on the best available information regarding the City's existing and potential future supply sources. The water demand projections are also updated in order to capture the current water use patterns within the City.

C. STUDY AREA

The City of San Buenaventura is located 62 miles north of Los Angeles and 30 miles south of Santa Barbara along the California coastline. The City is located within the County of Ventura, and bounded by the City of Oxnard to the south, by unincorporated Ventura County to the east and north, and by the Pacific Ocean to the west. The northwest portion of the City is bounded by the Ventura River, while the southern portion is bounded by the Santa Clara River. The Ventura Freeway (101) bisects the City in the north-south direction, while the Santa Paula Freeway (126) runs east to west through the center of the City. The Ojai Freeway (33) runs along the northwestern edge of the City. The City currently occupies an estimated 21 square miles and has an estimated population of 109,000 persons. Figure 1-1 identifies the City of San Buenaventura boundary, the Sphere of Influence and General Plan boundary.

At this time Ventura Water provides potable water service to a population of approximately 113,500 persons and has approximately 32,000 service connections. The City's existing water service area includes all portions within the City limits, as well as portions of unincorporated Ventura County that meet the City's policy for water connections outside City limits (Municipal Code Section 22.110.055).

Ventura Water also operates the Saticoy Country Club (SCC) water system, which consists of residences and country club facilities that are located east of the City. They have their own stand-alone system, which includes three groundwater wells, a booster pump station and two

storage tanks. The ownership responsibility for the system is shared between the City and SCC (1/3 and 2/3, respectively). The SCC system has a separate Domestic Water Supply Permit from the California Department of Public Health.

D. DEMAND FACTORS

Demand factors are used to calculate the future water demand projections. Demand factors are either land use based (per area (acre/ksf) or per dwelling unit) or population based (per capita). Demand factors are typically derived from actual water consumption data, and a safety factor is applied for planning purposes.

City-specific water demand factors were calculated in the 2013 CWRR. These demand factors were used in the 2013 to the 2019 CWRRs. In 2018, the City initiated a study to evaluate whether the demand factors developed in the 2013 CWRR needed to be updated and to establish additional relevant subcategories for customer classes. Section 3 of this report includes a full discussion of the 2013 demand factors and proposed 2020 demand factors.

E. CURRENT PLANNING DATA

The Community Development Department maintains a database of all projects that are in the planning, design or construction phase. These projects are known as the “Pending Projects.” The pending projects database is updated periodically as new projects are proposed or existing projects are modified.

The Department provided actual development data (“Built” projects) for the year ending December 2019, and data on all projects that are under construction or have received all planning approvals (“Approved” projects) for development, as of December 31, 2019. This Report will consider the estimated water demand impacts of those projects that are under construction or have received all planning approvals. Projects listed in the Pending Project database that had not received all approvals from the City as of December 31, 2019 were not considered in the future water demand projections for this Report.

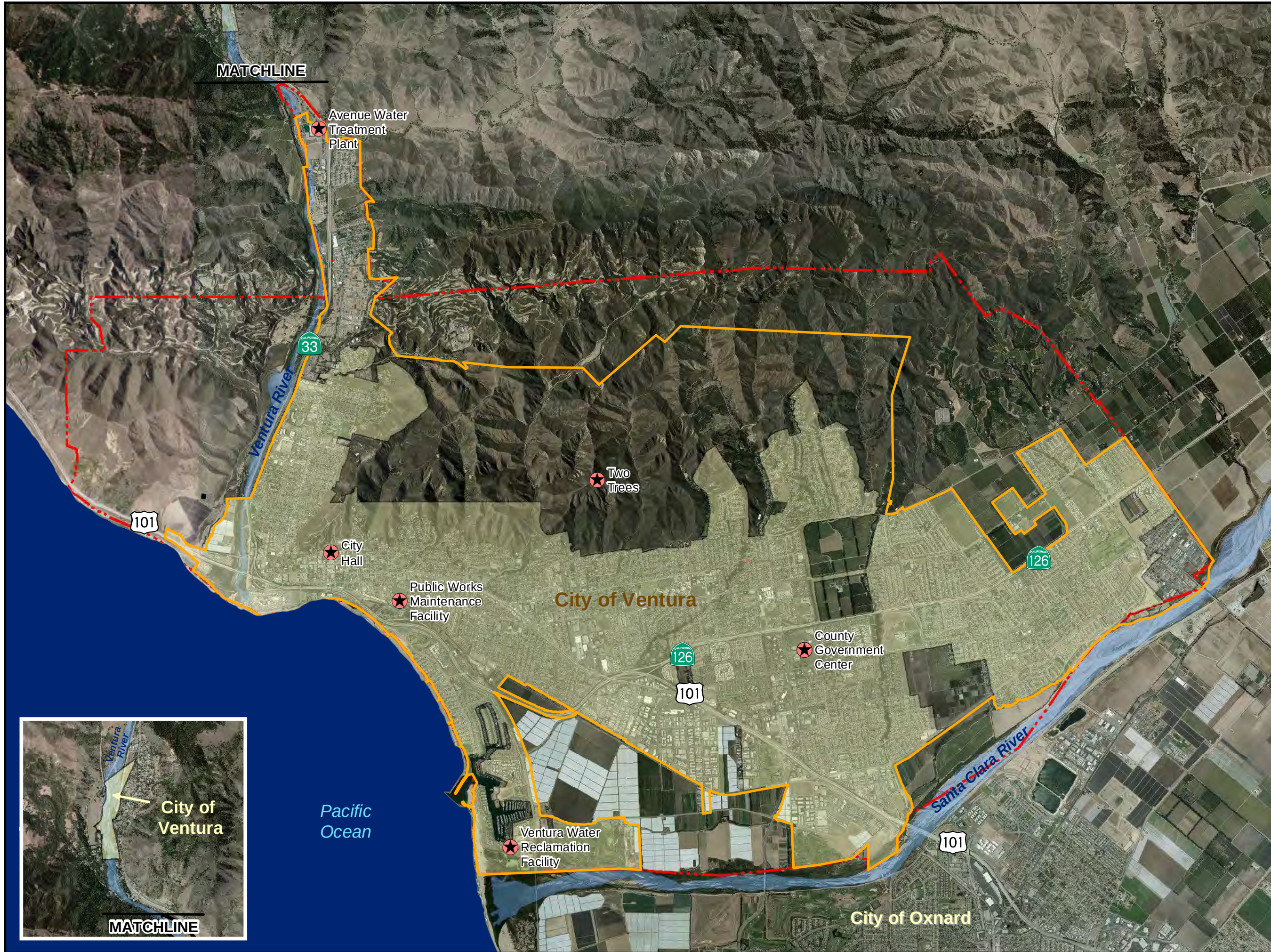


TABLE 1-1: SUMMARY OF PREVIOUS DOCUMENTS

Total Water Supply (Acre feet per year AFY)							
<u>Document</u>	<u>2000</u>	<u>2005</u>	<u>2010</u>	<u>2015</u>	<u>2020</u>	<u>2025</u>	<u>Data Source & Factors</u>
2005 General Plan, GP FEIR and 2007 Supplement	21,566 ^[1]	26,300	28,262	28,262	28,262	28,262	Table 1 of the 2004 Biennial Water Supply Report - Based on actual water production data thru 2003 - Future projections based on assumptions and limitations for each supply source known at the time (2004) - [1] Figure includes 1,129 AFY for raw water and oil operation use - Figures <u>do not</u> include recycled water
2010 Urban Water Management Plan	n/a	n/a	20,600	22,000	24,600	24,700	Table 3-2 of the 2010 UWMP - Water production data for 2010 is based on annual average data from 2000 - 2009 as presented in Table V-14 of the 2011 WMP - Future projections based on assumptions and limitations for each supply source known at the time (2011) - Figures do not include raw water and oil operation use - Figures include 700 AFY of recycled water annually
2011 Water Master Plan	n/a	n/a	n/a	n/a	n/a	18,760 - 25,800	Tables ES-2, V-1, V-2, V-7, V-10, V-13 and V-14 of 2011 WMP - Based on actual water production data thru 2009 - Future projections based on assumptions and limitations for each supply source known at the time (2011) - Figures do not include raw water and oil operation use - Figures <u>do not</u> include recycled water

Total Water Demand / Consumption (AFY)							
<u>Document</u>	<u>2000</u>	<u>2005</u>	<u>2010</u>	<u>2015</u>	<u>2020</u>	<u>2025</u>	<u>Data Source & Factors</u>
2005 General Plan, GP FEIR and 2007 Supplement	20,437	20,594	21,724	22,918	24,181	27,421 ^[2]	Tables 2, 3 and 4 of the 2004 Biennial Water Supply Report - Based on actual water consumption data thru 2003 - Historical population based on 2000 U.S. Census - Growth rate in City = 0.9%, outside City = 0.6% - Water Use Factor = 0.179 AFY/capita - [2] Year 2025 projections based on demand factors provided for FEIR
2010 Urban Water Management Plan	n/a	20,808	17,351	22,286	23,256	24,270	Table 2-5 of the 2010 UWMP - Based on actual water consumption data through 2010 - Historical population based on California Department of Finance Table E-4 Population Estimates for Cities, Counties and the State (2000 Benchmark) - Growth rate in City = 0.88%, outside City = 0.1258% in connections - Water Use Factor = 168 gpcd = 0.188 AFY/capita
2011 Water Master Plan	n/a	16,190	17,896	n/a	n/a	22,708	Table IV-5 and Figure IV-2 of the 2011 WMP - Based on actual billing records from 2004-2005. - Near-term projections (allocated to 2010) based on actual billing data from 2004-2005, calculated demand factors from the same period applied to the 2006 Pending Projects list. - Long-term projections (allocated to Year 2025) based on applying the calculated demand factors to the remaining developable land as identified in the 2005 GP, excluding the land accounted for in the 2006 Pending Projects list.

2. LAND USE

A. BACKGROUND

In order to determine the existing land use make-up within the City's water service area as of year-end 2012 for the 2013 CWRR, the land use data published in the 2005 General Plan was used as a starting point. Table 2-1 provides a summary of the development as of year-end 2004 within the General Plan land use categories in dwelling-unit count and square footage. Figure 2-1 depicts the land use designations throughout the City as identified in the 2005 General Plan. Table 2-2 summarizes data for all projects built from 2005-2012, which breaks land uses down into non-residential categories and residential categories. The City Planning Department provided a listing of all projects "built" from 2005-2012, including back-up data. Minor modifications and adjustments were made based on supplemental data provided by Ventura Water staff. In addition, square footages for parking garages were eliminated from the list since the land use does not consume water.

B. EXISTING LAND USE

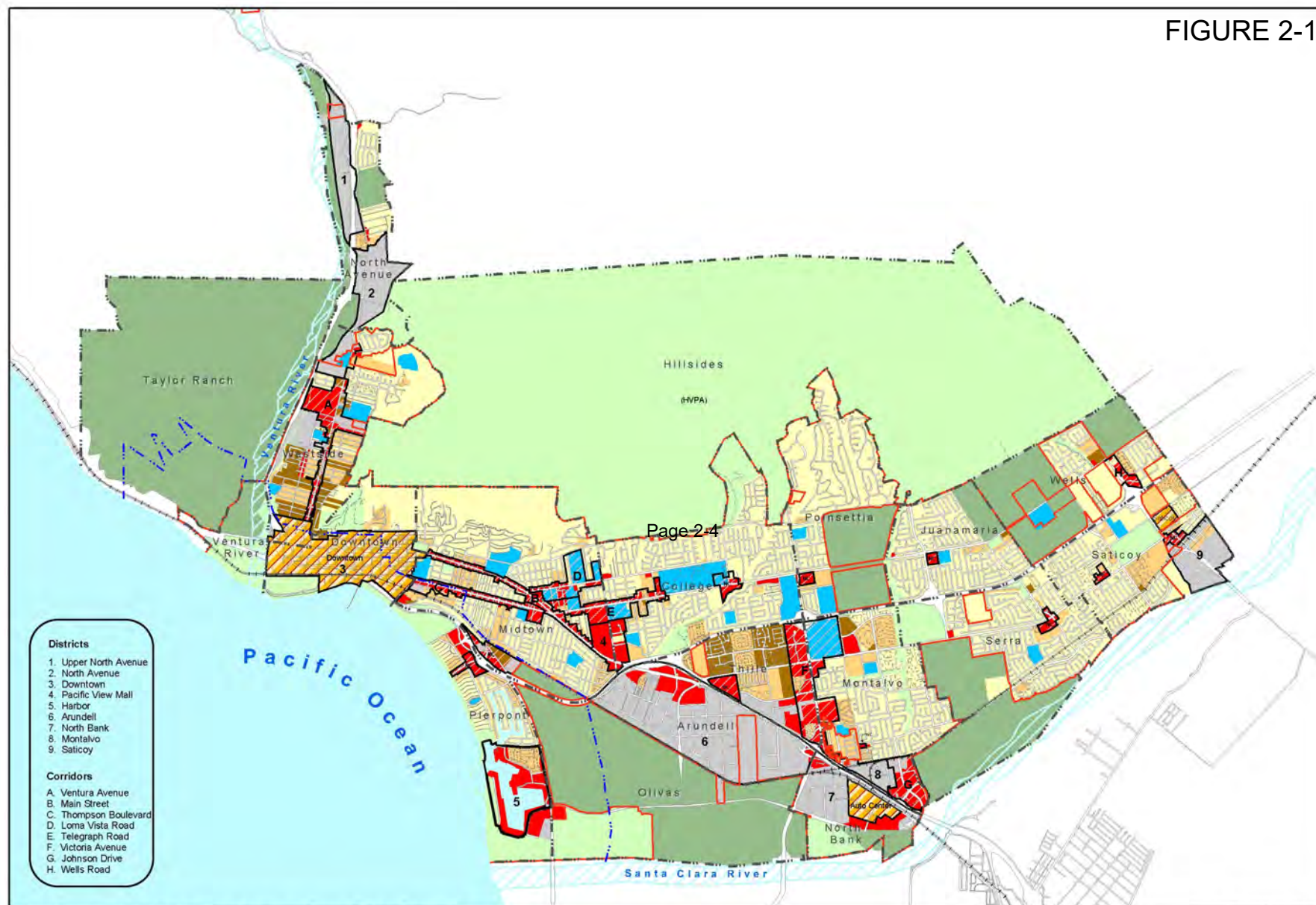
Table 2-3, which has been updated on an annual basis since 2013, provides a summarized total of the existing land use within the City service area. For the purposes of this report, the existing land use picture is considered the year-end of 2019. In order to determine the existing land use make-up within the City's water service area as of year-end 2019, all known development projects constructed and utilizing water within Calendar Year 2019 were added to the land use data published in the 2019 CWRR for the year-end 2018. It should be noted that Table 2-3 only includes projects/units that were constructed and utilizing water as of the end of the recent calendar year.

Table 2-1
Existing Land Uses per 2005 General Plan^[1]

Planning Designation	Allowed Density (du/acre)	Existing Development as of 2004		
		Single Family (Units)	Multi Family (Units)	Non-Residential (SF)
Neighborhood Low	0-8	19,425	3,335	49,386
Neighborhood Medium	9-20	1,163	8,965	149,513
Neighborhood High	21-54	814	2,468	194,143
Commerce		257	490	4,995,248
Industry		29	31	8,299,840
Public and Institutional		4	0	54,422
Park and Open Space		6	0	15,491
Agriculture		4	0	19,550
Downtown Specific Plan	21-54	332	1,543	1,795,401
Harbor District		0	310	350,160
Total		22,034	17,142	15,923,154

[1] Source: Table 3-1 of 2005 Ventura General Plan
 SF = square feet

FIGURE 2-1



Note: Areas prone to flooding are shown on Figure 7-1 in Chapter 7.

Neighborhood

- Low (up to 8 du/ac)
- Medium (9-20 du/ac)
- High (21-54 du/ac)

Commerce

Industry

Public and Institutional

Agriculture

Parks and Open Space

Specific Plan Area

Corridors, Neighborhood Centers (NC)

Districts

GENERAL PLAN DIAGRAM

City Limits

Planning Communities

California Coastal Zone Boundary

This map is a product of the City of San Buenaventura, California. Although reasonable efforts have been made to ensure the accuracy of this map, the City of San Buenaventura cannot guarantee its accuracy.

Table 2-2
Summary of "Built" Projects 2005-2012

	Non-Residential			Residential		
	RETAIL/OFFICE (SF)	INDUSTRIAL (SF)	TOTAL NON-RESIDENTIAL	SINGLE FAMILY	MULTI-FAMILY	TOTAL RESIDENTIA
DISTRICTS						
Upper North Avenue	0	18,619	18,619			
North Avenue	0	0	0			
Downtown Specific Plan	55,891	0	55,891	14	184	198
Pacific View Mall	14,624	0	14,624			
Harbor	201	0	201			
Arundell	105,412	71,890	177,302			
North Bank	97,774	500,132	597,906			
Montalvo	0	270	270			
Saticoy	438	0	438			
Subtotal (Districts)	274,340	590,911	865,251	14	184	198
CORRIDORS						
Ventura Avenue	7,086	0	7,086		24	24
Main Street	2,072	0	2,072		10	10
Thompson Boulevard	18,784	0	18,784			
Loma Vista	19,541	0	19,541		4	4
Telegraph Road	5,503	0	5,503		4	4
Victoria Avenue	64,775	163,328	228,103			
Johnson Drive	840	0	840			
Wells Road	2,816	0	2,816			
Subtotal (Corridors)	121,417	163,328	284,745	0	42	42
SPHERE OF INFLUENCE(SOI/Other Infill/Neighborhood Centers)						
101/126 Agriculture	0	0	0			
Wells/Saticoy	0	0	0			
Pierpont	0	0	0			
Other Neighborhood Centers (includes Seaward/Allessandro+College/ Day+Gateway Plaza+Victoria Plaza+Bristol+Kimball/Telegraph+Petit/Telephone+Telephone/	27,032	0	27,032			
Second Units	0	0	0		26	26
Underutilized	0	0	0			
Vacant	0	0	0			
Subtotal (SOI/Other Infill/NC)	27,032	0	27,032	0	26	26
PLANNING COMMUNITIES (Not Included within District/Corridor/Center-above)						
Downtown	0	0	0	3	2	5
Ventura Ave/Westside	0	0	0			
Midtown	0	0	0	49	11	60
College (Telegraph/Loma Vista)	10,931	0	10,931	10	2	12
Telephone Road Corridor	0	0	0			
Montalvo/Victoria	56,933	0	56,933	123	104	227
Saticoy/East End	6,320	0	6,320	95	453	548
Arundell	0	0	0			
Olivas	658	0	658			
Pierpont	26,436	0	26,436	27	4	31
Serra	3,744	0	3,744	191	95	286
Juanamaria	689	0	689	1	3	4
Poinsettia	1,499	0	1,499	8		8
Thille	13,370	0	13,370		364	364
Wells	87,618	0	87,618		60	60
Westside	9,216	0	9,216	22	19	41
Subtotal (Planning Communities)	217,414	0	217,414	529	1,117	1,646
TOTAL	640,203	754,239	1,394,442	543	1,369	1,912

Source: Development data provided by City 02/14/2013.
Note: Figures include the built projects only.

Table 2-3
Summary of Existing Land Use - December 2019

	Residential Single-Family (units)	Residential Multi-Family (units)	Non- Residential (sf)
Existing (as of 2005 General Plan) ^[1]	22,034	17,142	15,923,154
Constructed (Built Projects 2005 - 2012) ^[2]	543	1,369	1,394,442
Constructed (Built Projects 2013) ^[3]	28	0	4,356
Constructed (Built Projects 2014) ^[4]	0	0	147,060
Constructed (Built Projects 2015) ^[5]	59	114	0.00
Constructed (Built Projects 2016) ^[6]	0	40	7,360
Constructed (Built Projects 2017) ^[7]	9	153	29,637
Constructed (Built Projects 2018) ^[8]	34	154	394,783
Constructed (Built Projects 2019) ^[9]	328	181	43,509
Total Existing Land Use (through 2019)	23,035	19,153	17,944,301

[1] Per Table 2-1

[2] Per Table 2-2

[3] Per data provided by Ventura Water, Built Projects part of CY 2013 water demand (Aldea Hermosa: 28 SFDU and Chick-Fil-A: 4,356 SF).

[4] Per data provided by Ventura Water, Built Projects part of CY 2014 water demand:

- PROJ-04282 4,829 SF Office Bldg.
- PROJ-2695 7,434 SF Bank Office Bldg.
- PROJ-5097 134,797 SF Beverage Distribution Center (Commercial)

[5] Per data provided by Ventura Water, Built Projects part of CY 2015 water demand:

- PROJ-5211 Citrus Apartments; 54 Multi-Family Residential Units
- PROJ-6355 Orchard Collection; 59 Single-Family and 60 Multi-Family Residential Units

[6] Per Ventura Water data, Built Projects part of CY 2016 water demand:

- PROJ-7286 Union Bank; 4,860 SF
- PROJ-6187 Castillo Del Sol; 40 Affordable Housing Units and 2,500 SF Commercial

[7] Per Ventura Water data, Built Projects part of CY 2017 water demand:

- PROJ-03743 Cannery Row LLC; Mixed Use - 2,156 SF and 78 Multi-Family Residential Units
- PROJ-01857 Hearthside - Jenven Village; 51 Condominiums
- PROJ-7215 CMH Parking Structure; 1,399 SF Retail Liner
- PROJ-7290 Santa Clara Courts; 24 Condominiums
- PROJ-6098 La Barranca; 9 Single-Family Units
- PROJ-10123 New Volkswagon Dealership; 21,975 SF
- PROJ-8794 Uncle Don's Liquor; 725 SF Addition
- PROJ-8641 Kia Addition; 3,382 SF
- PROJ-10085 Kellogg Park Zone Change

[8] Per Ventura Water data, Built Projects as part of CY 2018 water demand:

- PROJ-1678 CMH New Hospital; 320,000 SF New and 230 Beds
- PROJ-2008 Island View Apartments; 154 Apartments
- PROJ-7213 398 S. Ash St. - Trailer Hotel; New Airstream Trailer Park (34 Units)
- PROJ-10278 Subaru Dealership; Addition of 2,783 SF to Existing Dealership
- PROJ-8479 Kaiser NWC Market and Valentine; New 72,000 SF Medical Center

[9] Per Ventura Water data, Built Projects part of CY 2019 water demand:

- PROJ-8446 UC Hansen Trust SP

- PROJ-04154 Solana Heights
- PROJ-4154 East Village Residential - CEDC Apartments
- PROJ-4184 Enclave at Northbank - Watt Communities
- PROJ-7630 Holiday Inn Express and Suites Hotel
- PROJ-10172 Ventura Ophthalmology
- PROJ-10410 Rancho Verde
- PROJ-9523 Riverside St. Multi-Family
- PROJ-10910 Victoria and Moon Retail Center

Note: This table only includes projects/units that were built and utilized water during the noted calendar year. The projects/units were included in the previous CWRR Table 2-4 and have been removed from the current CWRR Table 2-4.

C. FUTURE LAND USE

The City maintains a database of projects that are in the City's planning process. The database includes all projects that are in the conceptual phase to those that are in construction. For the purposes of this Report, the priority was to determine those projects that the City has made commitments to, and to determine the water resources required to meet the anticipated water demand of the projects.

1. Under Construction and Approved Projects

The City Planning Department provided a listing of all the development projects within the City that are "In Planning Process," "In Plan Check," "Under Construction," or have "All Planning Approvals." The list was narrowed down to those projects that are either "Under Construction," or have "All Planning Approvals." Some modifications and adjustments were made based on review and data provided by Ventura Water staff. The Under Construction and Approved Projects as of December 31, 2019 are shown on Table 2-4. Table 2-4, updated on an annual basis, provides specific data about each project, including the project number, type, name, status, description, and land use details. The table also identifies if the project is located within the boundary of the Casitas Municipal Water District. Figure 2-2 identifies the location of each Project that is "Under Construction" or has "All Planning Approvals."

2. Future Potential (per 2005 General Plan)

Table 3-2 of the 2005 General Plan identifies the predicted development intensity and pattern that was anticipated to occur within the General Plan boundary through the planning horizon of year 2025. As mentioned previously, the City provided information as to the development areas that have been constructed, are currently under construction, or are approved for development since the 2005 General Plan through the end of year 2012. Table 2-5 provides a summary of the 2005 General Plan predicted development, a summary of the projects constructed from 2005-2019, a summary of the projects that are under construction or approved, and calculates the remaining developable land through the 2025 planning horizon. It should be noted that the residential unit count is not divided by the density.

Table 2-4
Summary of Approved and Under Construction Projects - as of December 2019

Project ID	Project Type	Project Name	Project Status	Located in Casitas Municipal Water District (Y or N)	Description of Project	Non-Residential									Residential		Total Annual Demand (AFY)
						Commercial Type	Commercial 1 (kSF)	Commerical 1 Demand	Self-Storage	Assisted Living (beds)	Hotel 1 w/restaurant	Hotel 2 hotel/motel (no restaurant)	Park / Irrig. Area (ac)	School (student)	Single- Family (Units)	Multi- Family (Units)	
PROJ-00687	Mixed Use	VILLA SAN CLEMENTE (STAJEN)	Under Construction	YES	Mixed Use - Condominiums/Commercial	Single use Commercial	5.554	0.1180		0	0					10	3.00
PROJ-7910(was PROJ-01520) ^[2]	Mixed Use	THOMPSON VILLAGE - CDRC (V2V Ventures)	Under Construction	YES	Mixed Use - Condominiums/Commercial	None		0.0000		0	0					29	6.79
PROJ-7813	Mixed Use	WESTSIDE VILLAS (Previously PROJ-02225)	All Planning Approvals	YES	Mixed Use - Condominiums/Commercial	Single use Commercial	1.573	0.1180		0	0					40	9.55
PROJ-03617	Industrial	FPA LAND DEV/VICTORIA CORP C	All Planning Approvals	NO	7 industrial office buildings	Multi-tenant Commercial*	158.984	0.1740		0	0						27.66
PROJ-03829	Residential	WESTWOOD/PARKLANDS	All Planning Approvals	NO	216 detached homes; 110 attached homes	None		0.0000		0	0				216	110	96.80
PROJ-03865	Residential	MATILIIJA	Under Construction	YES	28 Condominiums	None		0.0000		0	0					28	6.55
PROJ-04315	Residential	MATLIJA INVESTMENT GROUP (11 S. Ash)	Under Construction	YES	15 Condominiums	None		0.0000		0	0					15	3.51
PROJ-6237	Mixed Use	SONDERMANN-RING-Amendment	Under Construction	NO	Mixed Use: 300 apartments Units; 21,300 sq ft commercial/retail; private indoor and outdoor recreational facilities incl 2.44 acre park and waterfront promenade	Multi-tenant Commercial*	21.300	0.1740		0	0		2.44			300	78.61
PROJ-1126	Residential	HEMLOCK APARTMENTS	All Planning Approvals	YES	23 Apartments	None		0.0000		0	0					23	5.38
PROJ-7125 (was PROJ-1200)	Mixed Use	LOGUE	All Planning Approvals	YES	Mixed Use - 125 Condominium Units & 10000 sf commerical	Multi-tenant Commercial*	10.000	0.1740		0	0					125	30.99
PROJ-5616	Commercial	MARRIOT RESIDENCE INN	Under Construction	NO	125 room Residence Inn	None		0.0000		0	125	0					24.13
PROJ-4222	Residential	PARKLANDS APARTMENTS	Under Construction	NO	173 Apartments with Community Building	None		0.0000		0	0					173	40.48
PROJ-6263	Residential	SANTA CLARA APTS - 1254 & 1268 E. Santa Clara St.	Under Construction	YES	8 Apartments	None		0.0000		0	0					8	1.87
PROJ-7323 (was PROJ-04543) ^[2]	Mixed Use	2200 E MAIN ST - ANASTASI (ASBELL) (formerly Renaissance Holdings)	Under Construction	YES	Mixed Use: 26 Condominium Units & 3896 sf Commerical	Single use Commercial	3.896	0.1180		0	0					26	6.54
PROJ-6702	Commercial	BEST WESTERN - 708 E THOMPSON BL- REMODEL	Under Construction	YES	Remodel 2 existing motel rooms into a gym and meeting room and replace the 2 rooms within a new 2nd story addition (555sf)	Office	0.555	0.0430		0	0						0.02
PROJ-04469	Commercial	PACIFIC MIDWEST DEV	All Planning Approvals	NO	4 Commerical buildings	Multi-tenant Commercial*	3.000	0.1740		0	0						0.52
PROJ-5810 ^[5]	Institutional	VENTURA BOTANICAL GARDENS	Under Construction	YES	Botanical Gardens and support facilities within Grant Park	None		0.0000		0	0		0.00		0	0	134.05
PROJ-6984 (was PROJ-00823)	Mixed Use	MAR-Y-CEL	All Planning Approvals	YES	Mixed Use: 140 Units & 6,452 sf commerical	Multi-tenant Commercial*	6.452	0.1740		0	0					140	33.88
PROJ-7166 ^[1]	Mixed Use	DARLING APARTMENTS	Under Construction	NO	Mixed Use: 43 Apartments & 2 Live/Work Units & 2100 sf Commerical/Retail	Single use Commercial	2.100	0.1180		0	0					45	10.78
PROJ-7951	Residential	WESTVIEW VILLAGE -Housing Authority	Under Construction	YES	Redevelopment of 180 public housing apartments and the addition of 140 new apartments	None		0.0000		0	0					140	32.76
PROJ-5085	Residential	VENTURA DOWNTOWN HOUSING	All Planning Approvals	YES	255 Apartments	None		0.0000		0	0					255	59.67
PROJ-7224 ^[2]	Residential	SANJON VILLAGE - 1230 E THOMPSON BL	All Planning Approvals	YES	33 Condominium Units	None		0.0000		0	0					33	7.72
PROJ-8096	Industrial	VICTORIA CORPORATE	Under Construction	NO	43,470 SF, one-story industrial office building	Multi-tenant Commercial*	43.470	0.1740		0	0						7.56
PROJ-8647 ^[4]	Commerical	GOLF COURSE SELF STORAGE	All Planning Approvals	NO	New self stoarge facility	None		0.0000	3.66	0	0						1.17
PROJ-4677	Residential	WESTSIDE RENAISSANCE	All Planning Approvals	YES	50 Affordable senior apartments	None		0.0000		0	0					50	11.70
PROJ-10256 (was PROJ-04182)	Mixed Use	DEANZA COURTS_1995 N. VENTURA AVE (Previously New Urban Ventures)	All Planning Approvals	YES	Modification of an approved project- 80 residential units and 1,779 SF of retail within three buildings.	Single use Commercial	1.779	0.1180		0	0					80	18.93
PROJ-6270 ^[3]	Residential	NORTHBANK - VINCE DALY	All Planning Approvals	NO	117 Single family; 31 affordable for sale triplex/quadplex; 50 apartments	None		0.0000		0	0				117	81	57.45
PROJ-10066	Commercial	RIVIERA SHOPPING CENTER	Under Construction	NO	New 6,000 SF expansion, creation of two new pad buildings of 5,510 SF and 1,827 SF respectively	Restaurant (sit-down)	13.337	0.7540		0	0				0	0	10.06
PROJ-10785 ^[2]	Commercial	5811 OLIVAS PARK DR	Under Construction	NO	New 23,501 SF industrial/commercial building	Multi-tenant Commercial*	23.501	0.1740		0	0				0	0	4.09
PROJ-8428	Mixed Use	11101 CARLOS ST - GISLER RANCH MIXED USE	All Planning Approvals	NO	3-story mixed use consisting of 43 apartments & 1,200 SF retail	Single use Commercial	1.200	0.1180		0	0				0	43	10.20
PROJ-6018	Mixed Use	WORLD OIL - 1571 E. MAIN ST	All Planning Approvals	YES	3 apartment units & 2,438 SF commercial	Single use Commercial	2.438	0.1180		0	0				0	3	0.99
PROJ-8427	Residential	11156-11172 CITRUS DR. - CITRUS II	All Planning Approvals	NO	78 unit, 3-story apartment building	None		0.0000		0	0				0	78	18.25
PROJ-7123 ^[2]	Industrial	724 N. VENTURA AVE - 4 WAY MEAT MARKET#2	All Planning Approvals	YES	New office 2,219 s.f.	Grocery Store	2.219	0.1750		0	0				0	0	0.39
PROJ-11236 ^[6]	Commercial	3500 E. MAIN ST. - MOBILE GAS	All Planning Approvals	NO	Demolish existing building and rebuild new 2,860 s.f. food mart and 833 s.f.car wash.	None				0	0				0	0	2.46
PROJ-10752	Commercial	324 E. MAIN ST. - IRON AND RESIN FAÇADE CHG AND ADDITION	All Planning Approvals	YES	Tenant improvements to divide into 3 spaces; addition of 3 shipping containers to be used for coffee shop, covered dining area and private commercial storage. 800 s.f.	Multi-tenant Commercial*	0.800	0.1740		0	0				0	0	0.14
PROJ-11658 ^[2]	Commercial	1717 PALMA DR. - BUENA TILE	All Planning Approvals	NO	5,060 s.f. addition to existing commercial structure.	Single use Commercial	5.060	0.1180		0	0				0	0	0.60

Table 2-4
Summary of Approved and Under Construction Projects - as of December 2019

Project ID	Project Type	Project Name	Project Status	Located in Casitas Municipal Water District (Y or N)	Description of Project	Non-Residential									Residential		Total Annual Demand (AFY)
						Commercial Type	Commercial 1 (kSF)	Commerical 1 Demand	Self-Storage	Assisted Living (beds)	Hotel 1 w/restaurant	Hotel 2 hotel/motel (no restaurant)	Park / Irrig. Area (ac)	School (student)	Single-Family (Units)	Multi-Family (Units)	
PROJ-10694	Industrial	4880 MARKET ST. - STAR OF CA	All Planning Approvals	NO	3-Story office building: 8,539 s.f.	Office	8.539	0.0430		0	0				0	0	0.37
PROJ-6811	Mixed Use	THE WILLOWS	All Planning Approvals	NO	Mixed use: 306 apartment units and 5,000 s.f. commercial and 5,000 s.f. clubhouse	Multi-tenant Commercial*	10.000	0.1740		0	0				0	306	73.34
PROJ-10078 ^[2]	Residential	DOWNTOWN TRIANGLE SITE	Under Construction	YES	231 unit multifamily apartment development, 20,000 s.f. park and other open space.	None		0.0000		0	0		0.46		0	231	54.94
PROJ-11655	Residential	THOMPSON AND KALORAMA - 918 E. THOMPSON BLVD	All Planning Approvals	YES	New 3-story 45 unit residential building.	None		0.0000		0	0				0	45	10.53
PROJ-10084	Residential	1926 E. THOMPSON BLVD - THOMPSON CRUZ	All Planning Approvals	YES	Proposed demolition of an existing 2,980 s.f. commercial building and new construction of a 3-story 12 unit residential apartment building.	None		0.0000		0	0				0	12	2.81
PROJ-12725	Commercial	JAGUAR/LANDROVER	All Planning Approvals	NO	Demolition of an existing 3,043 square foot showroom and construction of a new 10,185 square foot showroom. The project also includes a 2,080 square foot service bay addition.	Office	9.222	0.0430		0	0				0	0	0.40
PROJ-10908	Commercial	TRANSMISSION BREWERY	All Planning Approvals	YES	New 2,631 sf rooftop covered patio above an existing building; tubular faux grain silo containing an elevator and a working grain silo.	Brewery	2.631	0.4870		0	0				0	0	1.28
PROJ-12758	Commercial	ALDI	All Planning Approvals	NO	Demolition of 15,650 sf (portion of existing building) and construction of new 19,353 sf building.	Grocery Store	3.703	0.1750		0	0				0	0	0.65
PROJ-13289	Commercial	VET MED & SURG	All Planning Approvals	NO	Commercial Addition of 1,147 sf.	Medical/Dental Office	1.147	0.1880		0	0				0	0	0.22
PROJ-11836	Residential	SAMET APARTMENTS	All Planning Approvals	YES	Demolition of an existing carwash; Construction of 19 residential units.	None		0.0000		0	0				0	19	4.45
PROJ-11817	Residential	KELLOGG ST APARTMENTS	All Planning Approvals	YES	Demolition of industrial buildings and construction of two residential apartment buildings. 30 units.	None		0.0000		0	0				0	30	7.02
TOTAL							342.460			0	125		2.90		333	2,478	921
[1] Not part of CY 2019 water consumption (connected to City water, no established water usage).																	
[2] Approved and/or revised projects during CY 2019 per Community Development Planning Projects List dated February 5, 2020.																	
[3] Project entitled through City and pending annexation by LAFCo																	
[4] Projected demand based only on square footage of office component of project, not each individual storage unit.																	
[5] Total Annual Demand Value as reported in the memo Water System Alternatives Evaluation, Water System Hydraulic Evaluation, and Supply Discussion for the Ventura Botanical Gardens in the City of Ventura, dated November 2014																	
[6] Total Annual Demand Value as reported in the Water Infrastructure Review - Mobil Gas Station & Carwash, dated September 12, 2018																	
						Total within Casitas Boundary		37.897	1.8170		0	0		0.5	0	1,342	455
						Total not in Casitas Boundary		304.563	2.601		0	125		2.4	333	1,136	466

Table 2-5
Summary of Predicted, Actual and Remaining Development

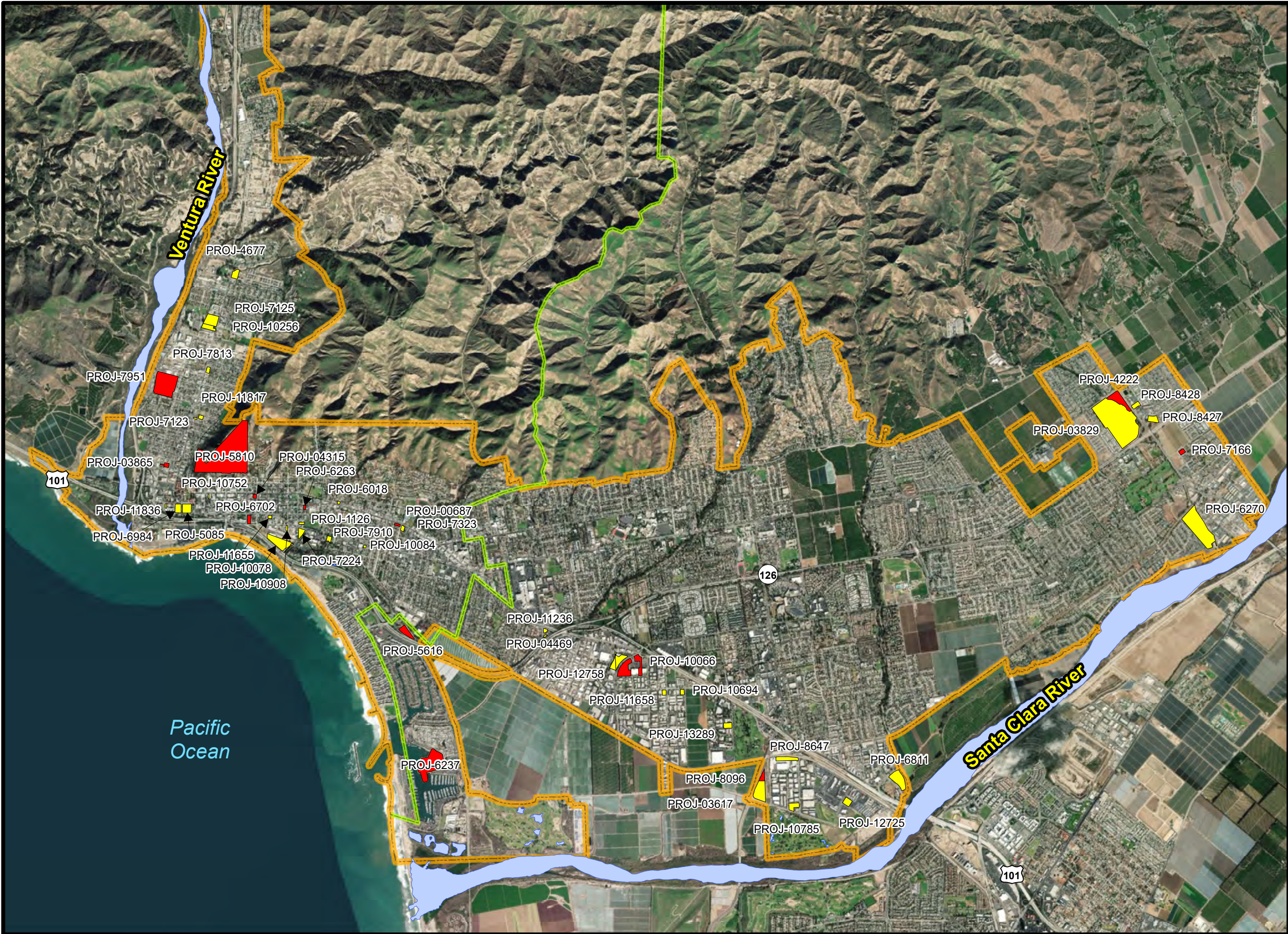
	Residential Development (units)	Non-Residential				
		Retail (sf)	Office (sf)	Industrial (sf)	Hotel (sf)	Total (sf)
2005 General Plan Prediction ^[1]	8,318	1,241,377	1,213,214	2,235,133	530,000	5,219,724
Actual Development (Built 2005-2012) ^[2]	1,912	320,102	320,102	754,239	0	1,394,442
Constructed (Built 2013) ^[3]	28	4,356	0	0	0	4,356
Constructed (Built 2014) ^[3]	0	0	147,060	0	0	147,060
Constructed (Built 2015) ^[3]	173	0	0	0	0	0
Constructed (Built 2016) ^[3]	40	0	7,360	0	0	7,360
Constructed (Built 2017) ^[3]	162	28,238	0	0	1,399	29,637
Constructed (Built 2018) ^[3]	188	74,783	0	320,000	0	394,783
Constructed (Built 2019) ^[3]	509	19,548	0	0	23,961	43,509
Remaining Developable Land (as of end 2019)	5,306	794,351	738,693	1,160,894	504,640	3,198,577
Approved & Under Construction Projects ^[4]	2,811	322,997	19,463	0	92,850	435,310
Remaining Developable Land (through 2025)	2,495	471,354	719,230	1,160,897	411,790	2,763,267

[1] Source: Table 3-2 of 2005 General Plan.

[2] Per Table 2-2. The "Retail/Office" square footage listed in Table 2-2 was split evenly for the purposes of this table.

[3] Per Table 2-3.

[4] Per Table 2-4. Square footage for the "Institutional" category was added to the "Industrial" category.

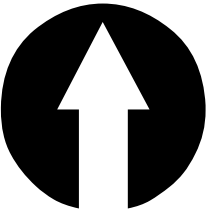


**Projects Approved
and
Under Construction
(as of December 2019)**

Legend

-  Casitas Municipal Water District
-  City Limits
- Water Projects**
- STATUS**
-  All Planning Approvals
-  Under Construction

Note: See Table 2-4 for project and water demand information for each project shown on this exhibit.



0 0.5 1
Miles

Figure 2-2

3. WATER DEMANDS

A. BACKGROUND

The water demands section describes historic, current, and projected water consumption for the City and includes a discussion of current and proposed water demand factors. The City's water system provides potable water to residential, commercial, industrial, institutional and irrigation customers. Recycled water is provided for general irrigation of golf courses, City parks, and landscape irrigation. Untreated water is provided to several users. The summary of existing water consumption in Table 3-1 includes seven categories. Prior to 2019, the "Other" category in the CWRR excluded water consumption data for certain specialized uses, such as temporary construction water and fire training usage, so as not to skew the demand factors calculated in 2013. In 2019, staff added the specialized water consumption data into this category to better reflect actual consumption. Therefore, the "Other" category now includes authorized consumption for miscellaneous uses that do not fit the definitions of the above consumption categories (i.e. oil industry use, temporary construction water, and fire training).

Tables 3-1, 3-3, and 3-4 in this section identify water loss factors. From the source to the customer, all water systems experience some level of water loss. Water loss can be attributed to many things; most typically it is associated with leaks in the system, main breaks, and slight variations in meter accuracy. Water loss is essentially the difference between the water supplied and consumption. A simple water loss calculation is performed by calculating the difference between the water supplied (all source water produced and supplied to the Ventura Water system including purchases from Casitas) and consumption (billing records for all metered water that is delivered to customers).

In the 2013 to 2018 CWRRs, the water loss factor of 6.5% (based on a simple water loss calculation from the 2010 UWMP) was used in Table 3-1 Summary of Existing Water Consumption. During development of the 2019 CWRR, the Water Commission directed staff to update the water loss factor annually based on the State-required validated water loss audits. Per Senate Bill 555, urban retail water suppliers are required to conduct a water audit in accordance with the American Water Works Association (AWWA) method and have the water audit validated for submission by October 1st of each year to the DWR. The 2019 CWRR included a water loss factor of 5.0% based on the preliminary State-required calendar year 2018 audit. The preliminary water loss estimate for calendar year 2019 is 8.25%. This preliminary water loss audit will be validated and submitted to the DWR by October 1, 2020. It should be noted that the water loss factor will vary annually due to factors including rates of infrastructure leakage and number and duration of main breaks.

While the AWWA method breaks water loss into multiple categories to provide additional information to the utility, it still calculates water loss as the difference between the water supplied (water that Ventura Water produces and purchases from Casitas) and authorized consumption (the water that is sold to customers). The audit uses the term “non-revenue water” to define this water loss.

In Table 3-3 Summary of Planning-Level Water Consumption Factors (from 2013 CWRR), the water loss factor of 6.5% was used in calculating the City's current water consumption factors. This 6.5% was from the 2010 UWMP and is consistent with what was used in the 2013 to 2018 CWRRs. As discussed later in this section, the current water consumption factors developed in the 2013 CWRR have been updated. In Table 3-4, Proposed Demand Factors, the water loss factor is identified as 7%. The 7% water loss factor was calculated as the average of the 2016, 2017, and 2018 State-required AWWA water loss audits.

B. EXISTING DEMAND CONDITION

The annual water consumption figures for the past ten years are provided in subsection 3.D.

Table 3-1 summarizes the total water consumption (potable, recycled, and untreated) for each consumption category within the City's water service area for the most recent complete year of data, CY 2019. As shown in Table 3-1, the total water consumption for CY 2019 was 13,575 AFY, including the 8.25% water loss factor.

Table 3-1
Summary of Existing Water Consumption for CY 2019

City Consumption Category	Water Consumption (HCF) ^[1]	Water Consumption (gpm)	Water Consumption (gpd)	Water Consumption (AFY)	Water Consumption + 8.25% Loss (AFY)
Single Family	2,144,153	3,051.42	4,394,045	4,922	5,328
Multi Family	1,377,344	1,960.15	2,822,612	3,162	3,423
Commercial/Retail/Industrial/Hotel	1,169,735	1,664.69	2,397,156	2,685 ^[2]	2,907
Public/Institutional (Municipal/Church/School)	185,004	263.29	379,131	425 ^[3]	460
Hospitals	107,764	153.36	220,842	247	268
Parks/Landscape/Irrigation	356,359	507.15	730,292	818 ^[4]	886
Other ^[5]	122,314	174.07	250,660	281 ^[6]	304
Total	5,462,673	7,774.12	11,194,738	12,541	13,575

[1] Source: HCF Consumption Data Tables (CY 2019)

[2] Includes 26.07 AFY of recycled water.

[3] Includes 4.25 AFY of recycled water.

[4] Includes 488.46 AFY of recycled water.

[5] "Other" category includes authorized consumption for miscellaneous uses that do not fit the definitions of the above consumption categories (i.e. oil industry use, temporary construction water, and fire training).

[6] Includes 54.84 AFY of untreated water.

C. CONSUMPTION AND USAGE FACTORS

Future water demands are calculated using available land use data and corresponding water demand factors. Prior to the 2013 CWRR, the City had been utilizing the water demand factors identified in the 2005 General Plan FEIR to calculate future water demands. However, City staff recognized that the demand factors identified in the FEIR were very conservative, planning-level factors. Therefore, City staff felt it prudent to develop more accurate water demand factors based on recent, historical billing data.

In the 2013 CWRR, demand factors were developed utilizing land use information quantified in Section 2 and CY 2012 water consumption data. Table 3-2 provides detail for how each of the categories consumption factor was calculated. The calculations in Table 3-2 are considered “raw factors,” and do not factor in water loss or contingency. These raw consumption factors were used as a basis to calculate a “Usage Factor,” or planning-level consumption factor. The usage factors adjust the consumption factors to include a 6.5% water loss factor, per the 2010 UWMP, and a 20% contingency (factor of safety) for planning purposes, which is consistent with industry standards/practices. Table 3-3 provides a summary of the water usage factors developed for use in calculating all future water demands for projects where development densities are known.

It should be noted that the usage factors in Table 3-3 have not been updated on an annual basis. The 2013 CWRR stated that the water demand factors will be re-visited every ten (10) years, unless there is a significant change in the year-over-year annual demand (quantified as a 30% change in two-year period). The usage factors in Table 3-3 were used in the 2013 to 2019 CWRRs to estimate future water demands from projects.

In 2018, the City hired a consultant to evaluate whether the demand factors developed in Table 3-3 of the 2013 CWRR needed to be updated to reflect current water usage behavior and to establish additional relevant subcategories for customer classes. Six years of billing data was analyzed (2013 to 2018) versus only one year (2012) utilized in the 2013 CWRR. The original six categories from the 2013 CWRR were also expanded to a total of 23 categories. The proposed demand factors are shown in Table 3-4. Similar to the 2013 methodology, the proposed demand factors include water loss and a planning-level contingency of 20% to account for the annual demand variations that are likely to occur. For further details on the demand factor methodology and process, please refer to the Water Demand Factor Study, dated April 8, 2020, included in Appendix A.

Table 3-2
Calculation of Raw Consumption Factors for CY 2012 (from 2013 CWRR)

City Consumption Category	Water Consumption (HCF) ^[1]	Water Consumption (gpm)	Water Consumption (gpd)	Water Consumption (AFY)	Units ^[2]	ksf or acre ^[2]	Raw Consumption Factor
Single-Family Res.	3,212,783	4,572.2	6,584,005	7,376	22,577		292 gpd/du
Multi-Family Res.	1,708,860	2,431.9	3,501,993	3,923	18,511		189 gpd/du
Commercial/Retail/Industrial/Hotel	1,491,845	2,123.1	3,057,260	3,425		17,318	206 gpd/ksf ^[3]
Public/Institutional	250,903	357.1	514,179	576			
Hospital/Assisted Living	96,261	137.0	197,269	221	465		424 gpd/bed
Park/Landscape/Irrigation ^[4]	398,875	567.7	817,421	916		522	1,566 gpd/acre
TOTAL	7,159,527	10,189.0	14,672,127	16,436	-	-	-

[1] Per Table 3-1

[2] Per Table 2-3.

[3] "Public/Institutional" was consolidated with "Commercial/Retail/Industrial" because gross square footages could not be accurately broken out for the two categories.

Table 3-3
Summary of Planning-Level Water Consumption Factors (from 2013 CWRR)

Water Demand Factor Classification		Raw Consumption Factor (CY 2012) ^[1]	Adjustment for Water Loss (+6.5%) ^[3]	Adjustment for Planning Purposes (+20%) ^[4]
Residential	Residential (0-8 du/ac)	292 gpd/du	311 gpd/du	370 gpd/du
	Residential (9-20 du/ac)	189 gpd/du	201 gpd/du	250 gpd/du
	Residential (21+ du/ac)	189 gpd/du	201 gpd/du	250 gpd/du
Non-Residential	Commercial/Retail/Industrial/Hotel Public/Institutional	206 gpd/ksf ^[2]	220 gpd/ksf	265 gpd/ksf
	Hospital/Assisted Living	424 gpd/bed	452 gpd/bed	545 gpd/bed
	Park/Landscape/Irrigation	1,566 gpd/acre	1,668 gpd/acre	2,000 gpd/acre

[1] Per Table 3-2.

[2] "Public/Institutional" was consolidated with "Commercial/Retail/Industrial" because gross square footages could not be accurately broken out for the two categories.

[3] Per 2010 UWMP.

[4] Value rounded-up to nearest 5.

Table 3-4
Proposed Demand Factors (from Table 10 of the Draft Water Demand Factor Study)

Proposed Demand Factors						
		Raw Factor (gpd)	Water Loss 7.0%	Contingency 20%	Proposed Factor (gpd)	
<u>Residential</u> ^[1]						
	Single-Family	229.0 /du	16.0	49.0	294	/du
	Multi-Family	163.0 /du	11.4	34.9	209	/du
<u>Non-Residential</u> ^[2]						
	Office	29.7 /ksf	2.1	6.4	38	/ksf
	Medical/Dental Office	130.7 /ksf	9.1	28.0	168	/ksf
	Assisted Living	70.8 /bed	4.9	15.1	91	/bed
	Hotel (w/ restaurant)	134.2 /room	9.3	28.7	172	/room
	Hotel/Motel (no restaurant)	104.2 /room	7.3	22.3	134	/room
	Public & Institutional	52.6 /ksf	3.7	11.3	68	/ksf
	School	15.4 /student	1.1	3.3	20	/student
	Restaurant (sit-down)	524.6 /ksf	36.5	112.2	673	/ksf
	Restaurant (fast-food)	677.9 /ksf	47.2	145.0	870	/ksf
	Brewery	338.6 /ksf	23.6	72.4	435	/ksf
	Bakery/Coffee Shop	116.4 /ksf	8.1	24.9	149	/ksf
	Grocery Store	121.2 /ksf	8.4	25.9	156	/ksf
	Multi-Tenant Commercial	120.8 /ksf	8.4	25.8	155	/ksf
	Single-Use Commercial	81.9 /ksf	5.7	17.5	105	/ksf
	Self-Storage	223.2 /acre	15.5	47.7	286	/acre
	Church	71.7 /ksf	5.0	15.3	92	/ksf
	Park/Golf Course	1,339.7 /acre	93.3	286.6	1,720	/acre
	Gym (w/ pool)	165.6 /ksf	11.5	35.4	213	/ksf
	Car Wash	841.8 /ksf	58.6	180.1	1,081	/ksf
	Gas Station (w/ car wash)	1,824.4 /ksf	127.1	390.3	2,342	/ksf
	Gas Station	198.5 /ksf	13.8	42.5	255	/ksf

Source: Table 10 of the Draft Water Demand Factor Study Report dated February 13, 2020

[1] Based on actual water billing data from Years 2013-2018. See Appendix A for details.

[2] Based on actual water billing data from Years 2013-2018. See Appendix B for details.

gpd = gallons per day

du = dwelling unit

ksf = 1,000 square feet

D. USAGE FACTOR COMPARISON

Water Consumption Factor Comparison (from 2013 CWRR)

Water Demand Factor Classification		Southern California Agencies				
		City of Ventura ^[5]	City of Thousand Oaks ^[1]	VCWWD No. 8 (Simi Valley) ^[2]	Santa Margarita Water District ^[3]	Irvine Ranch Water District ^[4]
Low Density Residential	Low Density Residential (2-4.5 du/ac)	-	405 gpd/du	840 gpd/du	-	-
	Residential (0-8 du/ac)	370 gpd/du	-	420 gpd/du	450 gpd/du	405 gpd/du
Medium Density Residential	Medium Density Residential (4.5-15 du/ac)	-	310 gpd/du	-	-	-
	Residential (9-20 du/ac)	250 gpd/du	-	-	300 gpd/du	310 gpd/du
High Density Residential	High Density Residential (15-30 du/ac)	-	180 gpd/du	-	-	-
	Condominium	-	-	259 gpd/du	-	-
	Multi-Family Apartment	-	-	222 gpd/du	-	-
	Residential (21+ du/ac)	250 gpd/du	-	-	175 gpd/du	200 gpd/du
Commercial/Industrial/Retail	Commercial/Retail/Industrial/Hotel	265 gpd/ksf	-	-	225 gpd/ksf	-
	Public/Institutional	-	-	-	-	-
	Hospital/Assisted Living	545 gpd/bed	-	1.85 gpm/ac	-	230 gpd/ksf
	Commercial	-	130 gpd/ksf	2.00 gpm/ac	225 gpd/ksf	220 gpd/ksf
	Industrial	-	60 gpd/ksf	-	-	-
	Industrial - Light	-	-	2.00 gpm/ac	-	60 gpd/ksf
	Industrial - Heavy	-	-	-	-	5000 gpd/ksf
	Institutional	-	45 gpd/ksf	-	-	-
Parks / Irrigation	School	-	15 gpd/ksf	1.20 gpm/ac	15 gpd/stu	15 gpd/ksf
	Park/Landscape/Irrigation	2,000 gpd/acre	-	-	3.5 AF/ac	3,400 gpd/acre
	Parks, Golf Courses, Open Space, Recreation Areas	-	3,400 gpd/acre	-	-	-
	Open Space, Community Park (Passive) Recreation Facility	-	-	-	100 gpd/acre	-
	Community Park (Active)	-	-	-	200 gpd/acre	-
	Community Facility	-	-	-	2,500 gpd/acre	-

E. HISTORICAL WATER CONSUMPTION (BASELINE DEMAND CONDITION)

To calculate the future water demand, the projected demands must be added to a baseline demand condition. The baseline demand should consider the historical water usage of the entire service area over an extended duration, in order to account for the year-to-year anomalies that can occur. City-wide water demands will vary from year-to-year based on several factors, including climate, water rates, the local economy, and environmental restrictions among other factors. The historical water data was gathered for the past 10-year period. In the previous 2013 to 2016 CWRs, the City used the most recent 5-year average as the baseline demand condition. However, it was recommended in the 2016 CWR that the City use the 10-year average in future reports in order to capture pre-drought demands. Thus, the 2017, 2018, 2019, and 2020 CWRs utilize the 10-year average demand. Table 3-5 provides a summary of the City-wide water consumption for each year from 2010 to 2019. The consumption numbers are also depicted graphically on Figure 3-1.

Table 3-5 shows the variability in City-wide water demands. The City experienced a high in 2012 (18,004 AFY) with steady declines to a low in 2019 (13,575 AFY). The average annual water consumption for Years 2010 to 2014 (17,167 AFY) was significantly higher than the average annual consumption for Years 2015 to 2019 (14,043 AFY). The drop in consumption is likely due to several factors, including improvements to the City's distribution system to control water loss, more aggressive water conservation measures, less construction activity, and water conservation legislation. The Water Conservation Act of 2009 (Senate Bill x7-7) requires water suppliers to maintain a reduced urban water use target. This bill, along with the Long-Term Conservation Bills passed in May 2018 (Assembly Bill 1668 and Senate Bill 606), will result in water municipalities maintaining aggressive water conservation programs. In addition, the drop in consumption can be attributed to the City's request for customers to voluntarily reduce their water usage by 10% in February 2014 and the request for 20% mandatory reduction that has been in place since September 2014.

Over the most recent 5-year period (Years 2015 to 2019), the average annual average water consumption was 14,043 AFY, with the lowest year approximately 3.3% lower than the average and the highest year approximately 1.6% above the average. Over the most recent 10-year period (Years 2010 to 2019), the average annual water consumption was 15,605 AFY, with the lowest year approximately 13.0% lower than the average and the highest year approximately 15.4% above the average. The variability shown in Table 3-5 indicates that some of the water use reduction trends may revert back to previous habits, however some will remain.

Utilizing 10 years of water data will capture the year-to-year variabilities which occur. For the purposes of establishing a baseline average annual water demand for the existing condition, the 10-

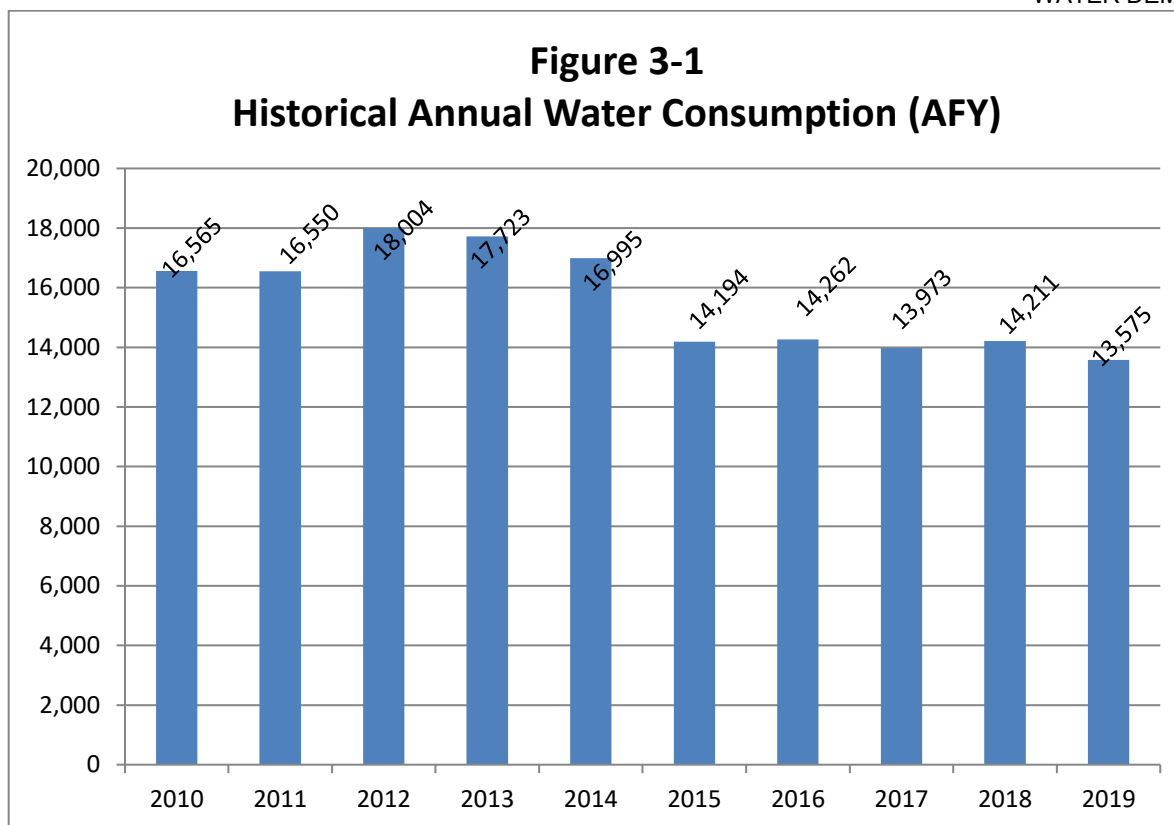
year average from the preceding 10 years of water consumption data is used. Therefore, the baseline water demand established for this report is the 10-year average (2010 to 2019) of 15,605 AFY.

Table 3-6
Historical Annual Water Consumption

Historical Annual Water Consumption					
Calendar Year	Consumption [1] (AF)	Averages, AFY ^[2]			
		3-year	5-year	10-year	
2010	16,565		17,167	15,605	
2011	16,550				
2012	18,004				
2013	17,723				
2014	16,995				
2015	14,194		14,043		
2016	14,262				
2017	13,973	13,920			
2018	14,211				
2019	13,575				

[1] Provided by Ventura Water. The CY 2009 to 2017 consumption data included a 6.5% water loss factor. The CY 2018 includes a 5.0% water loss factor based on the State-required water loss audit. The CY 2019 consumption includes an 8.25% water loss factor based on the preliminary State-required water loss audit. The water loss factor will be updated annually.

[2] Staff intends to use the 10-year average for baseline demand unless changed circumstances arise. The 3-year and 5-year averages are provided for informational purposes, and are not used in the demand calculation.



F. FUTURE DEMAND PROJECTIONS

This Report projects growth through 2030. The proposed near-term development projects that have been approved by the City but are not yet connected to the City's water system are used to project water demands for the next 5 years (2023). This includes projects that are currently under construction, or were under construction in December 2019, and projects that have all City approvals, but have yet to begin construction (Table 2-4).

The future average annual water demands for the projects were calculated utilizing the proposed demand factors listed in Table 3-4. The factors were applied to each project in Table 2-4, per the detailed land use breakdown. As summarized in Table 3-6, the increase in water demand for near-term development projects is estimated to be 921 acre-feet/year (AFY). The total decrease in projected demands from 2019 to 2020 is 425 AFY. The use of the proposed demand factors accounts for 182 AFY of this reduction. Table 3-6 also identifies the portion of the near-term demands, 455 AFY, that are estimated to be within the service area of the Casitas Municipal Water District.

Adding demands for these near-term development projects to the baseline demand, the total near-term water demands are estimated to be 16,526 AFY, as shown on Table 3-8.

Table 3-7
Total Estimated Demands for Under Construction and Approved Projects
As of December 2019

Water Demand Factor Classification	Quantity ^[1]	Estimated Future Water Demand		Quantity ^[2]	Estimated Average Water Demand (within Casitas Boundary)	
Single-Family	333 du	97,902 gpd	110 AFY	0 du	0 gpd	0 AFY
Multi-Family	2,478 du	517,902 gpd	580 AFY	1,342 du	280,478 gpd	314 AFY
Non-Residential	342.5 ksf	58,028 gpd	65 AFY	37.9 ksf	5,356 gpd	6 AFY
Self-Storage	0 acre	0 gpd	0 AFY	0.0 ac	0 gpd	0 AFY
Assisted Living	0 bed	0 gpd	0 AFY	0 bed	0 gpd	0 AFY
Hotel w/ Restaurant	125 room	21,500 gpd	24 AFY	0 room	0 gpd	0 AFY
Hotel/motel (no restaurant)	0 room	0 gpd	0 AFY	0 room	0 gpd	0 AFY
Park/Golf Course	2.90 ac	4,988 gpd	6 AFY	0.5 ac	860 gpd	1 AFY
School	0 student	0 gpd	0 AFY	0 bed	0 gpd	0 AFY
PROJ-5810 Ventura Botanical Gardens ^{[2][3]}	-	119,627 gpd	134 AFY	-	119,627 gpd	134 AFY
PROJ-11236 Mobile Gas ^[4]	-	2,196 gpd	2.46 AFY	-	-	0 AFY
Total		822,144 gpd	921 AFY		406,321 gpd	455 AFY

[1] Per Table 2-4

[2] Within Casitas Boundary, per Table 2-4 (included in the total).

[3] Total Annual Demand Value as reported in the memo Water System Alternatives Evaluation, Water System Hydraulic Evaluation, and Supply Discussion for the Ventura Botanical Gardens in the City of Ventura, dated November 2014

[4] Total Annual Demand Value as reported in the Water Infrastructure Review – Mobil Gas Station & Carwash, dated September 12, 2014

Table 3-8
Projected Total Water Demands Including Under Construction and
Approved Projects – Various Baselines

Baseline Demand Condition	Baseline Water Demand (AFY)	Projected Water Demand ^[1] (AFY)
1-Year: 2019	13,575	14,496
3-Year Average: 2017-2019	13,920	14,841
5-Year Average: 2015-2019	14,043	14,964
10-Year Average: 2010-2019	15,605	16,526
Past 5-Year Period: Annual High Year	14,262	15,183
Past 10-Year Period: Annual High Year	18,004	18,925

[1] Includes an additional near-term demand of 921 AFY per Table 3-6.

Note: The previous CWRR's (2013 to 2016) utilized a 5-year average baseline water demand. The 2017, 2018, and 2019 CWRRs utilize a 10-year average baseline water demand.

It is assumed that the approved and under construction projects listed in Table 2-4 will be completed within the next 5 years (2020 to 2024). The total estimated demands associated with the completion of these projects (921 AFY per Table 2-4) were applied evenly from 2020 to 2024. In order to project estimated demands from 2025 through 2030, an approximate growth rate of 0.54% (Per City Planning Department based on the Department of Finance historical data for population) was used to estimate the increase in demand from the time all approved projects were fully vested (year 2024) to the Year 2030. The City's Community Development Department confirmed this growth rate figure is reasonable.

Table 3-9: Projected Water Demand Growth

Year	Demand Allocation^[1] (AFY)	Population Growth^[2]	Projected Water Demand (AFY) ^[3]
2019	184.2		15,605
2020			15,789
2021			15,974
2022			16,158
2023			16,342
2024			16,526
2025		0.54%	16,616
2026		0.54%	16,707
2027		0.54%	16,798
2028		0.54%	16,889
2029		0.54%	16,981
2030		0.54%	17,074
Totals	921		

[1] Per Table 3-6 - 921 AF from approved and under construction projects divided over the next five years.

[2] Per City Planning Department based on the Department of Finance historical data for population.

[3] Projections based on Baseline Demand Condition, per Table 3-8.

4. WATER SUPPLY

A. INTRODUCTION

The City's potable water supply is derived from local groundwater basins, Lake Casitas and sub-surface water from the Ventura River. The City operates its water supply system by utilizing a conjunctive use operating procedure. The City relies more heavily on surface water sources (such as the Ventura River and Lake Casitas) during wet years while letting groundwater sources rest. During dry years, when the surface water sources are reduced, the City relies more heavily on groundwater sources to meet demands. Conjunctive use of groundwater sources is limited by the requirement to maintain long-term production from the groundwater basins within their safe or operational yield. Conjunctive use also requires treatment and blending ratios to meet water quality goals.

The City also has a 10,000 acre-foot per year entitlement from the California State Water Project. To date the City has not received any of this water because there are no existing facilities to get the water directly into the City's distribution system. However, the City is currently working on the design of the State Water Interconnection Project that will enable the City to receive its State Water allocation through a connection to Calleguas Municipal Water District. Construction of the Project is expected to begin in 2022.

There are presently five local water sources that provide water to the City water system:

- Casitas Municipal Water District (Casitas)
- Ventura River Foster Park Area (Foster Park)
 - o Upper Ventura River Groundwater Basin/Subsurface Intake and Wells
- Mound Groundwater Basin (Mound Basin)
- Oxnard Plain Groundwater Basin (Fox Canyon Aquifer) •
- Santa Paula Groundwater Basin (Santa Paula Basin)

The City also provides recycled water from the Ventura Water Reclamation Facility (VWRF). The existing six water supply sources and associated supply conditions are discussed in the following sections:

- Water Supply Capacity – The City's water supply in a non-drought year. The City's water supply capacity is summarized in Table 4-1.
- Current water supply sources - The City's water supply under existing conditions (normal, drought, or other emergency conditions) in the current calendar year. The City's current water supply portfolio is summarized in Table 4-2.

- Projected future water supply sources – The City’s projected water supply through 2030 evaluating both normal and drought conditions. The City’s projected future water supply is summarized in Table 4-3.

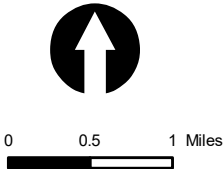
Please refer to Figure 4-1 for the locations and boundaries of the City’s supply sources.



Supply Sources

Legend

- City of Ventura Treatment Plant or Conditioning Facility
- Groundwater Basins
- Regional Water District Boundaries



Source: Eagle Aerial, Dec 2007



Figure 4-1

B. CAPACITY OF WATER SUPPLY SOURCES

The capacity of each water supply source in the City's portfolio is discussed below and summarized in Table 4-1.

1. Casitas Municipal Water District (Casitas)

The City purchases treated water from Casitas Municipal Water District to provide water supply to a portion of the City. Historically, the City has purchased a third of its water supply from Casitas during "normal" or "non-drought" years. Ventura River diversions and storm water runoff from local watersheds are stored in Lake Casitas, located approximately 10 miles northwest of the City, then treated and delivered to customers by Casitas. Casitas supplies potable water to agricultural, domestic, municipal, and industrial users within its service area. The Casitas service area includes the Ojai Valley, the western part of the City, and the coastal area between the City and Santa Barbara County.

The City's 1995 water purchase agreement with Casitas required a minimum annual purchase of 6,000 AFY, which was subject to Casitas' allocation program during drought periods. In May 2017, the City Council approved a new Water Services Agreement between the City and Casitas that establishes that Casitas shall supply the City with sufficient water to meet its in-district projected water demand. The following items summarize major changes and/or new provisions in the Agreement:

- Casitas shall supply the City with sufficient water to meet its Projected Water Demand.
- The City shall submit a Projected Water Demand to Casitas by the last business day of May of every year.
 - o The Projected Water Demand is the total amount of water needed to meet the City's water needs within Casitas boundaries and shall include any adjustments on demand associated with land use.
- In the event that Casitas must enact its Water Efficiency and Allocation Program (WEAP) due to a water shortage, Casitas may adjust the City's Allocation consistent with the percentage reduction for the WEAP stage.
- The City's Stage 1 Allocation shall be the average of the City's Projected Water Demand during the five (5) most recent years during which neither the City nor Casitas are implementing their water shortage contingency plans.
- The City shall annually certify, no later than the last business day of August, whether it achieved Water Balance. The certification shall identify Purchased Water, Actual In-District Demand, and Water Loss.
- The City achieves Water Balance when the below calculation equals a negative number or zero.
- Water Balance = Purchased Water – Actual In-District Demand
- Actual In-District Demand: The water purchased and utilized by the City within Casitas boundaries as certified by the City on an annual basis.

- o Actual In-District Demand = (City Metered Water within Casitas Boundaries) + (Water Loss x Purchased Water)
- Water Loss shall be determined based on the following calculation:
 - o Water Loss = (Citywide Water Production – Citywide Metered Sales)/Citywide Water Production
 - o The Water Loss calculation will be made each year by the City and may be revised to meet State-prescribed definitions and/or standards.

In order to estimate the supply capacity from Casitas the following assumptions were made:

The amount of City metered water within the Casitas boundaries and purchased water was taken from the past five non-drought fiscal years (FY 09-10 to FY 13-14) certification letters from the City to Casitas. Fiscal Year 09-10 through Fiscal Year 13-14 were considered non-drought years.

A water loss of 6.5 percent (based on the City's 2010 Urban Water Management Plan) is used since it is consistent with the timeframe for consumption and purchases. Therefore, the five year average normal (non-drought) water supply from Casitas is estimated to be 5,062 AFY.

The demand from the proposed development projects that are anticipated to be utilizing water by Fiscal Year 2020 are added to the five year average normal (non-drought) water supply from Casitas of 5,062 AFY. Projects completed since fiscal year 2014 and projects expected to be completed within calendar year 2020 are assumed to be utilizing water in Fiscal Year 2020. The supply capacity from Casitas is estimated to be 5,421 AFY and is reflected in Table 4-1.

2. Ventura River Surface Water Intake and Upper Ventura River Groundwater Basin/Subsurface Intake and Wells (Foster Park)

Water from the Ventura River is collected via surface diversion, subsurface collector, and shallow wells and delivered to the Avenue Treatment Plant through the City's Foster Park facilities. Production from this source is a function of several factors including diversion capacity, local hydrology, environmental impacts, the storage capacity of the Ventura River alluvium, and upstream diversions. Currently, the surface intake structure is unused due to channeling of the active river channel bypassing the structure.

The Foster Park facilities produce groundwater throughout the year. However, due to storm flows, the wells are subject to inundation and erosion. The early 2005 winter storms destroyed Nye Well 1A and damaged Nye Wells 2, 7 and 8. The pipeline between Nye Wells 7 and 8 along the west bank of the river and the pipeline that crosses the river from Nye Well 8 to the intake pipeline for the Avenue Treatment Plant were also damaged during the storms. Nye Wells 7 and 8 were repaired in late 2006, the pipeline across the river was repaired in late 2007, and the pipeline repair between Nye Wells 7 & 8 was completed in early 2009. To date, Nye Well 2 has not been repaired or replaced.

In conjunction with the Matilija Dam Ecosystem Restoration Project, two additional wells, No. 12 and 13, were installed at Foster Park as part of the dam removal mitigation measures. It should be noted these

mitigation wells are currently not operational. The mitigation wells were funded by and constructed through a grant received by the Ventura County Watershed Protection District for the City in order to mitigate for water that is expected to be lost as a result of increases in turbidity due to the Matilija Dam removal process. Though these wells have been drilled, they are not connected to the wellfield infrastructure and have not been permitted by the California Department of Public Health as a raw water source for the City's Avenue Water Treatment Plant. These wells cannot be utilized until the Dam removal process is completed. Additionally, the wells are subject to the Biological Opinion for the Matilija Dam Removal and can only be operated when Ventura River flows are above 15 cubic feet per second (cfs).

The City's historical production based on the 50-year average production from 1950-2000 was 6,015 AFY. However, current operational constraints allow a diversion efficiency of up to 70 percent (average 4,200 AFY) to be obtained under the City's operations schedule, which can be considered reliable for planning purposes. Therefore the City's current water supply capacity from the Ventura River / Foster Park is 4,200 AFY. Potential reductions to this supply number by proposed regulatory and environmental constraints are discussed in Section 4D, Projected Future Water Supply.

3. Mound Groundwater Basin (Mound Basin)

The Mound Groundwater Basin has historically provided water for overlying beneficial uses and satisfies agricultural, municipal, and industrial demands. Historical use has been documented to temporarily exceed the yield of the basin and result in water levels that have fallen below sea level and created a threat of seawater intrusion. To abate this threat the City abandoned its historical coastal well facilities and located groundwater extraction near the center of the Mound Basin. A report (Fugro, 1997) compiled as part of a 1996 study of the basin indicated that historical data supports a basin yield of at least 8,000 AFY during drought conditions as long as pumping is reduced during wet years to allow water levels to recover. The City's average annual extraction from 2000 to 2009 was approximately 4,000 AFY.

Currently, two City wells withdraw water from the Mound Groundwater Basin; Victoria Well No. 2, which was installed in 1995, and Mound Well No. 1, which began production in April 2003. Pumping from Victoria Well No. 1, which was installed in 1982, was discontinued due to maintenance and water quality issues. The City recently reached an agreement with the County on deeding to the County its interest in Victoria Well #1 and acquiring land for drilling of Mound Well #2. Construction of Mound Well #3 is currently in progress and is scheduled to be in production in 2021. Design of Mound Well #2 is also in progress and scheduled to be in production in 2022.

Therefore the City's water supply capacity from the Mound Basin is 4,000 AFY.

4. Oxnard Plain Groundwater Basin (Fox Canyon Aquifer)

Wells near the Buenaventura Golf Course pump from the Fox Canyon Aquifer of the Oxnard Plain Groundwater Basin. Currently, three wells, Golf Course Wells No. 5, 6, and 7 produce potable water for the City's system.

The Fox Canyon Groundwater Management Agency (FCGMA) was created by state legislation in 1982 to manage local groundwater resources in a manner to reduce overdraft of the Oxnard Plain and stop seawater intrusion. A major goal of the FCGMA is to regulate and reduce future extractions of groundwater from the Oxnard Plain aquifers, in order to operate and restore the basin to a safe yield. In August 1990, the FCGMA passed Ordinance No. 5, which required existing groundwater users to reduce their extractions by five percent every five years until a 25 percent reduction was reached by the year 2010.

The City's historical allocation was set by the FCGMA at 5,472 AFY, which was the average extraction from the Golf Course Wells for the base period 1985 to 1989. Beginning in 1992, historical extractions set by the FCGMA were reduced incrementally until 2010, when the allocation was set to 4,100 AFY. FCGMA Board approved Emergency Ordinance E at a Special Meeting on April 11, 2014. The emergency ordinance limits extractions from groundwater within the FCGMA boundary, suspends use of credits and prohibits the issuance of any permit for construction of a groundwater extraction facility, other than a replacement, backup or standby facility which does not allow the initiation of any new or increased use of groundwater within the territory of the Agency. For all Municipal and Industrial (M&I) Operators the Temporary Extraction Allocation (TEA) is based on an operator's average annual reported extractions for CY2003 through 2012. Phased reductions were set beginning July 1, 2014 with a 20 percent total reduction of the TEA on January 1, 2016. The City's TEA was 4,827 AFY and with the phased reductions was 3,862 AFY as of January 1, 2016.

At the October 23, 2019 meeting of the Fox Canyon GMA Board of Directors, there was a unanimous vote to adopt the ordinance for a new pumping allocation system for the Oxnard and Pleasant Valley basins, effective October 1, 2020. The new well-based allocation will be the average pumping for the base period of 2005-2014. On December 12, 2019, the FCGMA Board voted to repeal Article 2.c. of Emergency Ordinance E which applied a 20% reduction to M&I's TEA. This action restores the City's pumping allocation in the Oxnard Plain Basin to 4,827 AFY effective January 1, 2020.

5. Santa Paula Groundwater Basin (Santa Paula Basin)

The Saticoy Water Company was acquired by the City in 1968, which included Saticoy Well No. 1 that produced water from the Santa Paula Basin. Due to casing failure, the well was destroyed and replaced in 1991 with a new well designated as Saticoy Well No. 2. Well No. 2 was placed in the same general location as Well No. 1. In May 2003, Saticoy Well No. 2 was rehabilitated. After rehabilitation, the resulting sustainable well supply was 1,600 AFY.

In March 1996, the City ended a five-year stalemate over the use of the Santa Paula Basin. Under a

court stipulated judgment, the United Water Conservation District (United), the Santa Paula Basin Pumpers Association (an association of ranchers and businesses), and the City all have an interest in the Santa Paula Basin. The City can pump on average of 3,000 AFY from the Santa Paula Basin. The City is not limited to this allocation in any single year, but may produce seven times its average annual allocation (21,000 AF) over any running seven-year period. In addition, under certain circumstances and conditions described in the stipulated judgment, the City may be able to pump an additional 3,000 AFY in case of an emergency, such as a fire, flood, earthquake, or resulting from a long-term drought situation.

Construction of Saticoy Well No. 3 was completed in 2015 and Saticoy Well No. 2 remains active as a back-up well. Prior to 2014, the City acquired 5.8 acre-feet of water rights in the Santa Paula Basin from the past development of Tract 4632. In 2016, the City acquired 35.1 acre-feet of water rights in the Santa Paula Basin from the development of Tracts 5632 and Tract 5774 (see Table 4-1). Therefore, the City's water supply capacity from the Santa Paula Basin is 3,041 AFY.

6. Recycled Water

The City collects and treats wastewater at its Ventura Water Reclamation Facility (VWRF). The reclamation facility capacity is currently permitted for 14MGD; however, the secondary treatment limits the plant capacity to 12 MGD. The reclamation facility is permitted to discharge an annual average of up to 9 MGD. The VWRF discharges less than this during drought conditions. A portion of the tertiary treated effluent is pumped to recycled water customers and the remaining tertiary treated effluent is discharged to the Santa Clara River Estuary (Estuary). The recycled water produced from the VWRF is used for general irrigation of the two golf courses, a City park, and landscape irrigation areas located along the existing distribution alignment. The City's 2015 Urban Water Management Plan projected that annual recycled water demand would be 700 AFY in 2020. In 2019, the recycled water demand was 519 AFY.

With continuing drought conditions and shortages in water supply, the City sought to expand the use of recycled water. There was limited use under the City's current permit originally issued in 1987 by the Los Angeles Regional Water Quality Control Board (LARWQCB) for water reclamation. Therefore, the City was directed by the LARWQCB and the State Water Resources Control Board (SWRCB) to submit a Change Petition to add dust control and residential irrigation use as permitted uses as well as account for reduced discharges of treated wastewater to the Santa Clara River Estuary. The City filed a Wastewater Change Petition with the SWRCB Division of Water Rights on April 17, 2015.

A mobile Reuse Program was created and submitted to the LARWQCB and the SWRCB Division of Drinking Water for approval on August 19, 2015. The City was given permission by LARWQCB to begin hauling recycled water from the VWRF to use on City trees, but not for use by residents and the other designated non-residential customers until the Change Petition and CEQA process was completed.

Approval for the Wastewater Change Petition WW0083 was given on May 6, 2016. It increased the amount of available recycled water use from 0.67 MGD to 2.0 MGD. The approved uses for recycled water were for landscape irrigation and dust control at locations specified in the petition and CEQA Initial Study and Negative Declaration document. In CY 2019, approximately 12.27 acre-feet of recycled water was served from the Recycled Water Fill Station.

For purposes of this report, the projected recycled water demand of 700 AFY, from the 2015 Urban Water Management Plan, continues to be used as the estimated supply capacity of recycled water.

The City's water supply capacity for all sources is summarized in Table 4-1.

Table 4-1
Water Supply Capacity*

Water Supply Source	Supply Capacity AFY
Casitas Municipal Water District ^[1]	5,421
Ventura River / Foster Park	4,200
Mound Groundwater Basin	4,000
Oxnard Plain Groundwater Basin	4,827
Santa Paula Groundwater Basin ^[2]	3,000
City Acquired Water Rights ^[3]	41
Recycled Water	700
TOTAL	22,189 AF
[1] Demand within Casitas service area is based on the 2017 Agreement. The five year average normal (non-drought) water supply from Casitas is estimated to be 5,062 AFY. Adding in development since 2014 (estimated to be 268 AFY) brings the total normal year supply to 5,421 AFY. [2] Includes 3,000 AF of original City allocation and [3] 5.8 AF of water rights acquired for the past development of Tract 4632, 12.0 AF of water rights acquired for the development of Phase 1 of Tract 5632 in 2016 and 23.1 AF of water rights acquired for the development of Tract 5774 in 2016.	

*Table 4-1 per the 2015 WSECP was previously identified as Summary of Current Water Supply.

C. CURRENT WATER SUPPLY SOURCES (2020)

For the purposes of this report, the City's current water supply sources is defined as the City's water supply under existing conditions (normal, drought, or other emergency conditions) in the current calendar year. The current water supply sources under existing conditions in calendar year 2020 will be evaluated for drought impact. The background for the current water supply portfolio for each source is discussed below and summarized in Table 4-2.

1. Casitas Municipal Water District (Casitas)

As mentioned Section 4.B.1, a Water Services Agreement between the City and Casitas was finalized and approved by City Council in May 2017. The agreement indicates that in the event that Casitas must enact its Water Efficiency and Allocation Program (2015 WEAP) due to a water shortage, Casitas may adjust the City's allocation consistent with the percentage reduction for the WEAP stage.

Casitas has assigned five stages of water storage in Lake Casitas that serve as a guidance to triggering the implementation of water use reduction goals and measures.

Table 3 – Stage Conditions from Casitas Municipal Water District's "Water Efficiency and Allocation Program" dated May 9, 2018

Stage	Stage Title	Lake Casitas Storage (%)	Demand Reduction
1	Water Conservation	100% to 50%	0%
2	Water Shortage Warning	50% to 40%	20%
3	Water Shortage Imminent	40% to 30%	30%
4	Severe Water Shortage	30% to 25%	40%
5	Critical Water Shortage	25% to 0%	50%

The Casitas General Manager shall report to the Casitas Board of Directors each year with an assessment of the current water storage in Lake Casitas and local groundwater basins, current water use trends, predicted weather conditions, and an evaluation of current water use reduction goals. The report may be delivered in April or as Lake Casitas storage reaches a change in Stage action level. The Casitas Board of Directors may, at their sole discretion, declare that a Stage condition of water supply in Lake Casitas exists and implement the appropriate demand reduction goals and measures in response to current and/or predicted water availability conditions.

As of February 2020, Casitas is currently in a Stage 3 water supply condition per Casitas Resolution No. 16-00. The current lake level as of February 19, 2020 was 41.6 percent full. The Casitas Board of Directors may not make a final decision on the Stage condition until April or May 2020. In order to be conservative, the 2020 CWRR assumes that Casitas will remain in a Stage 3 Drought condition, and imposes a reduction of 30% to the City's Casitas supply consistent with the Stage 3 mandates.

The Water Services Agreement between Casitas and the City specifies that the City's Stage 1 Allocation shall be the average of the City's Projected Water Demand during the five (5) most recent years during which neither the City nor Casitas are implementing their water shortage contingency plans. The projected water demand from the past five non-drought fiscal years (FY 09-10 to FY 13-14) certification letters from the City to Casitas including demand associated with land use change is 5,421 AFY. A Stage 3 demand reduction of 30% would result in a supply of 3,794 AFY.

Therefore, the City's current water supply from Casitas is 3,794 AFY for calendar year 2020.

2. Ventura River Surface Water Intake and Upper Ventura River Groundwater Basin/Subsurface Intake and Wells (Foster Park)

Due to continued drought conditions and heightened environmental requirements, the City's ability to draw water from the Ventura River continues to be significantly challenged and impacted. The City entered into a settlement with Santa Barbara Channelkeeper in 2019 which requires the City to modify its pumping based on reduced flows in the Ventura River for a pilot period. In order to determine the City's current water supply with the existing conditions, the average of the two most recent lowest production years (2015 and 2016) was selected. This date range was selected since it reflects low River production during drought conditions. Therefore, the City's current water supply from Ventura River / Foster Park is 1,573 AFY for calendar year 2020.

3. Mound Groundwater Basin (Mound Basin)

Due to operational constraints, recent production from the Mound Basin has been lower than the historical 10-year average discussed in the Water Supply Capacity section. Victoria Well #2 is not currently operational (and is not expected to be operational for the duration of 2020), so the only well producing water from Mound Basin is Mound Well #1. To determine the City's current water supply, the current average production rate of Mound Well #1 was utilized to estimate the 2020 production. Therefore, the City's current water supply from the Mound Basin is 2,400 AFY for calendar year 2020. The City is currently designing/constructing Mound Wells 2 and 3. Once these wells are completed in 2021 and 2022, production from the Mound Basin will increase.

4. Oxnard Plain Groundwater Basin (Fox Canyon Aquifer)

As discussed in Section 4.B.4, the Fox Canyon Groundwater Management Agency (FCGMA) Board approved Emergency Ordinance E at a Special Meeting on April 11, 2014. The emergency ordinance limits extractions from groundwater extraction facilities within the FCGMA boundary, suspends use of credits and prohibits the construction of any groundwater extraction facilities and/or the issuance of any groundwater extraction facilities permit.

Under Emergency Ordinance E, the City's allocation from the Oxnard Plain during Calendar Years 2016 to 2019 was 3,862 AFY. This equates to a reduction of approximately 29% from the previous historical

baseline allocation of 5,472 AFY.

The City was subject to surcharges for exceeding its allocation because the City could not rely on its conservation credits that were set aside during wet years. Prior to approval of Ordinance E, the City was relying on approximately 25,000 AF of conservation credits that have now been suspended. On June 14, 2014, the City requested a variance to our allocation per Ordinance E and was denied by FCGMA staff. The City then made an appeal to the FCGMA Board on January 28, 2015, and was denied by the FCGMA Board.

Key points presented by FCGMA for Emergency Ordinance E were as follows:

- o The FCGMA Act goal of safe yield by 2010 not being met,
- o The 2007 Groundwater Management Plan Basin Management Objectives not being met,
- o Water level declines in all basins,
- o The unsustainability of the current Agency allocation scheme,
- o Increase in time of planted acres of water intensive crops, and
- o The continued unabated threats to the resource (seawater intrusion, water quality degradation, land subsidence).

At the October 23, 2019 meeting of the Fox Canyon GMA Board of Directors, there was a unanimous vote to adopt the ordinance for a new pumping allocation system for the Oxnard and Pleasant Valley basins, effective October 1, 2020. The new well-based allocation will be the average pumping for the base period of 2005-2014. On December 12, 2019, the FCGMA Board voted to repeal Article 2.c. of Emergency Ordinance E which applied a 20% reduction to M&I's TEA. This action restores the City's pumping allocation in the Oxnard Plain Basin to 4,827 AFY effective January 1, 2020. The remainder of the ordinance remains in effect. Therefore, the City's current water supply from the Oxnard Plain is 4,827 AFY for calendar year 2020.

5. Santa Paula Groundwater Basin (Santa Paula Basin)

As discussed in Section 4.B.5, the Santa Paula Basin Judgment allows the City to utilize 3,000 AFY and the City has acquired water rights in the amount of 40.9 AFY. However, the City currently relies on Saticoy Well #3 for production and utilizes Saticoy Well #2 as an occasional back-up supply. The City's current water supply from the Santa Paula Basin is 2,450 AFY given the average production rate of Saticoy Well #3.

6. Recycled Water

As stated in Section 4.B.6, the projected recycled water demand of 700 AFY, from the 2015 Urban Water Management Plan, continues to be used as the estimated supply capacity of recycled water.

The City's current water supply portfolio is summarized below in Table 4-2.

Table 4-2: Summary of Current Water Supply 2020 (Drought)

Water Supply Source	Current Supply 2020 AFY
Casitas Municipal Water District ^[1]	3,794
Ventura River / Foster Park	1,573
Mound Groundwater Basin	2,400
Oxnard Plain Groundwater Basin	4,827
Santa Paula Groundwater Basin ^[2]	2,450
Recycled Water	700
TOTAL	15,744
[1] Demand within Casitas service area is based on the 2017 Agreement and assumes a Stage 3 demand reduction. [2] Includes 5.8 AF of water rights acquired for the past development of Tract 4632, 12.0 AF of water rights acquired for the development of Phase 1 of Tract 5632 in 2016 and 23.1 AF of water rights acquired for the development of Tract 5774 in 2016.	

The City's 2015 Water Shortage Emergency Contingency Plan (WSECP) includes stages of action to respond to water shortage events. The City developed a six-stage contingency plan to reduce demand up to 60% during a severe or extended water shortage event including both voluntary and mandatory stages. In September 2014, the City Council declared a Water Shortage Emergency calling for 20% mandatory conservation cutback. In June 2015, the City Council confirmed that a water shortage emergency still existed and therefore, restrictions, regulations, and rates applicable to a Stage 3 Water Shortage Event should be implemented. The Stage 3 trigger indicates that annual supply projection is between 20% and 29% below normal year supply projection. The annual supply projection is from the current supply from Table 4-2 above and the normal year supply is identified from Table 4-1 of the 2013 CWRR (see Table 5-1 of this report). The WSECP noted that the baseline supply value will not change through the duration of the event. The City has remained in the current Stage 3 drought/shortage condition since 2014.

The annual supply projection from Table 4-2 of this report for 2020 supply drought/shortage impact is 15,744 AFY. The normal year supply projection from Table 4-1 of the 2013 CWRR (see Table 5-1 of this report) is 19,600 AFY. Therefore, the annual supply projection is 19.67% below normal year supply. Table 1 of the Water Shortage Event Contingency Plan indicates that if the annual supply projection is between 10 percent and 19 percent below normal year supply, then a Stage 2 Event is declared. A Stage 2 Water Shortage Event requires 10% mandatory conservation. If the annual supply projection is between 20 percent and 29 percent below normal supply, then a Stage 3 event is declared with 20%

mandatory conservation.

Based on the annual supply projection at 19.67% below normal year supply, the City may declare a Stage 2 Water Shortage Event or remain in Stage 3.

D. PROJECTED FUTURE WATER SUPPLY

This section evaluates the City's projected future water supply sources through 2030, assesses the current drought, and forecasts an additional two years of drought through 2023 (for a total duration of an eleven year drought). The projected future water supply also assumes that the City will revert to normal conditions in 2025 through 2030. The background for the City's projected future water supply portfolio for each source is discussed below and summarized in Table 4-3.

The City's projected future water supply will be impacted by the Sustainable Groundwater Management Act (SGMA). In September 2014, the State legislature passed the SGMA to improve management of groundwater resources in California. Groundwater Sustainability Agencies (GSAs) must be formed for regions where groundwater basins are designated medium or high priority by the Department of Water Resources (DWR). Medium or high priority ranking groundwater basins are at risk of overdraft and/or a decline in water quality. The intent of the legislation is to manage groundwater sustainably; to require reporting related to hydrogeological conditions, water balance trends, sustainable yield and beneficial uses; to prevent the deterioration of water quality and environmental damage and irreversible land subsidence; and to increase groundwater recharge and storage; amongst additional guidelines. SGMA also provides the GSA with a range of authorities including but not limited to adopting rules, regulations, ordinances, and resolutions to implement SGMA; monitoring compliance and enforcement; requiring registration of groundwater extraction wells; investigating, appropriating, and acquiring surface water rights, groundwater, and groundwater rights into the GSA; acquiring or augmenting local water supplies to enhance the sustainability of the groundwater basin; and adopting and funding a Groundwater Sustainability Plan (GSP).

GSAs have been formed for the Upper Ventura River and Mound Basins. The Fox Canyon Groundwater Management Agency (FCGMA) was named as the GSA for the Oxnard Plain Basin (designated as high-priority) and the City participated in the development of the GSP for the Oxnard Plain Basin. The Santa Paula Basin is managed under a stipulated judgement, and is currently only subject to annual reporting requirements to DWR under SGMA. The SGMA's impact on the City's water supply sources is further discussed in the respective sections below.

1. Casitas Municipal Water District (Casitas)

As mentioned in Section 4.B.1, a Water Services Agreement between the City and Casitas was finalized and approved by City Council in May 2017. The agreement indicates that in the event that Casitas must

enact its Water Efficiency and Allocation Program (WEAP) due to a water shortage, Casitas may adjust the City's allocation consistent with the percentage reduction for the WEAP stage.

As discussed in Section 3, and shown on Table 3-6, it is estimated that the added water supply required to meet the demand of the under construction and approved projects that are located within the Casitas boundary is 455 AFY. Therefore, the anticipated future water supply from Casitas will increase by an equivalent amount, to approximately 5,512 AFY by Year 2021. Using the growth rate discussed in Section 3 and factoring in completed projects since 2014, the estimated supply from Casitas is estimated to increase by 359 AFY in year 2020. However, this supply increase is subject to a percentage reduction consistent with the WEAP stage if Casitas has declared a water shortage.

Casitas has been stating that Lake Casitas is at risk due to persistent drought conditions and depletion of the Lake Casitas water supply to minimum pool. In March 2017, the storage in Lake Casitas was at 43.9% of capacity. In December 2018, Lake Casitas was at 30.5% capacity. Following a wet winter in 2019, Lake Casitas was at 43% capacity in the Spring of 2019. As of February 19, 2020, Lake Casitas is at 41.6% of capacity.

Casitas is currently in a Stage 3 water supply condition per Casitas Resolution No. 16-09. Although the Lake is currently slightly above 40% capacity, it is likely that Casitas will remain in a Stage 3 water supply condition. In order to be conservative, this report assumes a reduction of 30% to the City's Casitas supply for the 2021 Supply Drought Impact and a 40% reduction for 2022.

Therefore, the City's projected supply from Casitas for 2021 is 3,858 AFY (30% reduction) and 3,362 AFY in 2022 (40% reduction). The Casitas projected supply in 2025 and 2030 includes growth projections within Casitas' boundaries. Therefore, the City's projected supply from Casitas is 5,816 AFY for 2025 and 5,977 AFY for 2030.

2. Ventura River Surface Water Intake and Upper Ventura River Groundwater Basin/Subsurface Intake and Wells (Foster Park)

Due to the continued drought conditions and heightened environmental requirements, the City's ability to draw water from the Ventura River continues to be significantly challenged and impacted. If the current drought continues through 2022, the supplies will be further impacted. Ventura Water staff is evaluating a multi-year drought based on City Council recommendation. To determine the 2021 supply drought impact, the average of the two most recent driest years (2015 and 2016) was used for the projection. To determine the 2022 supply drought impact, the most recent driest year (2015) was used for the projection. Therefore, the projected future water supply from the Ventura River / Foster Park for 2021 is 1,573 AFY and 2022 is 1,298 AFY.

As discussed in Section 4.B.2, production wells at Foster Park were destroyed during 2001 and 2005

storm events. These events have reduced the City's ability to extract water from Foster Park to a maximum capacity of 4,200 AFY. The 2018 Capital Improvement Program includes the Foster Park Wellfield Production Restoration project. The project involves the replacement of the destroyed wells and construction of new facilities to restore historical production capabilities of 6,700 AFY in a wet year. Therefore, the projected future water supply for 2025 and 2030 which assume normal conditions from the Ventura River / Foster Park is 4,200 AFY.

Studies being conducted by the State Water Resources Control Board (SWRCB) and the California Department of Fish and Wildlife (CDFW), and the Groundwater Sustainability Plan for the Upper Ventura River Groundwater Basin, and pending litigation may impact the amount and/or timing of water the City is able to utilize from the Upper Ventura River watershed.

The Ventura River was identified as one of five priority stream systems in the California Water Action Plan (WAP) adopted in January 2014 by Governor Edmund G. Brown Jr. Action four of the WAP, to "Protect and Restore Important Ecosystems", contains a sub-action that states the following:

The State Water Resources Control Board and the Department of Fish and Wildlife will implement a suite of individual and coordinated administrative efforts to enhance flows statewide in at least five stream systems that support critical habitat for anadromous fish. These actions include developing defensible, cost-effective, and time-sensitive approaches to establish instream flows using sound science and a transparent public process. When developing and implementing this action, the State Water Resources Control Board and the Department of Fish and Wildlife will consider their public trust responsibility and existing statutory authorities such as maintaining fish in good condition.

The SWRCB and California Department of Fish & Wildlife (CDFW) are currently working to identify potential actions that may be taken to enhance and establish instream flow for anadromous fish in the Ventura River watershed (and the other four priority watersheds). The SWRCB is developing an integrated groundwater – surface water model to provide a better understanding of water supply, water demand, and instream flow needs in the Ventura River watershed. CDFW is developing streamflow versus habitat relationships in the mainstem Ventura River, and San Antonio Creek, a primary tributary. According to these agencies, this information will be used to enhance flows in the watershed in several ways, including the development of flow criteria and identification of important flow thresholds for conservation, restoration, and protection of southern steelhead in the Ventura River watershed.

The Upper Ventura River Groundwater Basin is designated medium-priority by DWR and the Upper Ventura River Groundwater Agency (UVRGA) has been identified as the GSA for the basin. The UVRGA was formed through a Joint Exercise of Powers Agreement (JPA) by and among Ventura River Water District, Meiners Oaks Water District, Casitas Municipal Water District, Ventura County Watershed Protection District (VCWPD), and the City. The major components of the JPA include authority, power, membership, directors, voting paradigms and financing. These items were negotiated with the assistance

of the Center for Collaborative Policy and included three stakeholder meetings. In addition to representatives from each of the five member agencies, the Board of Directors includes an agricultural stakeholder director and environmental stakeholder director.

Additional information, meeting notices, and agendas are available here: <http://www.uvrgroundwater.org>.

The UVRGA has submitted its intent to DWR to begin to development its GSP by January 1, 2022 and DWR expects this basin to reach sustainability by January 1, 2042.

In September 2014, Santa Barbara Channelkeeper filed a lawsuit against the State Water Resources Control Board (SWRCB) and the City, alleging that the City had been over-pumping water from the Ventura River. In September 2018, the City filed an amended cross-complaint bringing into the litigation all water users in the Ventura River watershed to ensure that all parties are at the table and involved in developing solutions. In September 2019, the City entered into an interim settlement agreement with Santa Barbara Channelkeeper that requires the City to modify its pumping based on flows in the Ventura River for a pilot period. While the lawsuit is still pending, the City's goal is to resolve the litigation by developing a long-term solution with local water interests to protect the watershed and those who depend on it in a comprehensive and enforceable way. This is an on-going process.

3. Mound Groundwater Basin (Mound Basin)

The City finalized a study in March to review the perennial yield of the Mound Basin and determine if the annual average yield of the basin is still believed to be accurate. The Report concludes that the perennial yield of the Mound Basin is between 6,600 and 7,400 AFY. While this is consistent with the long-term average production, it is lower than the average production from 2000-2009 (which is used to determine the City's capacity of 4,000 AFY). The Mound Basin GSA will utilize this analysis in conjunction with other information to determine the Sustainable Yield of the Mound Basin as defined by SGMA. This analysis will not be complete until the Groundwater Sustainability Plan is submitted in 2022.

According to the adopted 2016-2022 Capital Improvement Program, Mound Wells 2 and 3 are anticipated to come online within the next few years. Mound Well 3 is scheduled to be operational in early 2021 and Mound Well 2 is anticipated to be operational in 2022. Thus, the projected water supply from the Mound Basin for the future is greater than the current 2020 supply of 2,400 AFY (discussed in the Current Supply section above). Although 2021 and 2022 future projections are evaluated under drought impact, the addition of Mound Wells 2 and 3 will help alleviate current operational constraints. Since Mound 3 is expected be operational in 2021, the 10-year average (2000 to 2009) was used to calculate the 2021 and 2022 supply numbers. Therefore, the projected future water supply for 2021 and 2022 from the Mound Basin is 4,000 AFY. To calculate the 2025 and 2030 supply numbers, the 10 year average (2000 to 2009) from the Mound Basin was also used. Therefore, the projected future water supply from the Mound Basin for 2025 to 2030 is 4,000 AFY.

The Mound Basin is designated high-priority by DWR and the Mound Basin Groundwater Sustainability

Agency (MBGSA) has been recognized by DWR as the GSA for the basin. The MBGSA was formed through a Joint Exercise of Powers Agreement (JPA) by and among the United Water Conservation District (UWCD), the City, and the County of Ventura. In addition to representatives from each of the 3 member agencies, the Board of Directors includes an agricultural stakeholder director and environmental stakeholder director. The Mound Basin GSA is required to develop a Groundwater Sustainability Plan that establishes the sustainable yield of the Mound Basin by January 2022.

Meeting notices and agendas are available here: <https://www.cityofventura.ca.gov/1180/Mound-Basin-GSA>.

4. Oxnard Plain Groundwater Basin (Fox Canyon Aquifer)

The Oxnard Plain Basin is designated as a high priority basin in critical overdraft by DWR. The Fox Canyon Groundwater Management Agency (FCGMA) was named as the GSA for the Oxnard Plain Basin. Due to the critical overdraft status, the GSP must be submitted by 2020. As discussed in the Current Water Supply section, due to recent action taken by the FCGMA the City's Temporary Extraction Allocation (TEA) of 4,827 AFY has been established as the City's allocation from the Oxnard Plain Basin as of January 1, 2020.

Therefore, the projected future supply from the Oxnard Plain Basin for 2021 is 4,827 AFY.

At the October 23, 2019 meeting of the Fox Canyon GMA Board of Directors, there was a unanimous vote to adopt the ordinance for a new pumping allocation system for the Oxnard and Pleasant Valley basins, effective October 1, 2020. The new well-based allocation will be the average pumping for the base period of 2005-2014. On December 13, 2019, the Board of Directors of the Fox Canyon Groundwater Management Agency conducted a public hearing and adopted Resolution 2019-05 adopting the Groundwater Sustainability Plans (GSPs) for the Oxnard Subbasin, Pleasant Valley Basin, and Las Posas Valley Basin. Following adoption, the GSPs were submitted to DWR ahead of the January 30, 2020 deadline.

Neither the allocation ordinance nor the GSP establish the pumping reductions that will take place to meet the sustainable yield for the Oxnard Plain Basin. However, the GSP suggests a linear ramp down from current pumping to the estimated sustainable yield by 2040. Based on these estimates, the City can expect (without additional projects being implemented) its allocation to decrease by 50% by 2040. Therefore, the projected future supply for the Oxnard Plain Basin for 2022, 2025, and 2030 is 4,700, 4,319 AFY and 3,684 AFY, respectively.

5. Santa Paula Groundwater Basin (Santa Paula Basin)

As discussed in Section 4.B.5, the Santa Paula Basin is subject to a stipulated judgment and is managed by the Santa Paula Basin Technical Advisory Committee (TAC) with equal representation from United Water Conservation District (UWCD), the Santa Paula Basin Pumpers Association (SPBPA), and the City.

The TAC is charged with establishing a program to “monitor conditions in the basin, including but not necessarily limited to verification of future pumping amounts, measurements of groundwater levels, estimates of inflow to and outflow from the basin, increases and decreases in groundwater storage, and analyses of groundwater quality.” The Judgment also allows for the development of a management plan for the operation of the basin and empowers the TAC to determine the safe yield of the basin.

In 2014, UWCD commissioned the Santa Paula Basin Hydrogeological Characterization and Safe Yield Study. Comment letters were provided by the SPBPA and the City on two drafts of the study. In 2017, the report was finalized and concluded that the safe-yield of the Santa Paula Basin was in the range from 24,000 to 25,500 AFY (for the 1999 to 2012 base period). When it was submitted to the Court, it included the following commentary: “The TAC does not perceive potential adverse impacts to the Basin as an immediate concern for several reasons. First, pumping levels have been steady at an extraction rate of approximately 25,500 AFY for many years and there is no evidence that cumulative production from the Basin will expand substantially in the near future. Second, the TAC members, in coordination with other Basin stakeholders, are pursuing opportunities for yield enhancement as discussed in the Projects Study. Finally, the TAC has also formed a technical work group to identify specific Basin conditions (e.g., water levels in key monitoring wells), which if observed (i.e., “triggered”) would cause the TAC to recommend reductions in allowed pumping to ensure that the health of the Basin is not degraded.”

If basin conditions change, then the City may have reductions in pumping allocations. Stage 2 reduces the City’s pumping to 1,141 AFY, Stage 3 reduces the City’s pumping allocations to 641 AFY, Stage 4 reduces the City’s pumping allocations to 481 AFY and Stage 5 reduces the City’s allocations to zero. Currently, the TAC is working on various basin management measures, including potential triggers for the above stages and potential projects to enhance the sustainable yield of the basin.

Based on recent work completed by the technical working group regarding conditions in the Basin, it is projected that no Stage reductions will be implemented even if the drought remains in effect through 2021. It is also projected that under normal conditions in 2025 to 2030, that the allocation will remain at 3,000 AFY. Additional water rights of 40.9 AF total were acquired for the past development of Tract 4632 (5.8 AF) and development of Phase I of Tract 5632 (12 AF) and Tract 5774 (23.1 AF).

The City currently relies on Saticoy Well #3 for production and utilizes Saticoy Well #2 as an occasional back-up supply. The estimated annual production capacity for Well #2 is only 2,450 AFY. The City is planning to construct Saticoy Well #4, which is not anticipated to be producing water until 2023.

Therefore, the projected future water supply in 2021 and 2022 is 2,450 AFY. The projected future water supply in 2025 and 2030 is 3,000 AFY for the original City allocation and 40.9 AFY for City acquired water rights.

Santa Paula Basin and SGMA

The Santa Paula Basin is largely exempt from SGMA because a stipulated judgment among three parties,

including the City, already manages it. The Santa Paula Basin is considered adjudicated, which means that groundwater allocations and extraction rights are already determined.

6. Recycled Water

The estimated anticipated future water supply for recycled water is based on the 2015 Urban Water Management Plan projections for recycled water.

7. VenturaWaterPure

The City's Ventura Water Reclamation Facility (VWRF) treats the wastewater generated by the City's 30,000 homes and businesses to stringent standards before releasing the tertiary treated effluent to the Santa Clara River Estuary (SCRE) with approximately 700 acre-feet per year (AFY) diverted as recycled water for landscape irrigation by several users. This water is regulated with a permit issued by the Los Angeles Regional Water Quality Control Board (RWQCB or Regional Board), which is renewed every five years.

In 2015, the City initiated a pilot project to test the feasibility of constructing an advanced water purification facility (AWPF) to maximize quantity and reliability of potable supplies by purifying tertiary treated effluent produced by the VWRF and optimizing its potable reuse, rather than discharging into the SCRE. The pilot facility operated for 9 months and produced favorable results, indicating highly reliable purification technologies, providing information on operational needs and costs, and the absence of risk to public health and safety. As a result, the City is proposing to construct a full-scale AWPF.

The City of Ventura is currently in the planning phases for the proposed VenturaWaterPure Project which includes additional diversion of tertiary treated effluent to a new proposed Advanced Water Purification Facility (AWPF) for potable reuse. Potable reuse is the proven use of recycled water to supplement drinking water supplies. After years of special studies, environmental assessment, demonstration facility testing, and stakeholder meetings, the City determined the best way to enhance environmental protection while improving local water quality and supply reliability is to divert highly treated wastewater discharges for reuse. The final product of this state-of-the-art AWPF would be a new, locally owned source of highly purified drinking water that provides Ventura with a long-term drought resilient water supply solution. On October 14, 2019, Ventura City Council unanimously voted to certify the EIR for the Ventura Water Supply Projects. Following completion of the environmental review process, the next steps include permitting, final design, and bidding for construction.

One objective of the VenturaWaterPure Project is to protect the ecology of the SCRE. The City is party to a Consent Decree (The Tertiary Treated Flows Consent Decree and Stipulated Dismissal with the Wishtoyo Foundation Ventura Coastkeeper, Heal the Bay filed with the U.S. Central California District Court February 3, 2012, executed among the City, the Wishtoyo Foundation/Ventura Coastkeeper, and Heal the Bay) for the protection of the SCRE. The Consent Decree expresses the City's commitment to

pursue “environmentally protective, sustainable, and integrated water supply and wastewater discharge practices. . . [including] infrastructure options for Ventura’s reclamation and diversion of an ecologically appropriate volume” of tertiary-treated flows produced by the existing VWRP and currently discharged to the SCRE. The Consent Decree requires such diverted flows to be dedicated to “water reclamation uses,” including local water supply augmentation to the maximum extent feasible.

The City has conducted extensive analysis of the SCRE, including estimated ecological effects of reduced discharges on the SCRE. This analysis is compiled in several reports and reviews mandated by the Consent Decree, including the Phase 1, 2, and 3 Studies, the Technical Review Team (TRT) Report, the Scientific Review Panel (SRP) Final Report, and the TRT review supporting the conclusions and recommendations in the SRP Final Report. The findings of the reports and reviews are discussed in detail in Section 1.6 of the Final EIR and the analysis was used to support a proposed diversion volume and continued discharge level. The SRP Final Report (supported by the TRT Review) recommends a Continued Discharge Level (CDL) range of 0 – 0.5 MGD (on an average annual basis) during closed berm conditions. This conclusion was founded on the beneficial effects of discharge reduction to ecological conditions.

Since the publication of the SRP Final Report, the City has met with and received feedback on the proposed projects from state and federal wildlife agencies. Based on the scientific record and feedback from the agencies, the City is proposing additional phasing to the implementation approach that would commit to a CDL of 1.9 MGD by the end of year 2025, with a planned reduction to a CDL of 0 to 0.5 MGD during closed berm conditions by the end of year 2030. This phased implementation approach is the basis of the proposed project’s designed flow rate and minimum treatment capacity.

Based on the completion of the Special Studies and additional assessments detailed in the Final EIR, the future water supply provided by the VenturaWaterPure Project is projected to be 2,800 AFY in 2025 and 2,800 AFY to 4,000 AFY in 2030.

9. State Water Project

The City has a 10,000 acre-foot per year entitlement from the California State Water Project (SWP). The base contractual agreements concerning the City’s annual entitlement to 10,000 acre-feet of SWP are: (1) the 1963 State Water Supply Contract of 20,000 acre-feet entitlement of SWP water between the Department of Water Resources (DWR) and Ventura County Watershed Protection District (VCWPD) known formerly as Ventura County Flood Control District (VCFCD); (2) the 1970 agreement between VCFCD and Casitas known formerly as the Ventura Municipal Water District that assigned the 20,000 acre-feet entitlement to Casitas; and (3) the 1971 agreements between Casitas and the City providing the City with an annual entitlement of 10,000 acre-feet and Casitas and United with an annual entitlement of 5,000 acre-feet each.

In the contract with Casitas, the City retains full authority and responsibility for determining the point and method of delivery of the allocation. To date, the City has not constructed the improvements necessary to receive direct delivery of its allocation.

The City pays annual SWP Table A water fees to DWR, which cover construction costs for SWP facilities and administration to deliver allotments of water throughout the state. In addition, the citizens of Ventura participated in an advisory vote on November 3, 1992 and selected desalinating seawater over importing water through the SWP, as the preferred supplemental water supply option. However, based on the City Attorney Office's review of the City's SWP Table A water, the City cannot unilaterally end its involvement in the SWP's financial obligations and SWP Table A water without great risk.

The Monterey Amendment to the State Water Contract in 1999 provided the City a formal mechanism to allow the City to place their SWP water into a “turn back” pool to be purchased by other SWP contractors. The City has taken part in the SWP “turn back” pool over the past several years which has provided a small annual revenue offset. The City has also worked recently with United who requested to receive the City's allocation at the “turn back” pool rate which provided water benefits to the County area as a whole.

On January 23, 2017, City Council authorized an alignment study by Kennedy/Jenks to determine how the interconnection project can be designed and operated to supply water to serve the regional needs of the City, Calleguas, Casitas Municipal Water District (Casitas), and United Water Conservation District (United). The final alignment study was completed in 2018, and the environmental review process pursuant to CEQA was commenced.

On August 5, 2019, Ventura City Council voted to certify the State Water Interconnection Project Final Environmental Impact Report. As stated in the Final EIR, the project will enable delivery of SWP water by wheeling through Metropolitan Water District of Southern California and Calleguas to the City. The connection will also facilitate direct delivery of SWP water to United and direct or in-lieu delivery of SWP water to Casitas. In addition, the interconnection would allow the City to deliver water to Calleguas during an outage of its imported water supplies. The interconnection will be a pipeline used to transport water between Calleguas' and the City's distribution systems. The pipeline will be approximately 7 miles in length originating in the eastern portion of the City, traversing southerly and easterly through unincorporated Ventura County, to the southwestern end of the City of Camarillo.

Benefits to the City include making up for losses in annual yield from existing supply sources (Lake Casitas, Ventura River, and groundwater), improving water quality, and providing a backup supply for the City's other potential, long-term water supply options. Operational details will be developed through the project design and planning process and negotiations with project partners. These details will be reflected in future CWRRs when available.

While the City's water supply contract for SWP water provides the City with a maximum annual allocation

of 10,000 AF, the actual allocation of available water is set by California Department of Water Resources (DWR) annually. DWR allocations are finalized in the Spring of each year and consider the following:

- hydrologic conditions
- existing storage in reservoirs
- operational and regulatory constraints
- contractor demands

Based on historical allocations the range of available SWP water has been 5% to 100% over the last 25 years. However, the running average continues to decline. Given the uncertainty of SWP deliveries and the fact that capacity in MWD and Calleguas' systems must be available in order for water to be wheeled to the City, a range of zero to full allocation of the City's entitlement was selected for 2025 and 2030 projected supplies. In 2018 and 2019, the City executed agreements with San Geronio Pass Water Agency (SGPWA) to exchange its State Water Project Allocation. As a result of these agreements, SGPWA is obligated to return 2,075 AF of water to City by 2029. Therefore, the projected available water supply for SWP water delivered by the State Water Interconnection Project is estimated to be 2,075-10,000 AF in 2025 and 0-10,000 AF in 2030.

The City's projected future water supply portfolio is summarized in Table 4-3.

Table 4-3: Summary of Projected Future Water Supply from Existing and Potential New Sources

	Existing	Existing	Future			
Water Supply Source ^[1]	Supply Capacity	2020 Supply Drought Impact (AF)	2021 Supply Drought Impact (AF)	2022 Supply Drought Impact (AF)	2025 Normal Supply (AF)	2030 Normal Supply (AF)
Casitas Municipal Water District	5,421	3,794 ^[2]	3,858 ^[2]	3,362 ^[3]	5,816 ^[4]	5,977 ^[4]
Ventura River / Foster Park	4,200	1,573 ^[5]	1,573 ^[5]	1,298 ^[6]	4,200 ^[7]	4,200 ^[7]
Mound Groundwater Basin	4,000	2,400 ^[8]	4,000 ^[9]	4,000 ^[9]	4,000 ^[9]	4,000 ^[9]
Oxnard Plain Groundwater Basin ^[10]	4,827	4,827	4,827	4,700	4,319	3,684
<u>Santa Paula Groundwater Basin</u>		2,450	2,450	2,450		
Original City Allocation ^[11]	3,000				3,000	3,000
City Acquired Water Rights ^[12]	40.9				40.9	40.9
Recycled Water	700	700	700	700	700	865 ^[14]
VenturaWaterPure	0	0	0	0	2,800	2,800-4,000
TOTAL	22,189	15,744	17,408	16,510	24,873	24,567-25,767
State Water ^[15]					2,075- 10,000	0 - 10,000

Note: Projected supply values do not take into account water quality for all sources or account for loss of one source.

[1] None of these numbers preclude the City’s water rights.

[2] 30% drought impact based on 2017 agreement with Casitas

[3] Projects that Casitas will declare Stage 4 (40% reduction) if the drought continues to 2022.

[4] Casitas future supply is adjusted as demand increases within the Casitas service area based on the absorption rate in Table 3-8.

[5] Average of 2 most recent driest years (2015 -2016).

[6] Production from single recent driest year (2015)

[7] Based on the current capacity of the City's facilities in Normal years. The City intends to complete well-field improvements by 2025 to restore wet weather production to 6,700 AFY.

[8] Estimated annual production capacity of Mound Well #1.

[9] Ten year average production (2000-2009); operational limitations removed once replacement wells come online.

[10] Fox Canyon Groundwater Management Agency (FCGMA) Emergency Ordinance E allocations were rescinded on January 1, 2020. Temporary extraction allocation is restored to 4,827 AFY.

[11] The Santa Paula Basin Judgment allows the City to utilize on average 3,000 AF annually.

[12] Water rights acquired for the past development of Tract 4632 and development of Phase 1 of Tract 5632 and Tract 5774.

[13] Estimated annual production capacity of Satcoy Well #3.

[14] From the 2015 Urban Water Management Plan.

[15] Includes return deliveries of exchange water from SGPWA. Low range reflects potential limitations in wheeling capacity and uncertainty of SWP deliveries. High range assumes full allocation of the City’s 10,000 AF per year entitlement. The average allocation from 2015-2019 was 55%.

E. POTENTIAL ADDITIONAL FUTURE SUPPLY SOURCES

This section will briefly describe any additional planned or proposed projects which may affect the water supply sources for the City.

1. Ocean Desalination

In 2013, City staff was engaged in discussions with local water agencies in regard to potential regional desalination projects. In the City's 2015 UWMP, seawater desalination was included as a potential future part of the City's long term water supply portfolio and as an additional emergency water supply during times of drought. The desalination facility would be designed with a delivery capacity of up to 2.7 million gallons per day or 3,000 AFY

According to the Ventura Water Supply Projects Environmental Impact Report certified on October 14, 2019, if sufficient water supply is not available from the diversion of discharges to the SCORE, then the City may need to develop desalination facilities to meet future water supply needs. Phase 2 of the proposed projects would augment water supplies to meet future water needs, including the accommodation of planned growth, either through increasing the amount of recycled water produced, or construction of an ocean desalination facility. This would be accomplished through either the expansion of the AWP as a first option pending regulatory approvals, or, if this option is not approved or does not meet the City's water supply needs, through construction of an ocean desalination facility. Since details of the ocean desalination project is in a preliminary stage, ocean desalination is identified as a potential additional future supply source.

5. PROGRAMS AND POLICIES

A. INTRODUCTION

In recent years, the City has faced consecutive years of persistent drought conditions. The previous Water Supply section shows that the City currently relies exclusively on local water supplies. The local water supplies are impacted by local rainfall, environmental factors, regulatory factors, operational factors, and legal constraints. Water conservation measures in addition to other policies assist the City in reducing its water demands. The following sections highlight the various programs and policies that have been enacted in previous years which enable the City to continue to provide reliable water sources to customers.

B. WATER CONSERVATIONS MEASURES / WATER EFFICIENCY PLAN

Water conservation measures help to sustain our life source for future generations. In September 2011, City Council adopted a five-year Water Efficiency Plan which outlined existing programs and potential programs to engage customers in the pursuit of greater water efficiency. The Water Efficiency Plan focused on efforts including customer and student outreach, reducing outdoor landscape watering, optimizing operational practices, and expansion of recycled water usage. Staff continues to implement programs beyond the duration of the plan. In January 2014, the Governor of the State of California proclaimed a state of emergency and called on all Californians to reduce water usage. In February 2014, in response to the current drought, City Council approved a voluntary 10% conservation cutback for Ventura customers. In July 2014, the State Water Resources Control Board (SWRCB) adopted regulations implementing mandatory water conservation actions. Subsequently, in September 2014, the City Council declared a Water Shortage Emergency calling for 20% mandatory conservation cutback to correlate with the SWRCB's July 2014 action. In March 2015, the City Council approved the updated Water Shortage Event Contingency Plan (see Section 5D below) to comply with the newly adopted SWRCB regulations. In June 2015, the City Council confirmed that a water shortage emergency still existed and therefore, the restrictions, regulations, and rates applicable to a Stage 3 Water Shortage Event shall be implemented.

In May 2016, Governor Brown issued Executive Order B-37-16, "Making Water Conservation a California Way of Life", which directed State agencies to establish a long term framework for water conservation and drought planning with four primary objectives: 1) use water more wisely, 2) eliminate water waste, 3) strengthen local drought resilience, and 4) improve agricultural water use efficiency and drought planning.

In April 2017, the Governor issued Executive Order B-40-17, which lifted the emergency drought declaration, retained prohibitions on wasteful practices, and advanced measures to implement "Making Water Conservation a California Way of Life." Proposed legislation to implement the conservation framework was introduced in 2017. Two key long-term conservation bills, Assembly Bill 1668 and Senate Bill 606, were

signed into law on May 31, 2018.

Although the emergency drought declaration was lifted for the State in April 2017, City Council confirmed that the City remained in a Stage 3 Water Shortage Event in May 2017, June 2018, and in June 2019. Despite the Governor's lifting of the State emergency drought declaration, the goals and objectives of "Making Water Conservation a California Way of Life" remain consistent with the City's ongoing water shortage response and future planned efforts.

The City offers a variety of conservation programs designed to help customers achieve voluntary and mandatory water usage reductions established locally and by the State.

Current programs include the following:

- **Mobile Reuse Program** – In June 2016, the City launched a program which provides high quality recycled water for local residents and commercial businesses. The recycled water can be picked up at the Fill Station located at the Ventura Water Reclamation Facility. Residents and City Parks and State Parks utilize the water for landscape irrigation while AERA Energy and Ventura County Transportation Department utilize the water for dust control. In 2019, a total of 3,999,964 gallons (12.27 acre-feet) of recycled water was served from the Fill Station. Benefits of the program included expanded recycled water usage in the City and conservation of potable water.
- **Water Wise Incentive Program** - Since 2015, the City has offered rebates to qualifying customers who replace their lawn with a water wise landscape. As of December 2019, approximately 753 projects have been completed with more than 678,290 square feet of turf removed, resulting in a projected water savings of 27 AFY.
- **High Efficiency Sprinkler Nozzles** - Beginning in 2016, Ventura Water has offered free high efficiency sprinkler nozzles to residential and commercial customers. As of December 2019, approximately 9,563 sprinkler nozzles have been installed for an estimated water savings of 52.6 AFY.
- **Weather-Based Irrigation Controllers (WBIC)** - In June 2017, staff launched a Smart Irrigation Controller program. Qualifying customers can receive a free WBIC, professional installation of the unit, and on-site training. As of December 2019, over 500 smart controllers have been installed for an estimated water savings of 20.7 AFY.
- **Water Efficiency Surveys (Water Audits)** - Since 2014, residential and commercial customers can request a free water efficiency survey, which includes investigating water use, detecting leaks, and educating customers on best practices for indoor and outdoor water efficiency. As of December 2019, over 660 surveys have been conducted across the City.
- **Instant Hot Water Recirculating Pump** - In August 2019, staff launched the Instant Hot Water

Recirculating Pump Program. The program offers Ventura Water customers a free recirculating hot water pump that provides instant hot water to indoor plumbing fixtures. The pumps are estimated to save up to 15,000 gallons a year per residential household for an estimated program savings of 12 AFY. Within 4 months of launching, all program funds were fully reserved. To date, 267 pumps have been distributed with plans to continue the program.

- High Efficiency Toilets and Washing Machines Rebates- In September 2019, staff launched the new program to encourage indoor water conservation. The program offers \$150 rebate for qualifying high efficiency washing machines (maximum 1 rebate per customer) and \$100 for high efficiency toilets with a gallons per flush of 1.1 or less (max. of 2 rebate per customer).

In addition to customer conservation programs, the City has implemented capital improvement projects and state of the art technologies designed to conserve water and improve water efficiency. In July 2017, Ventura Water began operating the Neutral Output Discharge Elimination System (NO-DES) unit for water distribution system flushing. Rather than flushing water out of the distribution system, the NO-DES truck circulates the water, filters it and puts it back into the system. The NO-DES truck is an innovative water saving tool for the community.

In October 2018, the Ventura Water launched the Advanced Metering Infrastructure (AMI) Project which includes replacing approximately 32,000 manually-read water meters with smart meters over a three-year period. As of December 2019, over 17,300 meters have been upgraded. Benefits of AMI include advanced leak detection notification capabilities, enhanced accuracy in data and improved customer service.

C. WATER SHORTAGE TASK FORCE

The City Council created the Water Supply Strategy Task Force, later functionally renamed the Water Shortage Task Force (Task Force), on July 21, 2014 to advise the City Council as actions were needed to respond to reduced water supplies due to the prolonged drought. The Task Force addressed revisions to the City's Water Shortage Event Contingency Plan (below), the development of an incentive program to assist residents in their drought response and proposed a drought rate structure to assist Ventura Water with a full cost recovery of revenue loss during a water shortage.

In June 2015 Council approved the four-tiered (drought) water rate structure recommended by the Task Force that sends a strong message for conservation of Ventura's local resources. The rates increased to achieve full revenue recovery within each tier or customer class, and by doing so, further encourage conservation.

D. WATER SHORTAGE EVENT CONTINGENCY PLAN

It was proposed at the July 7, 2014 City Council Meeting that the existing Water Shortage Event Contingency Plan, a required section of the City's 2010 Urban Water Management Plan, be updated with community input to provide a framework to address a range of potential events that could result in serious water shortages,

including drought, earthquakes or water supply failures. In response, the City Council asked that a Task Force be created to make recommendations to the revision of the Water Shortage Event Contingency Plan to establish what water shortage actions should be undertaken by the City and its water customers that would be most acceptable and appropriate for Ventura. In addition, the Task Force members were asked to provide a customer perspective of the perceived effectiveness of different incentives to reduce water usage, as well as potential rate options to reduce water use. On March 9, 2015, the City Council approved the Water Shortage Event Contingency Plan prepared by the members of the Water Shortage Task Force which incorporates the agreed policy considerations by the members of the Task Force.

The Water Shortage Event Contingency Plan (WSECP) includes stages of action to respond to water shortage events. A water shortage event can be a single occurrence as short as twenty-four hours to a multi-year weather condition. Other events, besides drought, that could trigger a water shortage event include an earthquake, water system failures, fire, contamination, regional power outage, State restrictions or other causes. The WSECP provides the following definition as written by the California Department of Water Resources:

Defining when drought occurs is a function of drought impacts to water users. Drought can best be thought of as a condition of water shortage for a particular user in a particular location. Hydrologic conditions constituting a drought for water users in one location may not constitute a drought for water users in a different part of California or for users with a different water supply. Individual water suppliers may use criteria such as rainfall/runoff, amount of water in storage, or expected supply from a water wholesaler to define their water supply conditions.

Drought is a gradual phenomenon. Although persistent drought may be characterized as an emergency, it differs from typical emergency events. Most natural disasters, such as floods or forest fires, occur relatively rapidly and afford little time for preparing for disaster response. Droughts occur slowly, over a period of time. There is no universal definition of when a drought begins or ends. Impacts of drought are typically felt first by those most reliant on annual rainfall – ranchers engaged in dryland grazing, rural residents relying on wells in low-yield rock formations, or small water systems lacking a reliable water source. Criteria used to identify statewide drought conditions do not address these localized impacts. Drought impacts increase with the length of a drought, as carry-over supplies in reservoirs are depleted and water levels in groundwater basins decline.

The Department of Water Resources most recently defined “drought condition” as “hydrologic conditions during a defined period, greater than one dry year, when precipitation and runoff are much less than average” (see Glossary Section).

The City developed a six-stage contingency plan to reduce demand up to 60% during a severe or extended water shortage event including both voluntary and mandatory stages. The City has remained in the current drought/shortage condition since 2014 and in a Stage 3 Water Shortage Event since June 2015. The Stage 3 trigger indicates that annual supply projection is between 20% and 29% below normal year supply projection and residents must conserve 20%. The annual supply projection of 15,744 AF is from Table 4-2 of the current CWRR and the normal year supply of 19,600 AF is identified in Table 5-1 below. The WSECP noted that the baseline supply value will not change through the duration of the event. Therefore the annual supply

projection is 19.67% below normal year supply. If the annual supply projection is between 10 percent and 19 percent below normal year supply, then a Stage 2 event is declared. The City may declare a Stage 2 Water Shortage Event or remain in Stage 3.

Table 5-1: Normal Year Water Supply

(Source: Table 4-1 from the 2013 CWRR)

Water Supply Source	Current Supply (AFY)
Casitas Municipal Water District	5,000 ^[1]
Ventura River / Foster Park	4,200
Mound Groundwater Basin	4,000
Oxnard Plain Groundwater Basin	4,100
Santa Paula Groundwater Basin	1,600
Recycled Water	700
Total	19,600

[1] Demand within Casitas service area is approximately 5,000 AFY at this time.

E. ESTABLISH WATER RIGHTS DEDICATION AND WATER RESOURCE NET ZERO (IN LIEU) FEE ORDINANCE AND RESOLUTION

In September 2012, Ventura Water took the concept of a water rights ordinance to Council. Council directed staff to prepare a draft water rights ordinance and return to Council. Public Workshops on the concept of a water rights ordinance were held in July and October of 2013 and several presentations were made at public meetings. In March 2014 staff gave a presentation to Council at a special workshop on the proposed Water Dedication and In-Lieu Fee Ordinance and Resolution. The Ordinance to Establish Water Dedication and In-Lieu Fee Requirements for New or Intensified Development and its associated resolution establishes a mechanism whereby developers can dedicate adequate water supplies to support a proposed new or intensified development or pay an in-lieu fee so that the City can develop the necessary water supplies. In addition, if a developer is able to demonstrate extraordinary efficiency they can receive credit for the water savings, and thereby reduce the in-lieu fee they would be required to pay. Ventura Water returned to Council

in June 2014 and recommended that Council approve the proposed Water Dedication and In-Lieu Fee Ordinance and Resolution. Rather than approve the ordinance at that time the Council discussed the formation of a Water Commission to investigate the topic. The Water Commission worked diligently on the draft Water Rights Dedication and Water Resource Net Zero Fee Ordinance and Resolution ("Ordinance") from September 2015 to March 2016. The Water Commission approved a final draft at the March 22, 2016 meeting for recommendation to Council in April 2016.

Public meetings on the draft Ordinance were held April 2016 through June 2016 with the Chamber of Commerce Group, City Planning Commission, Midtown Community Council, Building Industry Association (BIA) and developers, Eastside Community Council, and Westside Community Council. On June 6, 2016, City Council voted 6-1 to adopt the Ordinance and Resolution. On August 11, 2016, the Ordinance became effective and requires all new and intensified development to offset the demand associated with its impact on the water system. The Ordinance does not apply to projects for which entitlements have been approved or building permits issued prior to the effective date of the Ordinance. Funds collected through the implementation of this Policy will be utilized to fund future water supply projects.

F. WATER COMMISSION

The City Council approved in January 2015 an ordinance establishing a Water Commission to serve in an advisory capacity to the Council on various policy topics related to water resources. The Council further amended the ordinance in May 2015 and a seven member Water Commission with two alternate members was formed as part of Ventura Water's ongoing public outreach and education effort, and to help with long term planning. In May 2019, the City Council amended the ordinance to eliminate Water Commission alternates. The Water Commission is currently comprised of seven members.

The Water Commission reviews and makes advisory recommendations regarding water rates, water resource infrastructure projects in the five-year capital improvement program, the integrated water resource management plan, water supply options, the Urban Water Management Plan approval process, a water dedication and net zero fee requirement, and other water resources issues.

6. CONCLUSIONS & DISCUSSION

A. CONCLUSIONS

The City's total water demand for the most recent calendar year (2019) was 13,575 AFY. Over the past five years (2015-2019), the City experienced an average annual water demand of 14,043 AFY, and over the past ten years (2010-2019), the annual average water demand was 15,605 AFY. In the previous 2013 to 2016 CWRRs, the most recent 5-year average was used as the baseline demand condition. However, it was recommended in the 2016 CWRR that the City reconsider using the 5-year average and use the 10-year average in the 2017 CWRR. Thus, the 2017 through 2020 CWRRs utilize the 10-year average demand. Utilizing the previous 10-year City annual average, the baseline water demand for the 2020 CWRR is 15,605 AF, a decrease of 430 AF from the 2019 CWRR baseline water demand of 16,035 AF. This continued decrease is likely a result of: (1) approved water rate increases; (2) the June 2015 City Council approval of a four-tiered (drought) water rate structure; (3) the February 2014 City call for 10% voluntary conservation; and, (4) the September 2014 City declaration of a Stage 3 Water Emergency requiring customers to reduce their use by 20% due to the prolonged drought.

The City has a total of 47 projects that are under construction or approved for development. These projects include an additional 342,460 SF of non-residential development and 2,478 residential dwelling units. By developing draft water usage factors based on six years of consumption data (2013-2018), the City can more accurately predict the additional future water demand for the approved development projects. Using the draft City-specific water usage factors developed in 2020, the under construction and approved development projects will generate an additional annual average water demand of 921 AFY. Therefore, the estimated water demands total 16,526 AFY. This report assumes that the currently under construction and approved projects will be completed by year 2024.

The 2020 CWRR projects out the demands to the Year 2030 which is beyond the year that the approved projects would be fully vested. In order to project out the estimated demand for the Years 2025 through 2030 an approximate growth rate of 0.54% (Per City Planning Department based on the Department of Finance historical data for population) was used to estimate the increase in demand from the time all approved projects were fully vested (Year 2024) to the Year 2030.

The City's projected available water supply is constantly changing, depending upon environmental, regulatory, operational, and legal constraints. The City's water supply capacity is 22,189 AFY; however, the available water supply is estimated at 15,744 AFY in 2020.

The near-term water supply picture to meet the needs of the development projects that are under construction and approved will remain relatively the same as the existing condition, however the City can expect to increase the water supply from Casitas by 455 AFY by 2024 (as calculated in Table 3-6) to meet the additional water demand in the Casitas boundary.

Table 6-1 provides a comparison of the existing water demand and supply, and the near-term water demand and supply. While the projected water supply in a 2020 drought scenario is slightly less than the projected demand, it should be noted that demand during drought periods has been less than projected in recent years.

The water supply range and demand projections are also depicted graphically in Figure 6-1.

Table 6-1

Demand vs. Supply Comparison

Year	Actual Demand AFY	Projected Drought Demand ^[1] AFY	Projected Normal Demand ^[2] AFY	Projected Supply ^{[3][5]}	
				AFY	% Diff.
2017	13,973		16,515		
2018	14,211		16,035		
2019	13,575		15,605	15,651	0.3%
2020(Drought)		12,631	15,789	15,744	-0.3%
2021(Drought)		12,779	15,974	17,408	9.0%
2022(Drought)		12,926	16,158	16,510	2.2%
2022			16,158	21,100	30.6%
2023			16,342	21,655	32.5%
2024			16,526	21,619	30.8%
2025			16,616	24,873	%49.7
2030 ^[4]			17,074	24,567 – 25,767	43.9%- 50.9%

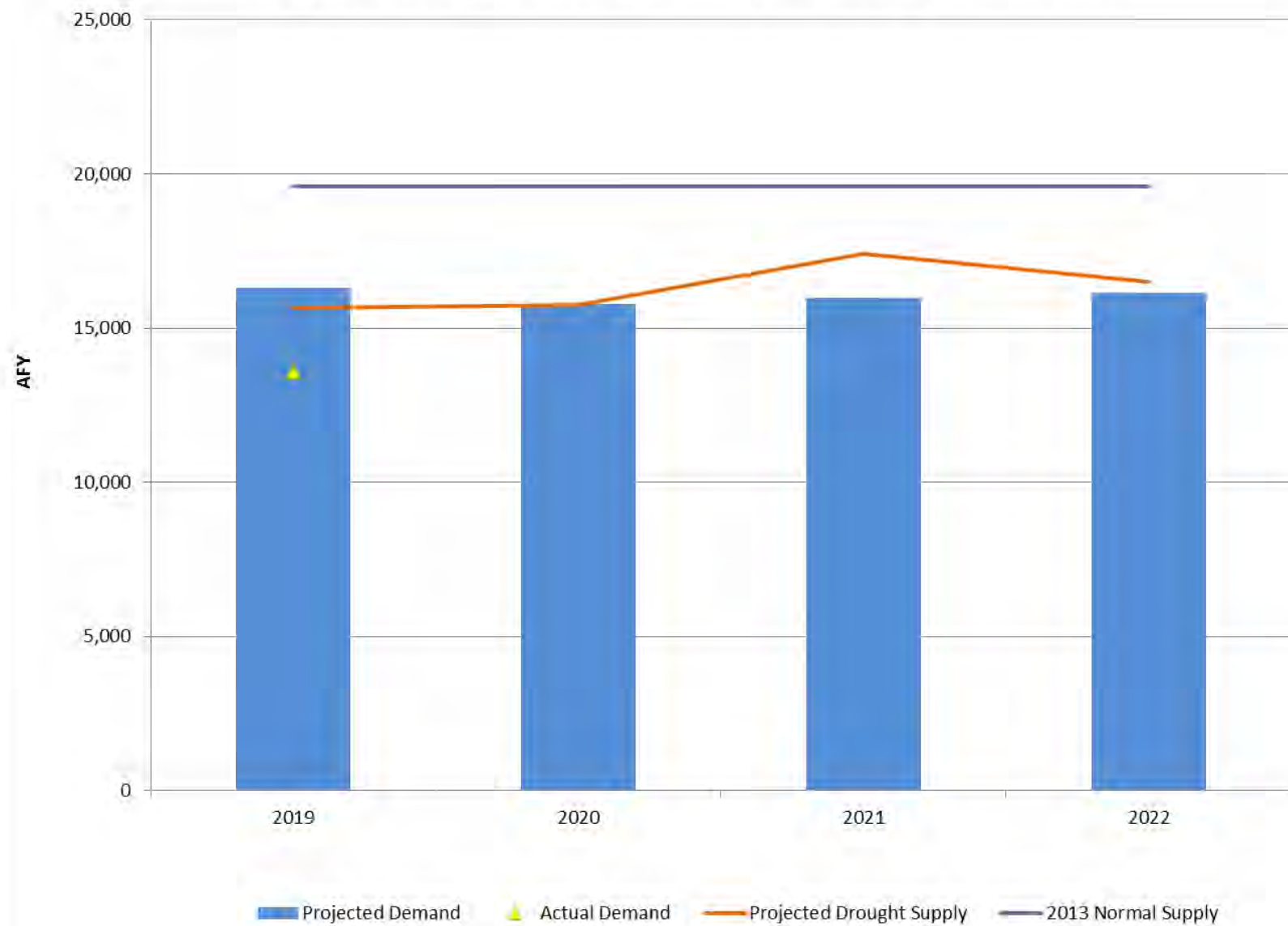
[1] Projected Drought Demand equals a 20% reduction (Stage 3 mandatory conservation) of the calculated projected water demand described above.

[2] Per Table 3-8.

[3] Per Table 4-3.

[4] Projected Normal Demand using approximately .54% growth rate to 2030. The approximately 0.54% growth rate per City Planning Department's data was used to estimate the increase in demand.

[5] Percent differences calculated between projected normal demand and the projected supply range.

Figure 6-1: Near-term Demand vs. Supply Comparison

B. DISCUSSION

The results of this Report indicate that, in the near term, the spread between the current water demand and the current water supply is very tight. The City's customers will need to continue to conserve and/or pay penalties for overuse of the City's water supply sources while the City secures new water supplies. This presents short-term challenges for the City as it continues to allocate water supply to development projects that will generate additional water demands. The City will continue to perform the following on an annual basis and publish the results in the annual Comprehensive Water Resources Report:

1. Provide total water consumption for the previous calendar year.
2. Re-calculate the 3-year, 5-year and 10-year water consumption averages.
3. Update the water supply portfolio.
4. Update the existing land use data.
5. Evaluate all future development projects based on current supply and demand conditions.
6. Use the City-specific water usage factors to calculate the water demand of all development projects as the projects proceed through the City process prior to approval.
7. Continue to develop water supply through demand side management, secure water rights, administer the Water Rights Dedication and Water Resource Net Zero Ordinance approved in July 2016 and continue to integrate the new water supply sources into the City's water supply portfolio.

The City has always worked to address long-term water demands with effective planning and development of additional future water supplies. As discussed in Section 4 of this report, the City currently has two proposed water supply projects in the planning stages: VenturaWaterPure and the State Water Interconnection Project. These two proposed projects together would ensure that the City has adequate supplies for future demand under various climatic conditions. In planning for these projects, the City must consider the uncertainty in both the demand projections and the supply projections.

Current demand projections are lowered by the conservation that has occurred during the multi-year drought that began in 2013. The draft proposed demand factors also reflect recent conservation and further lower the future demand projections. While the City continues to encourage conservation and the State has passed legislation to encourage "conservation as a way of life", the City has limited control over the amount of water its citizens utilize. The effects of conservation on water demand projections and the usage of the draft proposed demand factors

are illustrated in Table 6-2 which compares the long-term demand projections from this report with those included in the 2015 Urban Water Management Plan.

Table 6-2
Comparison of Demand Projections (AF)

Document	2020	2025	2030
2015 UWMP	20,245	20,930	21,512
2019 CWRR	16,573	17,571	18,055
2020 CWRR	15,789	16,616	17,074

The supply projections presented in Table 6-1 and Figure 6-1 only project supplies for normal years after 2022. Table 6-3 summarizes the uncertainty and sensitivity to climate variations of each water supply source. The purpose of this table is to illustrate that the City's water supplies are vulnerable to many factors outside of the City's control. Consequently, water supply projections past 2022 are highly uncertain. Table 6-4 presents additional water supply scenarios to illustrate the vulnerability of the City's existing water supplies and how the water supplied by the proposed State Water Interconnection and VenturaWaterPure projects could be utilized to meet water demands in the future. Figure 6-2 illustrates the potential future water supply scenarios presented in Table 6-4.

Supply Component	Range of Available Data (Years)	Historical Range (AFY)	Estimated Minimum Supply Volume (AFY)	Estimated Maximum Supply Volume (AFY)	Percent of Supply Range	Potential Environmental/Regulatory/Legal Constraints	Potential Climate Change Impacts	Sensitivity to Annual Variations in Precipitation	Potential Opportunities to Increase Supply	Infrastructural Challenges
Oxnard Plain Groundwater Basin	1962-2019	802-6,177	3,684	4,827		Current Supply reflects current allocation as of January 1, 2020 from Fox Canyon Groundwater Management Agency (FCGMA).The FCGMA has adopted an allocation plan and a Groundwater Sustainability Plan (GSP), and based on the safe yield in the GSP, allocations are expected to gradually decrease by about 50% over the next 20 years.	Sustainable Yield of the Basin was established utilizing historical hydrology and historical pumpage. Groundwater Sustainability Plans are required to consider impacts related to climate change when establishing sustainable yield.	Not sensitive - City is allocated a portion of basin sustainable yield which normalizes annual fluctuations in precipitation.	Limited - Initial allocation may be higher, but will likely decrease annually over the next 20 years. Water Supply projects funded and constructed through the FCGMA could increase allocations. Future trading program could allow the City to buy or sell annual allocations.	Continued maintenance and replacement of groundwater wells.
Santa Paula Groundwater Basin	1969-2019	0-3,096	1,182	3,041		Current Supply reflects current allocation according to a court stipulated judgment.	Santa Paula Basin Technical Advisory Committee (TAC) is charged with establishing a program to “monitor conditions in the basin, including but not necessarily limited to verification of future pumping amounts, measurements of groundwater levels, estimates of inflow to and outflow from the basin, increases and decreases in groundwater storage, and analyses of groundwater quality.” The Judgment also allows for the development of a management plan for the operation of the basin and empowers the TAC to determine the safe yield of the basin.	Not sensitive - City received an annual allocation of groundwater according to the Judgment.	Limited - "Adjudicated" Basin, would require reassessment of basin safe yield. Allocations could decrease if triggers are met due to extended dry conditions. Allocation is based on a rolling 7 year running average, so City could pump additional water in some years.	Continued maintenance and replacement of groundwater wells.
Mound Groundwater Basin	1982-2019	213-5,546	2,400	4,000		The Mound Basin Groundwater Sustainability Agency (MBGSA) will determine the sustainable yield of the Basin through the GSP development process.	Sustainable Yield of the Basin will be established utilizing historical hydrology and historical pumpage. Groundwater Sustainability Plans are required to consider impacts related to climate change when establishing sustainable yield.	Not sensitive - City will be allocated a portion of basin sustainable yield which normalizes annual fluctuations in precipitation.	Possible - The sustainable yield for the basin has not yet been determined. The MBGSA will likely develop allocations of sustainable yield through its GSP development process.	Continued maintenance and replacement of groundwater wells. Two replacement wells are currently being designed/constructed.
Total Groundwater			7,266	11,868	27-45%					
Foster Park	1933-2019	1,293-9,874	1,298	6,700	10-17%	The SWRCB and California Department of Fish & Wildlife (CDFW) are currently working to identify potential actions that may be taken to enhance and establish instream flow for anadromous fish in the Ventura River watershed. This effort could result in the development of flow criteria for the River.The City is currently working to resolve litigation regarding its use of the River through a collaborative settlement process.	Most climate change predications call for more intense rainfall, although not necessarily more rainfall. This may allow increased pumping/diversions during certain rainfall events while still meeting instream flow requirements. Increased frequency and duration of drought periods could also reduce available supplies.	Very Sensitive - River flows are directly related to the amount of annual rainfall.	Possible - Rebuilt Wellfield and Diversion Facility would allow and increase from current. Longterm objective to increase to 6,700 AFY in wet years.	Need rebuilt/replacement extraction facilities.
Lake Casitas	1960-2018	753-11,998	3,362	5,977	15-22%	Fish Passage and Habitat Considerations have reduced allowable diversions from Ventura River.	Most climate change predications call for more intense rainfall, although not necessarily more annual rainfall. This may allow increased diversions during certain rainfall events while still meeting fish flow requirements. Increased frequency and duration of drought periods could also reduce available supplies.	Sensitive - Available supply is a function of lake level, and lake level is a function of annual rainfall and diversion ability.	Limited - The City's allocation increases with growth within Casitas' service area, but can be reduced when water conservation is triggered by low lake levels.	Current agreement with Casitas generally limits the City's supply to the demand within the Casitas' service area.
Recycled Water	1995-2018	430-880	700	700	2-5%	Increased urban conservation could reduce wastewater flows. Demand varies with precipitation.	Higher demand in dry years. Lower demand in wet years.	Sensitive - Higher demand in dry years. Lower demand in wet years.	Limited - The 2014 Phase 2 Amended Final Report Estuary Special Studies included a Recycled Water Market Study that determined it was not cost effective at the time to extend purple pipe beyond the existing focus area. Demand is low and fluctuates seasonally and annually with higher demand in hot and dry months.	Previous studies have determined that it is not cost effective to extend purple pipe beyond the existing focus area.
State Water Project	1980-2019	500-10,000	0	10,000	0-25%	Reliability of State Water Project deliveries currently uncertain given the status of Water Fix and issues related to the Delta. This project is currently in the environmental review and permitting phase.	Most climate change predications call for reduction in snow pack and earlier melt of the snow pack that occurs. This would create early spring flows in excess of available State storage and concurrent agricultural demands. Could result in more frequent Article 21 water, but lower Table A deliveries.	Sensitive - Annual allocations are a function of rainfall, snowpack, and reservoir storage.	Probable - Completion of the State Water Interconnection and blending station projects would allow the City to deliver its annual allocation into the City's dstribution system.	Requires construction of a pipeline, blending station, right of way acquisition, and agency agreements.
VenturaWaterPure	NA	NA	2,800	4,000-5,400	14-18%	Implemented in part to comply with a consent decree and State law to reduce wastewater discharges to the Santa Clara River Estuary. This project is currently in the environmental review and permitting phase.	Potable reuse is considered a drought and climate change resilient supply.	Not Sensitive - Production of potable reuse supplies are dependent on wastewater flows, not annual rainfall.	Probable - Once the VenturaWaterPure project is complete, it would contribute at least 2,800 AFY of water to the City's water supply. Projected production is estimated to be up to 4,000 AFY by 2030 and potentially up to 5,400 AFY under a 100 percent diversion scenario.	Requires construction of an Advanced Water Purification Facility, ocean outfall, and associated infrastructure for aquifer storage and recovery wells.
Total Supply			15,426	39,770						

Table 6-4: Potential Future Water Supply Scenarios

Water Supply Source	2024 Normal Supply ¹ (AFY)	2024 Multi-year Drought Supply ² (AFY)	2024 Emergency Supply Scenario ³ (AFY)	2025 Normal Supply ¹ (AFY)	2025 Multi-year Drought Supply ² (AFY)	2025 Emergency Supply Scenario ³ (AFY)	2030 Normal Supply ¹ (AFY)	2030 Multi-year Drought Supply ² (AFY)	2030 Emergency Supply Scenario ³ (AFY)
Casitas Municipal Water District	5,785	4,050	0	5,816	4,071	0	5,977	4,184	0
Ventura River / Foster Park	4,200	1,298	1,298	−4,200	1,298	1,298	−4,200	1,298	1,298
Mound Groundwater Basin	4,000	4,000	4,000	4,000	4,000	4,000	4,000	4000	4000
Oxnard Plain Groundwater Basin	4,446	4,446	4,446	4,319	4,319	4,319	3,684	3,684	3,684
Santa Paula Groundwater Basin									
Original City Allocation	3,000	1,141	1,141	3,000	1,141	1,141	3,000	1141	1141
City Acquired Water Rights	41	40.9	40.9	40.9	40.9	40.9	40.9	40.9	40.9
Recycled Water	700	700	700	700	700	700	865	865	865
VenturaWaterPure	NA	NA	NA	2800	2800	2800	2800-4000	2800-4000	2800-4000
Total	22,172	15,676	11,626	24,876	18,370	14,299	24,567-25,767	18,013-19,213	13,829-15,029
State Water ⁴	0	850	4,900	0	0	2317	0	0	2,045-3245
Projected Demand	16,526	16,526	16,526	16,616	16,616	16,616	17,074	17,074	17,074

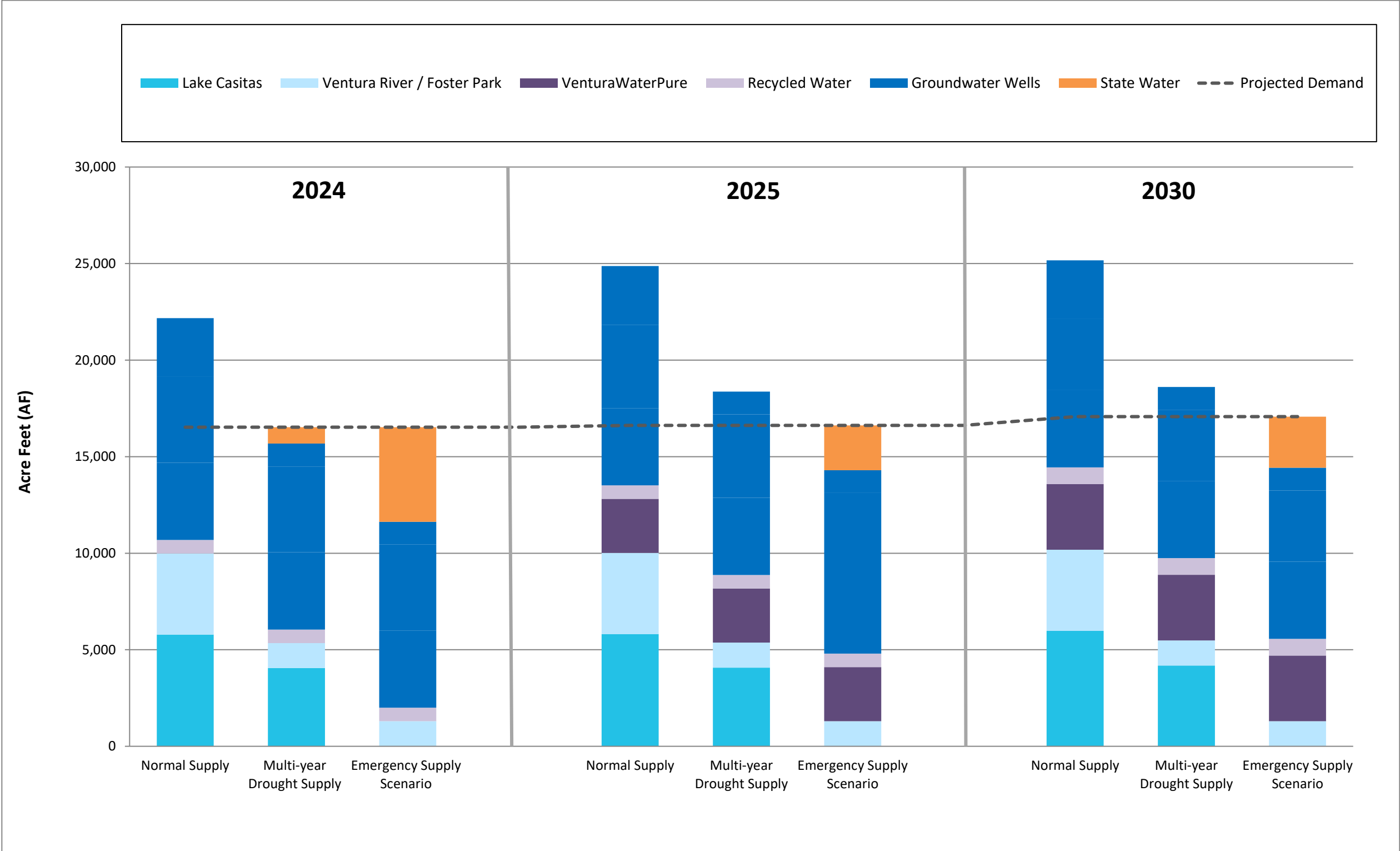
¹ Normal = No stages of the City’s Water Shortage Event Contingency Plan are in effect; City facilities are fully functioning and not restricted for operational reasons.

² Multi-year Drought Supply = Multiple years of below average rainfall. Casitas = Stage 3; Ventura River = Average of 2014-2018 Production; Santa Paula Basin is at Stage 2.

³ Emergency Supply Scenario = Multi-year drought assumptions plus no supply from Casitas.

⁴ State Water = Difference between projected demand and total supply from other sources.

Figure 6-2: Potential Future Water Supply Scenarios



APPENDIX A



Final Water Demand Factor Study

April 8, 2020

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APPENDICES

Appendix A – Residential Demand Factor Back-Up Data
Appendix B – Non-Residential Demand Factor Analysis

ACRONYMS AND ABBREVIATIONS

AB	Assembly Bill
AFY	Acre feet per year
AMI	Advanced Metering Infrastructure
AWWA	American Water Works Association
CMWD	Casitas Municipal Water District or Casitas
CWRR	Comprehensive Water Resources Report
CY	Calendar year
DU/AC	Dwelling unit per acre
DWR	California Department of Water Resources
GPCD	Gallons per capita per day
GPD	Gallons per day
GPD/DU	Gallons per day per dwelling unit
GPD/KSF	Gallons per day per 1,000 square feet
HCF	Hundred cubic feet
NO-DES	Neutral Output Discharge Elimination System
SB	Senate Bill
SWRCB	State Water Resources Control Board
UWMP	Urban Water Management Plan

I. INTRODUCTION

A. Background and Purpose

The City of San Buenaventura Water Department (Ventura Water) owns, operates and maintains a potable water distribution system that distributes treated water to the customers within its service area boundary. Ventura Water also distributes non-potable water and recycled water to select customers within its service boundary, where the infrastructure exists, to meet irrigation demands.

In 2013, Ventura Water updated its water demand factors for various land use categories based on actual water usage data available at the time. The water demand factors developed in 2013 were prepared as a part of Ventura Water's first Comprehensive Water Resources Report (CWRR). The CWRR is a comprehensive evaluation of Ventura Water's current and projected water demand and supply. The CWRR is updated annually by Ventura Water.

The water demand factors are used to calculate future demand projections based on known development plans and the ultimate build-out of the City per the City's General Plan. Water demand factors have been used in a variety of City publications, including: General Plan, Water Master Plan, Urban Water Management Plan and the Comprehensive Water Resources Report (CWRR). In addition, smaller more focused studies will reference water demand factors from these City documents, such as in the use of development water studies.

The water demand factors developed for the 2013 CWRR were based upon water consumption data from 2012. Since 2012, water demand in the City has changed due to aggressive water conservation, legislation, development, and changing land uses. In addition, the water demand factor land use categories developed for the 2013 CWRR were grouped into broad categories. These demand factors are currently used to calculate future demands for proposed development projects, and also used to determine the Water Resources Net Zero Fee for developers. Therefore, Ventura Water has determined the need to update its water demand factors to reflect current water usage behavior and define the demand factor categories in greater detail.

The primary goal of this Study is to establish water demand factors that reflect current usage patterns and can be utilized throughout the City's service area to calculate future water demand projections that can be used in all water planning efforts. An additional goal of this Study is to develop a comprehensive list of water demand factors that accurately represent water usage per land use classification that can be used for planning purposes. The water demand factors developed herein account for current trends, but also account for yearly variability based upon environmental conditions.

Not included as part of this Study is an evaluation of daily or seasonal diurnal patterns or peaking factors.

B. Source Data

The water demand factors developed as a part of this Study utilized Ventura Water billing data and production data. The billing data provided was for the calendar years 2013 through 2018. The production (supply) data was provided for the calendar years 2013 through 2018.

Also referenced for this Study were the following reports:

- 2013 Comprehensive Water Resources Report (CWRR)
- Water Master Plan (March 2011)
- 2015 Urban Water Management Plan (June 2016)
- 2005 Ventura General Plan
- Ordinance 2016-004 “Water Rights Dedication, Water Resource Net Zero Fee, and Water Resource Net Zero Requirements”

II. EXISTING WATER DEMAND FACTORS

Water demand factors are used to estimate future water use based on a land use type and unit of measurement (such as acreage, dwelling unit count, square footage, number of persons, etc.). Demand factors are typically calculated based on historical water use and trends. Ventura Water last updated its water demand factors per land use in 2013 for the Comprehensive Water Resources Report (CWRR), and its demand factor per capita in 2016 for the Urban Water Management Plan (UWMP).

A. Existing Demand Factors (per Land Use)

The land use-based water demand factors currently being utilized by Ventura Water were developed in 2013 as a part of the first edition of the CWRR. The land use demand factors are summarized in Table 1.

Table 1 Current Water Demand Factors (from 2013 CWRR)				
Water Demand Factor Classification		Raw Consumption Factor (CY 2012)	Adjustment for Water Loss (+6.5%)	Adjustment for Planning Purposes (+20% appx.)
Residential	Residential (0-8 du/ac)	292 gpd/du	311 gpd/du	370 gpd/du
	Residential (9-20 du/ac)	189 gpd/du	201 gpd/du	250 gpd/du
	Residential (21+ du/ac)	189 gpd/du	201 gpd/du	250 gpd/du
Non-Residential	Commercial/Retail/Industrial/Hotel Public/Institutional	206 gpd/ksf	220 gpd/ksf	265 gpd/ksf
	Hospital/Assisted Living	424 gpd/bed	452 gpd/bed	545 gpd/bed
	Park/Landscape/Irrigation	1,566 gpd/acre	1,668 gpd/acre	2,000 gpd/acre

Source: Table 3-3 of 2013 CWRR

du/ac = dwelling unit per acre

gpd/du = gallons per day per dwelling unit

gpd/ksf = gallons per day per 1,000 square feet

B. Per Capita Water Use

California state legislators passed Senate Bill 7 (SB x7-7, also known as the Water Conservation Bill) in November 2009 requiring all municipal water suppliers to reduce per capita water consumption by 20% by Year 2020 from an established baseline. Ventura Water's Year 2020 compliance target is 142 gallons per capita per day (GPCD). As of the 2015 Urban Water Management Plan (UWMP), Ventura Water has already achieved its 2020 target, with the Year 2015 usage calculated to be 117 GPCD.

In 2018, the California Legislature passed two additional water conservation bills, Senate Bill 606 (SB 606) and Assembly Bill 1668 (AB 1668), creating the framework for additional statewide water savings mandates that will take effect in Year 2022. SB 606 and AB 1668 build on the state's ongoing efforts to make water conservation a way of life in California and create a new foundation for long-term improvements in water conservation and drought planning. SB 606 and AB 1668 establish guidelines for efficient water use and a framework for the implementation and oversight of the new standards.

In Year 2022, water suppliers will have to submit water budgets to the California Department of Water Resources (DWR) and increase water recycling projects. The

legislation establishes a residential indoor goal of 55 GPCD until Year 2025, 52.5 GPCD from Years 2025 to 2030, and 50 GPCD after Year 2030. According to Ventura Water’s 2015 UWMP, Ventura Water customers used an average of 117 GPCD in 2015. The 117 GPCD was calculated using service area population and overall water use (all water including residential, commercial, municipal, irrigation, etc. excluding recycled water). However, Ventura Water reports residential use to the State. From 2016 to 2018, Ventura Water’s average indoor and outdoor residential water use was 69 GPCD. Based on the DWR’s 2011 California Single Family Water Use Efficiency Study, the average household uses 47% of its water indoors and 53% outdoors. Therefore, it is estimated that Ventura Water’s average residential indoor use is 32 GPCD, indicating that Ventura Water is already meeting the 55 GPCD goal.

A few of the provisions that will impact Ventura Water identified in the two bills include:

- Establishing water use objectives and long-term standards for efficient water use that apply to urban retail water suppliers comprised of indoor residential water use, outdoor residential water use, commercial, industrial and institutional (CII) irrigation with dedicated meters, water loss, and other unique local uses.
- Providing incentives for water suppliers to recycle water.
- Requiring both urban and agricultural water suppliers to set annual water budgets and prepare for drought.

It should be noted that the long-term standards for efficient water use are still being developed by the State and that a report is anticipated to be completed January 2021 reviewing the 55 GPCD standard for residential indoor water use. In addition, the service area population will need to be updated, which can impact the residential GPCD calculations. These updates will be provided in the 2020 UWMP.

The implementation of SB 606 and AB 1668 may result in lower water demand factors for Ventura Water in the future. It is recommended that Ventura Water review the water demand factors after a few years of billing data has been collected after the water conservation laws are fully implemented.

III. AGENCY COMPARISON

A. Comparison

As a part of the 2013 CWRR process, the water demand factors for several local agencies were identified for comparative purposes. The water agency demand factor comparison from the 2013 CWRR is included herein as Table 2.

B. Methodology

For this Study, additional agencies were contacted to understand the methodology used to calculate its water demand factors.

- The City of Santa Barbara’s demand factors were based on water consumption for calendar years 2006 (average weather) and 2007 (driest year on record) and land use data (square footage for commercial properties and lot size values for residential).
- The City of San Luis Obispo’s municipal water use factors were developed in 2008. No further information was available regarding the methodology.
- Irvine Ranch Water District’s demand factors were initially developed in 1999 with an update completed in 2012. The demand factors were based on 2000 to 2010 billing data with adjustments: 7% unaccounted water and 12% economic bounce back and land use information.
- The City of Oxnard’s water demand factors were based on billing records from calendar year 2012. Water demand factors for the existing system were derived from a total system average by using geocoded billing records. The total system demand by land use category was divided by the total area of each land use category.

A summary of the above agencies’ water demand factors is included in Table 3.

Table 2 2013 Agency Demand Factor Comparison						
Water Demand Factor Classification		Southern California Agencies				
		City of Ventura	City of Thousand Oaks	VCWWD No. 8 (Simi Valley)	Santa Margarita Water District	Irvine Ranch Water District
Low Density Residential	Low Density Residential (2-4.5 du/ac)	-	405 gpd/du	840 gpd/du	-	-
	Residential (0-8 du/ac)	370 gpd/du	-	420 gpd/du	450 gpd/du	405 gpd/du
Medium Density Residential	Medium Density Residential (4.5-15 du/ac)	-	310 gpd/du	-	-	-
	Residential (9-20 du/ac)	250 gpd/du	-	-	300 gpd/du	310 gpd/du
High Density Residential	High Density Residential (15-30 du/ac)	-	180 gpd/du	-	-	-
	Condominium	-	-	259 gpd/du	-	-
	Multi-Family Apartment	-	-	222 gpd/du	-	-
	Residential (21+ du/ac)	250 gpd/du	-	-	175 gpd/du	200 gpd/du
Commercial/Industrial/Retail	Commercial/Retail/Industrial/ Hotel	265 gpd/ksf			225 gpd/ksf	
	Public/Institutional					
	Hospital/Assisted Living	545 gpd/bed	-	1.85 gpm/ac	-	230 gpd/ksf
	Commercial	-	130 gpd/ksf	2.00 gpm/ac	225 gpd/ksf	220 gpd/ksf
	Industrial	-	60 gpd/ksf	-	-	-
	Industrial - Light	-	-	2.00 gpm/ac	-	60 gpd/ksf
	Industrial - Heavy	-	-	-	-	5000 gpd/ksf
	Institutional	-	45 gpd/ksf	-	-	-
	School	-	15 gpd/ksf	1.20 gpm/ac	15 gpd/stu	15 gpd/ksf
Parks / Irrigation	Park/Landscape/Irrigation	2,000 gpd/acre	-	-	3.5 AF/ac	3,400 gpd/acre
	Parks, Golf Courses, OpenSpace, Recreation Areas	-	3,400 gpd/acre	-	-	-
	Open Space, Community Park (Passive), Recreation Facility	-	-	-	100 gpd/acre	-
	Community Park (Active)	-	-	-	200 gpd/acre	-
	Community Facility	-	-	-	2,500 gpd/acre	-

Source: Table 3-4 from 2013 CWRR

du/ac = dwelling unit per acre

gpd/du = gallons per day per dwelling unit

gpd/ksf = gallons per day per 1,000 square feet

gpd/bed = gallons per day per bed

gpm/ac = gallons per minute per acre

gpd/stu = gallons per day per student
gpd/acre = gallons per day per acre

Table 3: 2020 Agency Demand Factor Comparison

Water Demand Factor Classification	City of Santa Barbara	City of San Luis Obispo	Irvine Ranch Water District*	City of Oxnard
Single-Family	357 gpd/du	268 gpd/du	405 gpd/du	2,250 gpd/acre
Multi-Family	143 gpd/du	161 gpd/du	300 gpd/du	4,250 gpd/acre
Office	54 gpd/ksf	89 gpd/ksf	72 gpd/ksf	-
Hotel (w/restaurant)	179 gpd/room	109 gpd/room	160 gpd/ksf	-
Hotel/motel (no restaurant)	116 gpd/room			-
Public & Institutional	152 gpd/ksf	-	45 gpd/ksf	-
School	-	-	28 gpd/ksf	1,500 gpd/acre
Multi-Tenant Commercial	152 gpd/ksf	268 gpd/ksf	175 gpd/ksf	2,000 gpd/acre
Single-Use Commercial	134 gpd/ksf	-	-	-
Park/Golf Course	-	1,785 gpd/acre	2,200 gpd/acre	-

*Irvine Ranch Water District has been included in both Tables 2 and 3 since the water demand factors were updated since the 2013 CWRR.

gpd/du = gallons per day per dwelling unit
gpd/ksf = gallons per day per 1,000 square feet
gpd/acre = gallons per day per acre
gpd/room = gallons per day per room

IV. HISTORICAL WATER USE

A. Water Usage Summary

In order to establish the existing (or current) water demands, Ventura Water provided water usage (billing) data from January 2013 through December 2018. The billing data is summarized in Table 5.

It is noted that the billing records include both treated potable water and non-potable water (reclaimed water and untreated raw water). From 2013 through 2018, the average annual demand for both potable and non-potable water was 14,420 acre-feet/year (AFY). The highest water use year was 2013, and the lowest water use year was 2017.

Excluding reclaimed water and raw water, the total average annual potable water demand was 13,736 AFY (2013-2018).

Approximately 64% of all water use is residential. In order to understand the water demand breakdown between the single-family and multi-family residents, the categories are summarized in Table 6. Of the residential water use, approximately 63% is associated with single-family dwelling units. From 2013-2018, the total annual residential water demand was an average of 9,223 AFY.

Table 5							
Annual Summary of Water Billing Data (AFY)							
	2013	2014	2015	2016	2017	2018	Average
Total - Potable and Non-Potable Water	16,665	15,978	13,342	13,456	13,219 164	13,549	14,359
Total - Potable Water Only ^[1]	16,003	15,230	12,668	12,768	12,495	12,886	13,675

[1] Excludes untreated raw water
and reclaimed water
AFY = acre feet per year

Table 6
Residential Water Usage Data Summary

	Gallons Per Day (GPD)						Average
	2013	2014	2015	2016	2017	2018	
Single-Family	6,325,834	5,947,067	4,725,128	4,673,664	4,671,020	4,712,252	5,175,828
Multi-Family	3,450,190	3,323,991	2,899,937	2,896,490	2,867,191	2,912,382	3,058,363
Residential Subtotal (GPD)	9,776,024	9,271,058	7,625,065	7,570,153	7,538,211	7,624,635	8,234,191
Residential Subtotal (AFY)	10,951	10,385	8,541	8,480	8,444	8,541	9,223

Note: See Appendix A for back-up detail

GPD = gallons per day

AFY= acre feet per year

B. Supply / Production Summary

Ventura Water obtains potable water from three primary sources: 1) the purchase of water from the Casitas Municipal Water District (CMWD or Casitas); 2) the Ventura River; and 3) local groundwater basins. Ventura Water provided a summary of the total water production (supply) from its various potable water sources for the calendar years 2013 through 2018, as shown in Table 7.

The highest production year was 2013, with annual declines every year until 2018, which was the lowest production year. These numbers are in-line with the severe drought that occurred over these 5 years and the significant conservation that occurred.

The total average annual production (excluding reclaimed water) for years 2013 through 2018 was 14,962 AFY.

Table 7							
Water Supply / Production Summary (AFY)							
Primary Source	2013	2014	2015	2016	2017	2018	Average
CMWD 1	2,710	2,425	3,530	1,987	913	1,383	2,158
CMWD 2	3,047	2,396	1,046	349	1,032	1,145	1,503
Casitas Direct Customers	297	279	272	298	243	188	263
Foster Park Intake Subsurface	1,076	748	449	419	1,280	897	811
Golf Course Well 5	2,527	2,197	1,819	1,352	789	356	1,507
Golf Course Well 6	2,964	2,368	1,768	2,350	1,220	561	1,872
Golf Course Well 7	0	0	0	0	1,816	2,399	703
Mound Well 1	1,717	1,147	590	805	703	910	979
Nye Well 11	0	292	0	2	119	0	69
Nye Well 2	0	0	0	0	0	0	0
Nye Well 7	856	1,064	0	414	1,277	520	689
Nye Well 8	242	1,134	850	1,014	972	459	778
Saticoy Well 2	673	629	320	0	45	31	283
Saticoy Well 3	0	0	1,998	2,898	2,549	3,065	1,752
Victoria Well 1	0	0	0	0	0	0	0
Victoria Well 2	1,596	2,073	1,734	1,866	695	1,619	1,597
TOTAL	17,705	16,751	14,376	13,752	13,651	13,534	14,962

AFY = acre feet per year

C. Water Loss Factor

From the source to the customer, all water systems experience some level of water loss. Water loss can be attributed to many things; most typically it is associated with leaks in the system, main breaks, and slight variations in meter accuracy. To increase efficiencies in the water distribution system, water loss audits are conducted to trace the flow of water from its source and treatment, through the water distribution system, and into customer properties. The water loss audit informs water utilities of the volume of water lost and revenue associated with that water loss. Once water loss audits are complete, improvements can be made in water resources management, financial performance, and operational performance.

Water loss is essentially the difference between the water supplied and consumption. A water loss calculation is performed by calculating the difference between the water supplied (all source water produced and supplied to the Ventura Water system including purchases from Casitas) and consumption (billing records for all metered water that is delivered to customers). This water loss calculation was performed for the years 2013 to 2018. The average water loss for 2013 to 2018 was 8.5%.

In September 2014, Senate Bill 1420 was adopted requiring urban retail water suppliers such as Ventura Water to quantify and report on distribution system water loss in the Urban Water Management Plan (UWMP). Ventura Water conducted an audit in accordance with the methods of the American Water Works Association (AWWA) and submitted the audit for calendar year 2015 with the 2015 UWMP.

In October 2015, Senate Bill 555 was adopted requiring Ventura Water to submit validated water loss audits annually to the DWR. Thus, 2016, 2017 and 2018 audits were prepared in accordance with the AWWA method, validated by a third-party technical expert, and submitted to DWR. The average water loss rate for the three years of DWR audited data was 7.0%. The water loss auditing process is still being refined by the State and the standard for allowable water loss volumes will be implemented beginning in 2023

While the AWWA method breaks water loss into multiple categories to provide additional information to the utility, it still calculates water loss as the difference between the water supplied (water that Ventura Water produces and purchases from Casitas) and authorized consumption (the water that is sold to customers). The audit uses the term “non-revenue water” to define this water loss. As shown in Table 8, water loss is variable from year to year due to the fluctuations in the number of maintenance related issues such as water main breaks and damaged hydrants. For the purposes of developing the demand factors, staff chose to average only the water loss percentages for the years that DWR audits were completed. The DWR audits for the years 2016 to 2018 are the most recent data available

and are in compliance with current and upcoming regulations for water loss. The City has also taken actions to reduce losses including operating the Neutral Output Discharge Elimination System (NO-DES) truck to recycle water used for water distribution system flushing, implementation of the Advanced Metering Infrastructure (AMI) project which includes replacement of manually-read water meters with smart meters which include advanced leak detection notification capabilities, and implementation of the City's Capital Improvement Plan which includes replacement of aging pipelines. These actions should reduce the City's water loss rate over the long-term, but year to year variability will still occur.

Table 8 Water Loss				
Year	Metered (AFY) [1]	Supply (AFY) [2]	Water Loss (%)	
2013	16,003	17,705	9.6%	
2014	15,230	16,751	9.1%	
2015	12,668	14,376	11.9%	
2016 ³	12,768	13,752	7.2%	
2017 ³	12,495	13,651	8.5%	
2018 ³	12,886	13,534	4.8%	
Average (Years 2013 – 2018)	13,675	14,962	8.5%	
DWR Audit Average (Years 2016-2018)			7.0%	

[1] From Table 5 - Potable Water Only

[2] From Table 7

[3] Years that Level 1 validated audits submitted to DWRAFY = acre
feet per year

V. RECOMMENDED WATER DEMAND FACTORS

A. Proposed Demand Factor Categories

The primary goal of this Study is to develop water demand factors based on current water use and across a broader designation of land use types. An iterative process was used to determine which land-use types should have unique demand factors. The intent is to develop water demand factors for each land use type that may use water differently and represents a cross-section of the typical uses within the City. Through discussions and input from Ventura Water staff (including the General Manager), the land use categories that were selected to develop a unique water demand factor for are shown in Table 9.

Table 9 Proposed Demand Factor Categories	
<u>Residential</u>	
	Single-Family
	Multi-Family
<u>Non-Residential</u>	
	Office
	Medical/Dental Office
	Assisted Living
	Hotel (w/ restaurant)
	Hotel/Motel (no restaurant)
	Public & Institutional
	School
	Restaurant (sit-down)
	Restaurant (fast-food)
	Brewery
	Bakery/Coffee Shop
	Grocery Store
	Multi-Tenant Commercial ^[1]
	Single-Use Commercial
	Self-Storage
	Church
	Park/Golf Course
	Gym (w/ pool)
	Car Wash
	Gas Station (w/ car wash)
	Gas Station

[1] To use for proposed multi-tenant developments when tenants have not been specified. Includes at least one higher intensity water use such as a restaurant.

B. Demand Factor Methodology and Process

In order to develop new and updated water demand factors for the proposed land use categories, water usage records were obtained for a cross-section of typical customers within each category.

The methodology and process used to determine the demand factors was based on the following:

- Utilized water billing data from 2013 through 2018.
- Single-family residential demand factor was based on all single-family accounts.
- Multi-family residential demand factor was based on all multi-family accounts.
- Non-residential demand factors were developed by obtaining billing records for approximately 6 to 12 customers who were considered representative of the selected category, when feasible.
- The customers selected for the analysis of each category were selected based on a diverse representation of the City, and broad geographical presence across the City.
- All customers were researched to determine when the business opened, or closed, and the billing data utilized was adjusted accordingly.
- Separate demands factors for City and County were not developed. Ventura Water's service area includes customers in unincorporated Ventura County who are within the City's Sphere of Influence.
- The Thomas Fire occurred in the City in December of 2017. Due to the large (6 years) amount of data utilized, the impacts of water use during the Thomas Fire were deemed negligible for this analysis.
- Water use was classified by the year of the meter read. For example, a meter read in January of 2017 was likely for water use in November/December of 2016, however the water use was classified in the 2017 calendar year.
- Land use data, such as building square footages, acreages, etc. were obtained through City and County resources when available. Google Earth was used in instances when City or County information was not readily available.
- All data from accounts identified as a "fireline" were excluded from the calculations as the usage was negligible. Fireline accounts are for fire protection of residential, commercial, school, and municipal properties.
- Dedicated irrigation meters were included in the demand factor calculations.
- For each customer selected, the billing data was analyzed to determine if there were any anomalies in the data. Anomalies such as a monthly water demand that was multiple times the normal (due to a customer water leaks or high irrigation use) were included in the calculations to account for the variability in water usage.

- If data from a selected customer appeared questionable, the customer was removed from the calculation.
- Data from industrial customers was analyzed and included in Appendix B, but due to extreme variability in water use between customers and the uncertainty of which kind of industrial activities may be proposed in the future, a demand factor for industrial use is not included in this report. The water demands of any proposed industrial use will be assessed on a case by case basis.
- The raw demand factors for each category was based on the average of all customers in that specific category.
- The raw demand factors for each category were an average of the data over the years 2013 through 2018.
- The DWR audited water loss factor of 7% was applied to the raw factor.
- A planning-level contingency factor was applied to the raw factor and the water loss. The methodology used to develop the planning-level contingency is discussed in Section V.C.

C. Demand Factor Contingency

Water consumption varies from year to year depending upon a number of factors, primarily weather and drought. The water demand factors developed herein were based on the average annual water usage from years 2013 through 2018. California experienced a significant drought that spanned the five years from 2012 to 2017. Beginning in 2014, statewide mandates to reduce water consumption were put into place, and water agencies observed significant reductions in water demand, including Ventura Water. In 2014, the State Water Resources Control Board adopted an emergency regulation calling on all Californians to reduce their water by 20%. Therefore, the City of Ventura City Council declared a water shortage emergency in September 2014. In June 2015, the City Council confirmed that the City was in a Stage 3 shortage event with 20% mandatory conservation. Former Governor Brown declared that the drought officially ended in 2017 for the state of California; however, the City of Ventura remained in a shortage event. As of February 2020, the City remains in a Stage 3 shortage event. While many of the state's water consumption reduction mandates have remained in place, water demands in the City and the state have started to move higher again. As shown in Tables 5 and 6, overall water use in 2018 has increased from water use in 2016 and 2017. Since the water demands factors developed herein were calculated based on actual water usage during a significant drought period, it is prudent to account for likely increases in water demand in future years.

In order to determine the appropriate planning-level contingency to apply to the raw demand factor, the water consumption data from 2013 through 2018 was evaluated in a few different ways:

- Between 2013 and 2018, the difference between the high demand year and the low demand year was 22%.
- Between 2013 and 2018, the difference between the high demand year and the average annual demand was 17%.
- Between 2013 and 2018, the difference between the high demand year for all residential customers and the average annual demand for all residential customers was 19%.
- Between 2013 and 2018, the median increase in water demand for the 158 non-residential customers evaluated in this study between the high demand year and the annual average year was 27%.

Based upon the analysis summarized above, it is recommended to apply a planning-level contingency of 20% to the raw factor plus water loss to account for the annual demand variations that are likely to occur.

D. Proposed Demand Factors

Based upon the description of the process detailed above, the proposed water demand factors for Ventura Water are shown in Table 10. The details of the analysis for the multi-family and non-residential customers used to determine the raw demand factors are included in Appendices.

These demand factors will be used to calculate future demands for proposed development projects and also to determine the Water Resources Net Zero Fee for developers. The methodology by which these factors will be utilized to calculate estimated water demands will be detailed in other City reports including the annual Comprehensive Water Resources Report (CWRR) and in the Net Zero Administrative Policies and Procedures document. Demand factors will be reviewed periodically (at least every 5 years) for consistency with current demand patterns and will be updated as necessary.

Table 10
Proposed Demand Factors

		Raw Factor (gpd)	Water Loss 7.0%	Contingency 20%	Proposed Factor (gpd)
<u>Residential</u> ^[1]					
	Single-Family	229.0 /du	16.0	49.0	294 /du
	Multi-Family	163.0 /du	11.4	34.9	209 /du
<u>Non-Residential</u> ^[2]					
	Office	29.7 /ksf	2.1	6.4	38 /ksf
	Medical/Dental Office	130.7 /ksf	9.1	28.0	168 /ksf
	Assisted Living	70.8 /bed	4.9	15.1	91 /bed
	Hotel (w/ restaurant)	134.2 /room	9.3	28.7	172 /room
	Hotel/Motel (no restaurant)	104.2 /room	7.3	22.3	134 /room
	Public & Institutional	52.6 /ksf	3.7	11.3	68 /ksf
	School	15.4 /student	1.1	3.3	20 /student
	Restaurant (sit-down)	524.6 /ksf	36.5	112.2	673 /ksf
	Restaurant (fast-food)	677.9 /ksf	47.2	145.0	870 /ksf
	Brewery	338.6 /ksf	23.6	72.4	435 /ksf
	Bakery/Coffee Shop	116.4 /ksf	8.1	24.9	149 /ksf
	Grocery Store	121.2 /ksf	8.4	25.9	156 /ksf
	Multi-Tenant Commercial	120.8 /ksf	8.4	25.8	155 /ksf
	Single-Use Commercial	81.9 /ksf	5.7	17.5	105 /ksf
	Self-Storage	223.2 /acre	15.5	47.7	286 /acre
	Church	71.7 /ksf	5.0	15.3	92 /ksf
	Park/Golf Course	1,339.7 /acre	93.3	286.6	1,720 /acre
	Gym (w/ pool)	165.6 /ksf	11.5	35.4	213 /ksf
	Car Wash	841.8 /ksf	58.6	180.1	1,081 /ksf
	Gas Station (w/ car wash)	1,824.4 /ksf	127.1	390.3	2,342 /ksf
	Gas Station	198.5 /ksf	13.8	42.5	255 /ksf

[1] Based on actual water billing data from Years 2013-2018. See Appendix A for details.

[2] Based on actual water billing data from Years 2013-2018. See Appendix B for details.

gpd = gallons per day

du = dwelling unit

ksf = 1,000 square feet

APPENDICES

APPENDIX A

Single-Family Total Units by Year

	Building & Safety	Remove SCC Homes	Remove Thomas Fire Homes	Total SF Units
2012	22,577	67	-	22,510
2013	22,589	69	-	22,520
2014	22,607	69	-	22,538
2015	22,660	70	-	22,590
2016	22,698	70	-	22,628
2017	22,734	71	-	22,663
2018	22,889	71	466	22,818

Multi-Family Total Units by Year

	Building & Safety	Remove Thomas Fire Apts	Total MF Units
2012	18,511	-	18,511
2013	18,552	-	18,552
2014	18,652	-	18,652
2015	18,794	-	18,794
2016	18,951	-	18,951
2017	18,968	-	18,968
2018	19,041	56	18,985

Single-Family Total Usage by Year

	Billing Data (HCF)	Remove SCC (HCF) ^[1]	Remove Thomas Fire (HCF)	Add Assessment District (HCF) ^[2]	Total Usage (HCF)	Total Usage (GPD)
2012	3,118,335	30,025	-	28,001	3,116,311	6,386,303
2013	3,085,754	29,821	-	30,871	3,086,804	6,325,834
2014	2,906,732	33,928	-	29,174	2,901,978	5,947,067
2015	2,313,418	25,895	-	18,188	2,305,711	4,725,128
2016	2,284,926	22,810	-	18,482	2,280,598	4,673,664
2017	2,282,594	22,669	-	19,383	2,279,308	4,671,020
2018	2,312,130	24,824	9,644	21,766	2,299,428	4,712,252

Multi-Family Total Usage by Year

	Billing Data (HCF)	Remove Thomas Fire (HCF)	Total Usage (HCF)	Total Usage (GPD)
2012	1,801,182	-	1,801,182	3,691,189
2013	1,683,582	-	1,683,582	3,450,190
2014	1,622,001	-	1,622,001	3,323,991
2015	1,415,076	-	1,415,076	2,899,937
2016	1,413,394	-	1,413,394	2,896,490
2017	1,399,097	-	1,399,097	2,867,191
2018	1,421,340	191	1,421,149	2,912,382

Demand Factors (GPD/DU)

	Single-Family	Multi-Family
2012	284	199
2013	281	186
2014	264	178
2015	209	154
2016	207	153
2017	206	151
2018	207	153

Notes:

[1] Saticoy Country Club (SCC) homes and usage were removed since they are served by a separate water system.

[2] Assessment District (SC 24) usage was added since this is irrigation water used for developments with common areas.

APPENDIX B

		Land Use Units						Water Use (GPD)							Raw Factor / Year (gpd/xx)								Totals (HCF)						
		DU	SF	Bed	Students	Room	Acres	2013	2014	2015	2016	2017	2018	Avg.	2013	2014	2015	2016	2017	2018	Avg.	2013	2014	2015	2016	2017	2018		
Land Use Category	User (REDACTED)																												
Office	Office 1		10,128				0.56	326	340	215	336	301	340	310	32.2	33.6	21.2	33.2	29.7	33.6	30.6		159	166	105	164	147	166	
	Office 2		15,129				1.00	547	549	498	488	627	613	554	36.2	36.3	32.9	32.2	41.4	40.5	36.6		267	268	243	238	306	299	
	Office 3		16,369				0.42	664	943	914	928	1025	742	869	40.6	57.6	55.8	56.7	62.6	45.3	53.1		324	460	446	453	500	362	
	Multi-tenant Offices 1		39,146					1408	1781	1322	1590	1316	1611	1505	36.0	45.5	33.8	40.6	33.6	41.1	38.4		687	869	645	776	642	786	
	Multi-tenant Offices 2		22,491					219	248	252	287	332	305	274	9.7	11.0	11.2	12.8	14.8	13.6	12.2		107	121	123	140	162	149	
	Chiropractic Office		1,877					39	41	37	20	18	16	29	20.7	21.8	19.7	10.9	9.8	8.7	15.3		19	20	18	10	9	8	
	Office and Massage		9,434					186	217	299	562	287	330	314	19.8	23.0	31.7	59.5	30.4	35.0	33.2		91	106	146	274	140	161	
	Office 4		19,427						375	367	412	322	320	318	352	19.3	18.9	21.2	16.6	16.5	16.4	18.1		183	179	201	157	156	155
																				29.7									
Medical/Dental Office	Medical Office 1		31,234				2.40	3691	2951	2326	2603	2451	2664	2781	118.2	94.5	74.5	83.3	78.5	85.3	89.0		1801	1440	1135	1270	1196	1300	
	Medical Office 2		11,661					594	580	600	611	711	742	640	51.0	49.7	51.5	52.4	61.0	63.6	54.9		290	283	293	298	347	362	
	Medical Office 3		4,191					352	350	1100	404	338	371	486	84.1	83.6	262.6	96.3	80.7	88.5	116.0		172	171	537	197	165	181	
	Medical and Dental Offices 1		3,224					262	205	217	244	242	246	236	81.4	63.6	67.4	75.6	75.0	76.3	73.2		128	100	106	119	118	120	
	Medical and Dental Offices 2		3,188					592	750	736	832	687	666	710	185.8	235.3	230.8	261.0	215.3	208.9	222.8		289	366	359	406	335	325	
	Dental Office		5,876					1510	1244	1338	1320	1348	1285	1341	257.0	211.7	227.7	224.6	229.5	218.7	228.2		737	607	653	644	658	627	
																				130.7									
Hotel w/ dining	Hotel w/ dining 1					235		36166	28701	27145	24952	22987	23196	27191	153.9	122.1	115.5	106.2	97.8	98.7	115.7		17648	14005	13246	12176	11217	11319	
	Hotel w/ dining 2					285		37607	33617	31203	32592	31184	18005	30701	132.0	118.0	109.5	114.4	109.4	63.2	107.7		18351	16404	15226	15904	15217	8786	
	Hotel w/ dining 3					82		12105	12626	11693	11595	12296	12163	12080	147.6	154.0	142.6	141.4	149.9	148.3	147.3		5907	6161	5706	5658	6000	5935	
	Hotel w/ dining 4					50		12029	10413	3654	9146	6257	5619	7853	240.6	208.3	73.1	182.9	125.1	112.4	157.1		5870	5081	1783	4463	3053	2742	
	Hotel w/ dining 5					106		22223	22797	18155	18882	20710	21337	20684	209.6	215.1	171.3	178.1	195.4	201.3	195.1		10844	11124	8859	9214	10106	10412	
	Hotel w/ dining 6					119		92251	11866	11482	10083	8999	7253		9822	77.7	99.7	96.5	84.7	75.6	60.9	82.5		4514	5790	5603	4920	4391	3539
																				134.2									
Hotel/Motel w/o dining	Hotel/motel w/o dining 1					42		3461	3627	3681	3560	3519	4113	3660	82.4	86.4	87.6	84.8	83.8	97.9	87.1		1689	1770	1796	1737	1717	2007	
	Hotel/motel w/o dining 2					18		2420	2207	1662	2080	1535	2074	1996	134.5	122.6	92.3	115.6	85.3	115.2	110.9		1181	1077	811	1015	749	1012	
	Hotel/motel w/o dining 3					200		18561	17405	17044	16563	17417	15946	17156	92.8	87.0	85.2	82.8	87.1	79.7	85.8		9057	8493	8317	8082	8499	7781	
	Hotel/motel w/o dining 4					151		20698	19499	18054	13993	12427	13150	16304	137.1	129.1	119.6	92.7	82.3	87.1	108.0		10100	9515	8810	6828	6064	6417	
	Hotel/motel w/o dining 5					37		4658	3781	3635	4586	5306	5525	4582	125.9	102.2	98.3	124.0	143.4	149.3	123.8		2273	1845	1774	2238	2589	2696	
	Hotel/motel w/o dining 6					142		17870	17575	13325	15761	15874	12991	15566	125.8	123.8	93.8	111.0	111.8	91.5	109.6		8720	8576	6502	7691	7746	6339	
																				104.2									
Public & Institutional	Public & Institutional 1		10,300				2.08	689	486	795	465	488	666	598	66.9	47.2	77.2	45.2	47.4	64.7	58.1		336	237	388	227	238	325	
	Public & Institutional 2		52,931				1.33	3560	2762	996	1187	1215	1121	1807	67.3	52.2	18.8	22.4	23.0	21.2	34.1		1737	1348	486	579	593	547	
	Public & Institutional 3		37,675					4443	2933	2750	2633	3357	3693	3301	117.9	77.8	73.0	69.9	89.1	98.0	87.6		2168	1431	1342	1285	1638	1802	
	Fire Station 1		4,550					381	361	303	283	365	385	346	83.8	79.3	66.7	62.2	80.2	84.7	76.1		186	176	148	138	178	188	
	Fire Station 2		3,725					117	107	86	90	102	105	101	31.4	28.6	23.1	24.2	27.5	28.1	27.1		57	52	42	44	50	51	
	Fire Station 3		7,680					279	320	135	234	518	158	274	36.3	41.6	17.6	30.4	67.5	20.5	35.7		136	156	66	114	253	77	
	Library		41,900					703	748	1867	3183	2578	1387	1744	16.8	17.9	44.6	76.0	61.5	33.1	41.6		343	365	911	1553	1258	677	
	Public & Institutional 4		11,575					1041	975	828	449	416	475	697	89.9	84.3	71.5	38.8	35.9	41.1	60.3		508	476	404	219	203	232	
																				52.6									
School	College				11,727			88625	95152	29022	72681	50596	94131	71701	7.6	8.1	2.5	6.2	4.3	8.0	6.1		43246	46431	14162	35466	24689	45933	
	High School 1				1,715			35220	28502	19948	26321	19743	21838	25262	20.5	16.6	11.6	15.3	11.5	12.7	14.7		17186	13908	9734	12844	9634	10656	
	High School 2				962			3554	4086	3658	4568	3545	4767	4030	3.7	4.2	3.8	4.7	3.7	5.0	4.2		1734	1994	1785	2229	1730	2326	
	High School 3				1,980			31623	32100	19282	27112	21139	19934	25198	16.0	16.2	9.7	13.7	10.7	10.1	12.7		15431	15664	9409	13230	10315	9727	
	Middle School 1				892			19026	22784	8054	11249	9849	9208	13362	21.3	25.5	9.0	12.6	11.0	10.3	15.0		9284	11118	3930	5489	4806	4493	
	Middle School 2				887			17007	18350	10488	12226	10697	15401	14028	19.2	20.7	11.8	13.8	12.1	17.4	15.8		8299	8954	5118	5966	5220	7515	
	Middle School 3				1,107			26379	21368	11318	12933	10017	10880	15483	23.8	19.3	10.2	11.7	9.0	9.8	14.0		12872	10427	5523	6311	4888	5309	
	Elementary School 1				432			7808	8505	4404	6408	6252	4963	6390	18.1	19.7	10.2	14.8	14.5	11.5	14.8		3810	4150	2149	3127	3051	2422	
	Elementary School 2				211			6732	6148	4750	5002	6293	5677	5767	31.9	29.1	22.5	23.7	29.8	26.9	27.3		3285	3000	2318	2441	3071	2770	
	Elementary School 3				547			15048	10345	7468	11544	8591	13655	11108	27.5	18.9	13.7	21.1	15.7	25.0	20.3		7343	5048	3644	5633	4192	6663	
	Elementary School 4				431			11050	10499	9140	8644	8179	14396	10318	25.6	24.4	21.2	20.1	19.0	33.4	23.9		5392	5123	4460	4218	3991	7025	
																					15.4								
Assisted Living	Assisted Living 1		55,910	60				10531	4556	4799	4799	2371	5088	5358	175.5	75.9	80.0	80.0	39.5	84.8	89.3		5139	2223	2342	2342	1157	2483	
	Assisted Living 2		10,450	54				2451	2586	2943	2428	2334	2791	2589	45.4	47.9	54.5	45.0	43.2	51.7	47.9		1196	1262	1436	1185	1139	1362	
	Assisted Living 3		8,000	43				1902	1894	1967	1900	1982	2019	1944	44.2	44.0	45.8	44.2	46.1	46.9	45.2		928	924	960	927	967	985	
	Assisted Living 4		15,120	49				1873	2068	1857	1551	1666	1820	1806	38.2	42.2	37.9	31.7	34.0	37.1	36.9		914	1009	906	757	813	888	
	Assisted Living 5		69,600	100																									

APPENDIX B

		Land Use Units						Water Use (GPD)							Raw Factor / Year (gpd/xx)							Totals (HCF)																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																									
Land Use Category	User (REDACTED)	DU	SF	Bed	Students	Room	Acres	2013	2014	2015	2016	2017	2018	Avg.	2013	2014	2015	2016	2017	2018	Avg.	2013	2014	2015	2016	2017	2018																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																				
Bakery/Coffee Shop	Bakery 1		2,100					111	135	133	197	268	141	164	52.7	64.4	63.4	93.7	127.8	67.3	78.2		54	66	65	96	131	69																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																			
	Bakery/Coffee Shop		3,000					424	451	465	725	430	373	478	141.4	150.3	155.1	241.8	143.5	124.3	159.4		207	220	227	354	210	182																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																			
	Bakery 2		2,550					98	107	113	113	98	107	106	38.6	41.8	44.2	44.2	38.6	41.8	41.5		48	52	55	55	48	52																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																			
	Coffee Shop 1		2,100					807	643	611	693	650	758	694	384.5	306.4	290.8	329.8	309.3	361.1	330.3		394	314	298	338	317	370																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																			
	Coffee Shop 2		1,500							92	98	109	115	103			61.5	65.6	72.4	76.5	69.0				45	48	53	56																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																			
	Bakery 3		2,100					119	131	115	94	94	115	111	56.6	62.5	54.6	44.9	44.9	54.6	53.0		58	64	56	46	46	56																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																			
	Bakery 4		2,100									162	164	201	176				77.1	78.1	95.6	83.6				79	80	98																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																			