

# Water Resources

May 2021



# Table of Contents

Policy and Regulatory Context.....	2
Emerging Trends .....	4
Existing Conditions .....	5
Water Supply .....	15
Conclusions/Issues and Opportunities.....	17
References.....	18

# Water Resources

*The purpose of this section is to provide current information on water resources, water quality, and water supply in the City of Ventura.*

*Key issue areas discussed in this section include:*

- *The hydrology of the local coast, surface water, watersheds, and groundwater.*
- *The City's stormwater management system and local flood hazard zones.*
- *Water quality of both surface and groundwater.*
- *The City's water supply.*

## Policy and Regulatory Context

### Urban Water Management Plan Act

The Urban Water Management Planning Act requires urban water suppliers to prepare and adopt an urban water management plan (UWMP) every five years. The plan supports long-term resource planning to ensure that adequate water supplies are available to meet existing and future water needs. The plan is required to discuss reliability of the water supply and vulnerability to seasonal or climatic shortage, to the extent practicable, and provide data for average, single-dry, and multiple-dry water years. The plan must also describe demand management measures and water shortage contingency plans.

### State Water Resources Control Board

The State Water Resources Control Board (SWRCB) regulates drinking water. Drinking water-related statutes are from the Corporations Code, Education Code, Food and Agricultural Code, Government Code, Health and Safety Code, Public Resources Code, and Water Code. Regulations are from Title 17 and Title 22 of the CCR.

### Sustainable Groundwater Management Act

The Sustainable Groundwater Management Act (SGMA) was passed in 2014 to create a framework for sustainable, local groundwater management in California. SGMA directed the Department of Water Resources (DWR) to identify priority groundwater basins for the purpose of implementing SGMA. Only high and medium priority basins are currently subject to SGMA requirements, including the requirement of Groundwater Sustainability Agencies (GSA) to develop Groundwater Sustainability Plans (GSP) for groundwater basins. GSPs were required to be submitted to DWR by January 31st, 2020. Implementation of GSPs will lead to changes in how groundwater basins are managed in order to bring over drafted basins back into balance. See Groundwater under Existing Conditions for information on local groundwater basins in Ventura.

## Los Angeles Regional Water Quality Control Board

The Los Angeles Regional Water Quality Control Board (RWQCB), one of nine Regional Boards statewide, is semi-autonomous and comprised of seven part-time Board members appointed by the Governor and confirmed by the Senate. The Regional Board makes water quality decisions for the region, including setting standards, issuing waste discharge requirements, determining compliance with those requirements, and taking appropriate enforcement actions. It also updates the Water Quality Control Plan for the Los Angeles Region, and keeps the public informed and involved on water quality issues. The RWQCB oversees surface water for the region. Drinking water regulations are discussed under a separate heading below.

### Ventura County Watershed Protection District

The Ventura County Watershed Protection District (VCWPD) provides for the control and conservation of flood and stormwaters, and for the protection and maintenance of watercourses, watersheds, and life and property in the District from damage or destruction from storm flows or flooding. The District was originally established in 1944 and is part of the Ventura County Public Works Agency. The District's goals emphasize long range, integrated watershed management to solve flood control problems with environmentally sound approaches. Watersheds managed by the District include the Ventura River, Santa Clara River, Calleguas Creek, Flood Zone 4, and coastal creeks.

## Federal Emergency Management Administration

The Federal Emergency Management Agency (FEMA) administers a National Flood Insurance Program (NFIP) that establishes floodways and zones on maps, imposes development and use standards, and issues policies of flood insurance. VCWPD collects a special property-related tax to fund regional compliance with FEMA's NFIP, monitor and study regional stormwater flows and systems, and to facilitate regional stormwater management cooperation. The City of Ventura collects information from FEMA, VCWPD, and its own stormwater management programs, facilitates FEMA NFIP development and compliance, and takes enforcement action when required to maintain compliance with FEMA's NFIP standards.

## National Pollutant Discharge Elimination System

The National Pollutant Discharge Elimination System (NPDES) is a permit program that addresses water pollution by regulating point sources that discharge pollutants to waters of the United States. It was created in 1972 by the Clean Water Act and is delegated to the State of California for implementation through the State Water Resources Control Board (SWRCB) and the nine RWQCBs. Local municipalities are required to obtain NPDES permit coverage and implement programs to reduce and eliminate pollutants from entering their municipal separate storm sewer systems (MS4). The Ventura Countywide NPDES MS4 Permit regulates MS4 discharges from the City of Ventura, County of Ventura, VCWPD, as well as other incorporated cities in the county. The City of Ventura's stormwater programs are discussed further under Existing Conditions.

## City Plans and Policies

Ventura Water assesses short and long-term water supply and demands through various planning efforts including the annual Comprehensive Water Resources Report and the Urban Water Management Plan. Results of these assessments confirm that the City's existing water consumption is currently near the

City's existing reliable water supply, and there exists a need for additional water resources, especially during drought periods, and that need is partially caused by new or intensified development. The following paragraphs provide more information on these planning efforts.

The City's annual Comprehensive Water Resources Report (CWRR) is a water management tool used 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 water supply picture including challenges and reliability of water sources. The City's latest CWRR is dated May 5, 2021, and is available on the City's website at the following URL: <https://www.cityofventura.ca.gov/1081/Library-of-Reports>. The 2021 CWRR was prepared concurrently with the City's 2020 Water Shortage Event Contingency Plan (WSECP), the 2020 Urban Water Management Plan (UWMP), and the 2021 Water and Wastewater Cost of Service and Rate Design Study, and the 2021 CWRR is therefore consistent with the content and findings of these plans and studies. The 2021 CWRR discusses the City's water supply sources and near-term and projected future demands.

As shown in Table ES-1 of the 2021 CWRR, the City's short-term projected supply buffer ranges from 14% to 22% over demand projections. While projected supply is greater than projected demand, the 2021 CWRR states that it will be important for Ventura Water customers to continue to conserve at levels similar to the past five years in order for water supplies to be sufficient; the City has worked to address long-term water demands with effective planning and development of additional future water supplies; and the City currently has two proposed water supply projects in the design and permitting stages: VenturaWaterPure and the State Water Interconnection Project.

The City also has a Water Shortage Event Contingency Plan (WSECP) which compares supply and demand projections to evaluate whether a water shortage exists. The City's WSECP includes stages of action to reduce demand up to 50% during a severe or extended water shortage event.

In addition, the City adopted the Water Resource Net Zero Ordinance in 2016; its purpose is to ensure that new development does not adversely affect the water supply or water supply reliability of the City's existing customers and/or approved new development. The Ordinance requires subject projects to offset new or increased water demand through one or more compliance options, including dedication of water rights, extraordinary conservation measures, and/or payment of a fee. Funds collected through the Net Zero Ordinance will be utilized to fund future water supply projects.

## Emerging Trends

### Climate Change

Climate change is having a progressively more profound impact on California water resources and this impact is expected to intensify in the coming decades. As a coastal city, Ventura is likely to be impacted by sea level rise over the next century, leading to backups in the drainage system and an increase of saltwater intrusion into local groundwater resources. Precipitation patterns are expected to change, leading to less snowpack and shorter, more intense storms. Drought and flood risk will both be more severe, leading to strains on the current water supply and stormwater infrastructure systems. Wildfire risk will also increase, threatening water quality and additional flooding due to the changed hydrological nature of burned watersheds.

## Increasing Federal Water Requirements

Since the last General Plan, there has been an increase in new and stricter federal water quality regulations. This includes changes to NPDES requirements, and new rules such as requiring no new net increase in runoff from development projects. These rules have required changes from both Cities and developers for new projects. The federal regulatory regime is expected to continue changing in the future, which the City will need to keep up with in order to ensure compliance.

## Drinking Water Regulations

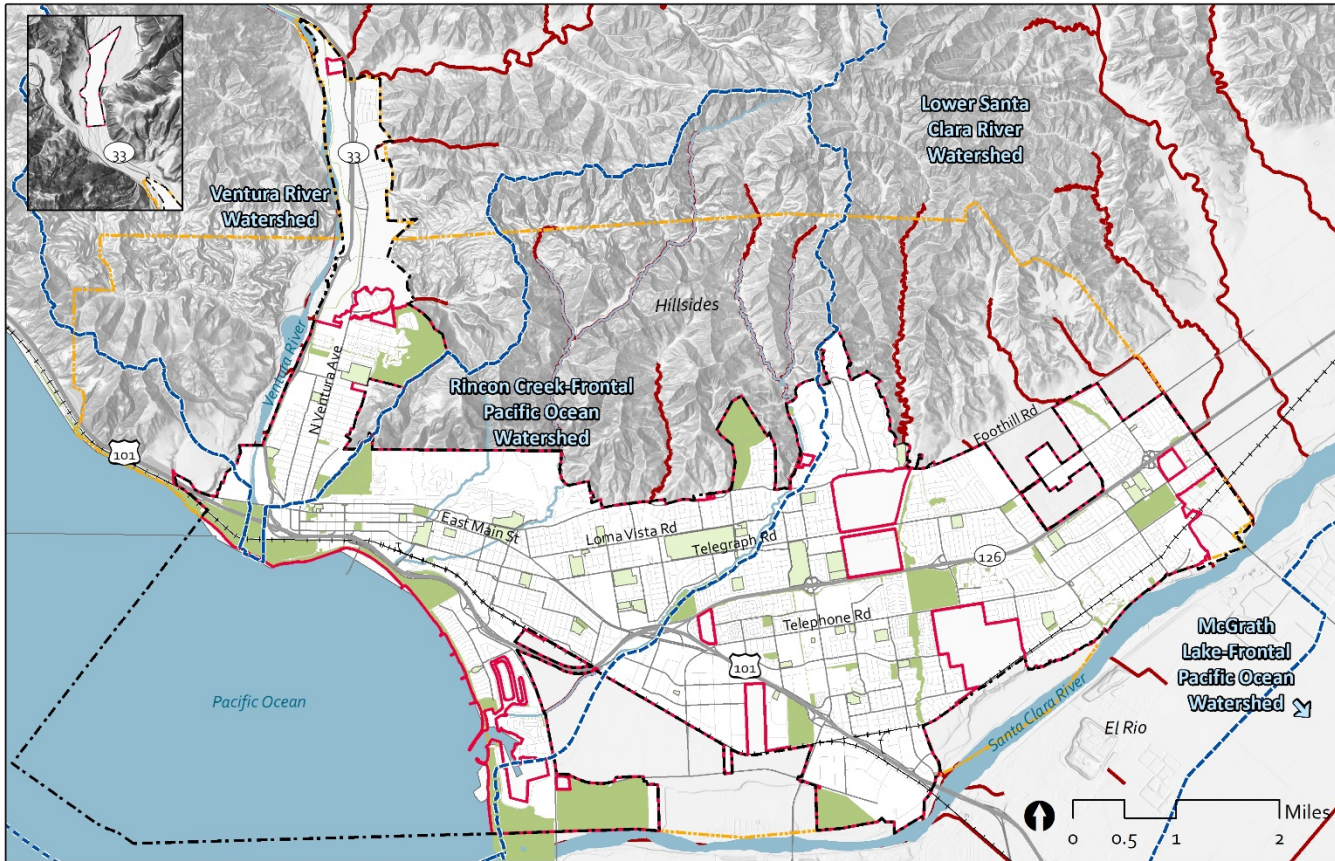
Major new drinking water regulations include the revised Lead and Copper Rule compliance, Cross Connection Control, and Water Loss. The State Water Resources Control Board (SWRCB) enforces the Lead and Copper Rule, this follows the EPA's mandates to protect drinking water. The purpose of the Cross Connection Control program is to reduce the hazard of cross connection contamination by installing backflow prevention where hazards are identified. The California Water Code mandates the SWRCB to develop water loss performance standards for urban retail water suppliers. These regulations assist drinking water to be in compliance to State and Federal limits.

## Existing Conditions

### Surface Water

The northern and western portions of the City lie within the Ventura River watershed, while the southern and eastern portions of the City lie within the Santa Clara River watershed. The hills to the north of the City lie within the Rincon Creek Frontal Pacific Ocean Watershed. The Ventura River flows south to the Pacific Ocean along the western edge of the city, and the Santa Clara River bisects the Oxnard coastal plain south of Ventura. Several seasonal barrancas, or winding river gorges, traverse the city in narrow incised drainage channels running down from the hillsides. The rivers, barrancas, and their watersheds provide underdeveloped open space, riparian vegetation, wildlife habitat and corridors, recreational opportunities, and aesthetic beauty. Surface water and watersheds are shown in Figure 1.

Figure 1: Surface Water and Watersheds in Ventura



**City of Ventura Surface Water and Watersheds**

- Ventura City Limits
- Sphere of Influence
- Planning Boundary
- Green/Open Space
- VCWPD Redline Channels
- Railroad
- Roadway

Data provided by City of Ventura, 2019, 2020.  
Additional data provided by U.S. Geological Survey, 2020.



## Flooding

Floods are a common occurrence in Ventura County, with large floods being recorded in 1969, 1998, and 2005, along with significant property damage. According to Flood Insurance Rate Maps prepared by FEMA, portions of Ventura lie within the 1 percent annual chance (100-year) flood zones identified as “Special Flood Hazard Areas”. These areas surrounded the City’s entire western and southern borders, where the City meets the Ventura River, Pacific Ocean, and Santa Clara River. Additionally, portions of Ventura lie within 0.2 percent annual chance (500-year) flood zones. These areas are concentrated in the lower central and far east portions of the City. FEMA flood hazard zones are shown below in Figure 2.



Figure 2: Flood Hazard Zones in Ventura



Data provided by City of Ventura, 2019, 2020.  
Additional data provided by FEMA, 2018.

**City of Ventura FEMA Flood Hazard**

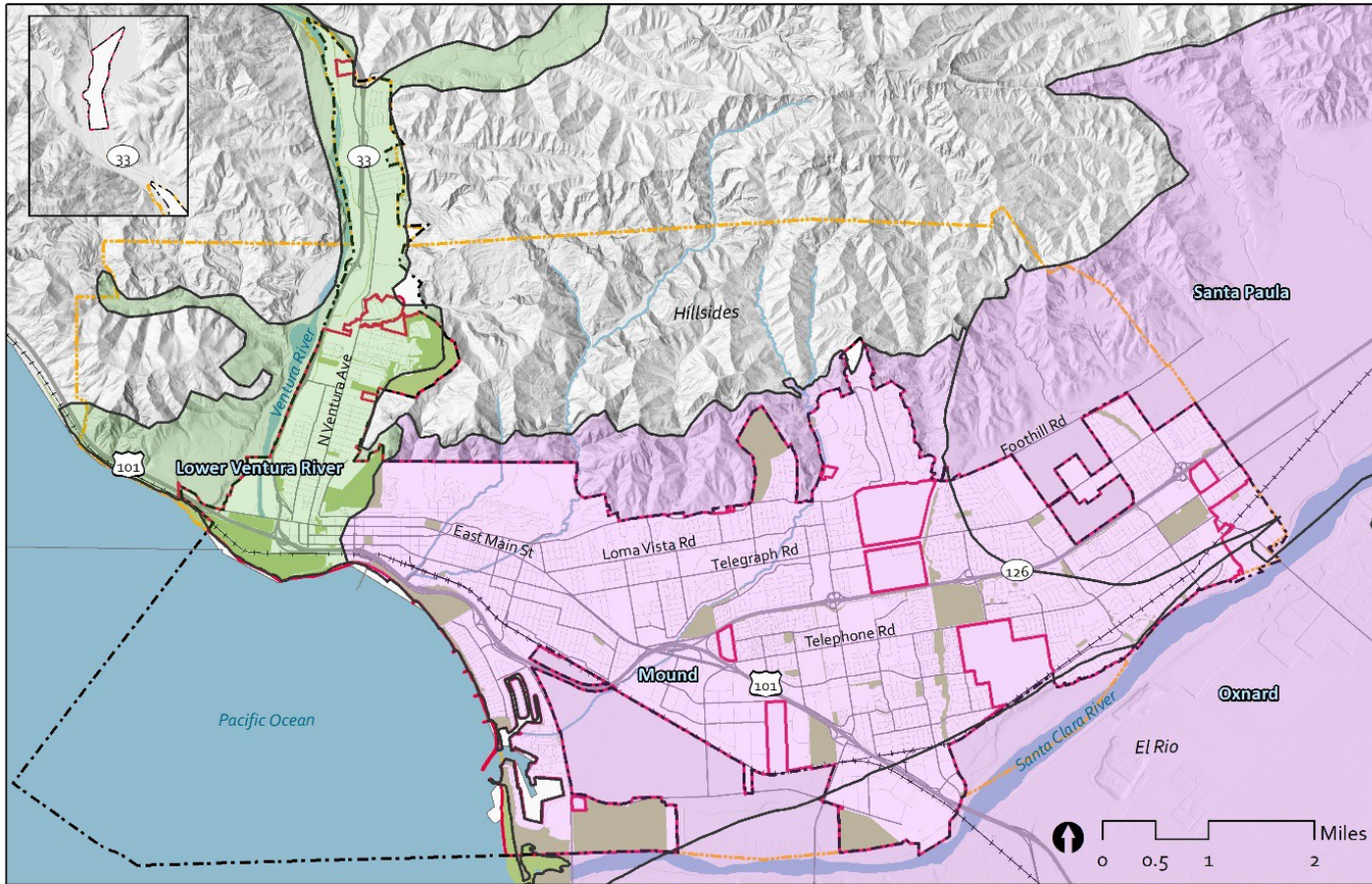
- |                     |                     |                     |
|---------------------|---------------------|---------------------|
| Ventura City Limits | Sphere of Influence | 100 Year Floodplain |
| Planning Boundary   | Green/Open Space    | 500 Year Floodplain |
| Railroad            | Roadway             |                     |



## Groundwater

The city predominately overlies the Santa Clara River Valley Basin, with the western portion of the city also spanning the Ventura River Valley Basin. The area of the Santa Clara River Valley Basin below the city is constituted of the Mound, Santa Paula, and Oxnard Subbasins, and the area of the Ventura River Valley Basin below the city is constituted of the Lower Ventura River Subbasin. The City of Ventura obtains a significant portion of water each year from the Santa Paula, Mound, and Oxnard Subbasins. Groundwater basins are shown below in Figure 3.

Figure 3: Groundwater Basins in Ventura



Data provided by City of Ventura, 2019, 2020.  
 Additional data provided by California Department of Water Resources, 2019.

**City of Ventura Groundwater Basins**

- |                     |          |                                |
|---------------------|----------|--------------------------------|
| Ventura City Limits | Railroad | Santa Clara River Valley Basin |
| Sphere of Influence | Roadway  | Ventura River Valley Basin     |
| Planning Boundary   |          | Subbasin Boundary              |
| Green/Open Space    |          |                                |



## Lower Ventura River Subbasin

The Lower Ventura River Subbasin spans 5,300 acres and underlies the northwestern portion of Ventura. It is bounded on the north by the Upper Ventura River Subbasin, on the south by the Pacific Ocean and Mound Subbasin of the Santa Clara River Valley Groundwater Basin, and elsewhere by near impervious rocks of the Santa Ynez Mountains. The valley is drained by Canada Larga and the Ventura River. Total storage capacity is estimated at 264,000 acre feet (AF). The basin is recharged by percolation of Ventura River water, precipitation to the valley floor, and irrigation return flow and by subsurface inflow from the Upper Ventura River Subbasin. The Lower Ventura River Subbasin was designated as very low priority by DWR under SGMA.

## Upper Ventura River Subbasin

The Upper Ventura River Subbasin is located in Ojai Valley, near the upper portion of the Ventura River. It flows from the Camino Cielo Bridge down to Foster Park past Casitas Springs. It is one of the main groundwater basins that supply water to the Ventura River Watershed and other nearby coastal watersheds. Average inflow and outflow from the basin have been consistent at about 10,000 AF per year over the last 60 years. The decline recently is due to the current multi-year drought. The Upper Ventura River Subbasin was designated as medium priority by DWR under SGMA. The City is located south of the basin but owns land in the basin and operates water production facilities in the southern part of the basin at Foster Park that provide a portion of the City's water supply. The Upper Ventura River Groundwater Agency was formed in 2016 by five public agencies, including: Ventura River Water District, Meiners Oaks Water District, the City of Ventura, Casitas Municipal Water District, and County of Ventura. In 2017, the agency became a Groundwater Sustainability Agency (GSA). The Upper Ventura River GSA is preparing a Groundwater Sustainability Plan (GSP). The Final GSP is required to be completed and submitted to DWR by January 2022.

## Mound Subbasin

The Mound Subbasin spans 14,800 acres and underlies the central part of Ventura. It is bounded on the north by the Santa Ynez and Topa Topa Mountains, on the south by the Oak Ridge and Saticoy faults, the northeast by the Santa Paula Subbasin, and the west by the Pacific Ocean. Total storage capacity is estimated to be about 153,000 AF. The majority of recharge to the Mound Subbasin is from percolation of surface flow in the Santa Clara River and other minor tributary streams. The Mound Subbasin was designated as medium priority by DWR under SGMA.

The Mound Basin Groundwater Sustainability Agency (MBGSA) was created in 2017 by several agencies using a Joint Power Agreement and became a Groundwater Sustainability Agency in June 2017. The MBGSA includes United Water Conservation District, the County of Ventura, the City of Ventura, the Mound Basin Ag Water Group (agricultural stakeholder), and an environmental stakeholder. The MBGSA is preparing a GSP. The Final GSP is required to be completed and submitted to DWR by January 2022.

## Santa Paula Subbasin

The Santa Paula Subbasin spans 22,800 acres and underlies the eastern part of Ventura. It is bounded on the north by the Topa Topa Mountains, the south by the Oak Ridge and South Mountain, the Oak Ridge fault, and the Saticoy fault, the east by a bedrock constriction, and the west by the Oxnard Plain and Mound Subbasins. Total storage capacity is estimated to be between 754,000 AF and 800,000 AF. Recharge to the subbasin is provided by percolation of surface flow in the Santa Clara River, Santa Paula Creek, and other minor tributary streams. The Santa Paula Subbasin is exempt from the GSA process, as

it is adjudicated and managed under a stipulated judgment. It is currently only subject to annual reporting requirements to DWR under SGMA.

### Oxnard Subbasin

The Oxnard Subbasin spans 58,000 acres and is located south of Ventura across the Santa Clara River. The basin is bounded on the north by the Oak Ridge fault and the Santa Clara River, the south by the Santa Monica Mountains, the east by the Pleasant Valley and Las Posas Valley Basins, and the west by the Pacific Ocean. Total storage capacity is estimated to be between 1,800,000 AF and 10,500,000 AF. Recharge to the subbasin is provided by percolation of surface flow from the Santa Clara River, into the Oxnard Forebay. The Oxnard Subbasin was designated as high priority by DWR under SGMA. The Fox Canyon Groundwater Management Agency (FCGMA) was named as the GSA for the Oxnard Basin and the City participated in the development of the GSP for the Oxnard Basin. The FCGMA Board adopted the GSP at a public hearing on December 13, 2019.

## Stormwater

Stormwater runoff travels from the hills above Ventura through the City until it is absorbed into the ground or reaches the Ventura River, the Santa Clara River, or the Pacific Ocean. To convey the occasional high flows associated with storms, the VCWPD oversees about 20 natural or concrete lined barrancas that serve as the major drainage courses for local watersheds. The City has about 20 miles of off-street drain system designed to convey runoff from all but the most severe storms, in which case water also runs off via city streets. These systems must be constantly maintained in order to function properly. In the future, systems may need to be upgraded to handle more intense storms due to the impacts of climate change.

### Stormwater Pollution

As stormwater and non-stormwater flow over landscapes and impervious surfaces, it accumulates pollutants such as debris, chemicals, sediment, and bacteria that can adversely affect water quality. This runoff flows through local creeks, rivers, and lakes, eventually draining untreated into the ocean. Ventura is a participant in several Countywide programs aimed at reducing and eliminating stormwater pollution impacts, including the Ventura County Community for a Clean Watershed Program, which helps residents understand how to respect and protect local watersheds, and the Ventura Countywide Stormwater Quality Management Program, which works to improve stormwater quality and monitors compliance requirements of the Ventura Countywide Stormwater Permit. The City of Ventura is a co-permittee under the Ventura County stormwater permit, or municipal separate storm sewer system (MS<sub>4</sub> Permit) issued by the Los Angeles RWQCB. The MS<sub>4</sub> Permit requires implementation of construction-era and postconstruction control measures for new development and significant redevelopment projects, requiring such projects to capture, retain, and treat on-site runoff. The MS<sub>4</sub> Permit also promotes low impact development techniques, such as constructed greenspaces, native landscaping, and bioretention and infiltration best management practices. In the summer of 2021, the new MS<sub>4</sub> Permit will require large construction projects to capture and infiltrate stormwater runoff. The cost for these projects could exceed \$10 million. Currently there are no identified funding sources to cover these costs.

In addition to the MS<sub>4</sub> Permit, construction projects in the city are subject to the requirements of the NPDES Construction General Permit. For all projects exceeding one acre of disturbance area, the Construction General Permit requires construction site operators to prepare and implement a Stormwater Pollution Prevention Plan that outlines project-specific best management practices to

control erosion, sediment release, and otherwise reduce the potential for discharge of pollutants in stormwater.

## Water Quality

### Surface Water Quality

Ventura is under the jurisdiction of the Los Angeles RWQCB, which sets water quality objectives and monitors surface water quality through the implementation of the Water Quality Control Plan for the Los Angeles Region (Basin Plan), adopted in 1994 and updated through regular amendments. The Basin Plan designates beneficial uses for surface waters in the region and associated water quality objectives to fulfill such uses.

Surface water from the Ventura River contains natural organics, which results in the formation of disinfection by-products during the treatment and disinfection processes for these organics. Turbid water and high levels of organics, such as after heavy rainstorms, can result in treatment issues and high levels of disinfection by-products in the finished water. During these times, which typically occur during rainy months, water from the Ventura River may be significantly reduced until the water quality improves.

The City of Ventura currently has three active total maximum daily loads (TDML). The TDML's include Ventura River Trash (adopted in 2008), Santa Clara River Bacteria (adopted in 2012), and the Ventura River Algae (adopted in 2013).

The Los Angeles RWQCB 2014-2016 List of Water Quality Limited Segments lists the following areas within the City as areas where water quality is a concern: San Buenaventura Beach; Ventura Harbor; Ventura Keys; Ventura Marina Jetties; Sanjon Barranca Creek; Surfers Point; Santa Clara River; and the Ventura River. Water quality is subject to seasonal variation. Common sources of water quality degradation in the Ventura area include surface runoff from oil fields, agricultural areas, urban land uses, and natural sedimentation. Best Management Practices (BMPs) are typically employed during construction to maintain water quality and must be consistent with anticipated pollutant loads and water quality objectives.

### Drinking Water Quality

The City's east side receives its drinking water from groundwater wells and has substantially higher levels of total dissolved solids (TDS) and minerals (hardness) compared to the water delivered to Ventura's west end. As such, groundwater from multiple wells in both the Mound and Oxnard Plain basins are treated and blended at the Bailey Treatment Plant to achieve the lowest TDS levels possible without sacrificing supplies. The City's initial target is to lower TDS levels in the eastern portion of the system to 1,000 ppm by 2025 with possible further reductions in the future. According to the latest Consumer Confidence Report, Ventura's drinking water sources are within current Federal and State levels for primary drinking water standards.

The City's west side receives its drinking water from surface water sources (Lake Casitas and Ventura River). Treated surface water from Lake Casitas has historically had levels of disinfection by-products that occasionally exceeded the respective maximum contaminant levels (MCLs) for total trihalomethanes (TTHMs) and haloacetic acids (HAAs). In cases when the levels of TTHMs and HAAs are exceeding or near exceeding the respective MCLs, the City will typically reduce the intake of Casitas water until the issue passes. Casitas will be implementing potential treatment options to reduce the formation of disinfection by-products in their finished water.

## Groundwater Quality

Since the City uses groundwater from various sources to provide part of its water supply (including drinking water) to the citizens of Ventura, groundwater quality is an important public health and public services issue. As discussed in the Drinking Water Quality section and the descriptions of the groundwater basins serving the city above, there are groundwater quality issues in some of the groundwater basins serving the city. Issues affecting the city's groundwater quality are discussed below.

CalEnviroScreen (CES), an online mapping tool provided by the California Office of Environmental Health Hazard Assessment (OEHHA), helps identify California communities that are most affected by many sources of pollution, and where people are often especially vulnerable to pollution's effects (OEHHA, 2021). As discussed in the Environmental Justice and Health Assessment, groundwater quality in CES 3.0 is measured by identification of potential groundwater threats from underground storage tanks (UST) and cleanup sites, assessment of the status of USTs or related cleanup activities, and proximity of these sites to populated census blocks. Leaking tanks can affect drinking water and expose people to contaminated soil and air and cleanup or remediation can be costly and take many years to complete, therefore proximity to the sites is considered a potential exposure to pollution burden. All information regarding leaking tanks and cleanup sites in CES 3.0 comes from the GeoTracker Database of the State Water Resources Control Board (SWCRB). The screened database shows that virtually all sites identified in CES 3.0 as potential groundwater threats are located on the western and southern half of the city. Figure 29 of the Environmental Justice and Health Assessment shows how these sites have been summed and assigned a percentile score, with several census tracts in the city scoring in the top 25 percentile for potential groundwater threats.

There are many other sources of groundwater contaminants not included in CES 3.0 which impact drinking water on the eastside of the city. Some of the sources of contaminants are natural, others were introduced into aquifers through human activities. While the city's water sources are within current and anticipated CalEPA and SWCRB Division of Drinking Water (DDW) levels for primary water quality standards, contaminants are present and outside of levels for secondary water quality standards.<sup>1</sup>

According to the City's 2020 Urban Water Management Plan (UWMP), the city's eastside receives its water from groundwater wells and has significantly higher levels of total dissolved solids (TDS) and minerals (hardness) compared to the water delivered to Ventura's west end (City of Ventura, 2021a). As such, TDS levels in excess of 1,000 parts per million (ppm) are experienced on a daily basis in the eastern portions of the system. To meet secondary water quality standards, the DDW encourages the City to explore ways to limit TDS levels to 1,000 ppm. Groundwater from multiple wells in both the Mound and Oxnard Plain basins are treated and blended at the Bailey Treatment Plant to achieve the lowest TDS levels possible without sacrificing supplies. The City's initial target is to lower TDS levels in the eastern portion of the system to 1,000 ppm by 2025 with possible further reductions in the future.

In addition to groundwater in the Mound Basin being known for high concentrations of TDS, the 2020 UWMP identifies high concentrations of sulfate in some portions of the Mound Basin which exceed the state sulfate secondary maximum contaminant level (MCL) of 500 ppm. The Ventura Water 2021 Consumer Confidence Report (CCR) for Drinking Water shows an average of 655 ppm and a range of 563-797 ppm for sulfate concentration in groundwater, an increase from the average of 557 ppm and range of 445-669 identified in 2015 (City of Ventura, 2021b). While the content and concentration of minerals in water is not static and there is variance over time in the ppm measured for groundwater in Ventura, the average ppm has increased and remained above the secondary MCL of 500 ppm almost every year

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<sup>1</sup> Primary water quality standards refer to protection of public health thresholds and secondary standards refer to thresholds for aesthetics, taste, and odor.

between the 2015 and 2021 CCRs. Nevertheless, this is not considered a limitation for using groundwater supplies from the Mound Basin, according to the 2020 UWMP.

Lastly, the SWRCB and the United States Geological Service (USGS), as part of the Groundwater Ambient Monitoring and Assessment (GAMA) Priority Basin Project, have conducted additional studies to examine the quality of groundwater in the Santa Clara River Valley that serves the City of Ventura. The GAMA Priority basin Project sampled wells for common contaminants and non-regulated constituents to assist public and private groundwater stakeholders in managing California's groundwater resources. The SWRCB has established a water quality control plan and objectives for reductions in pollutants to be achieved for the Santa Clara River.

## Dams

If the Casitas or Santa Felicia dams were to fail, they would have the potential to flood the City of Ventura. The Casitas Dam is located on Coyote Creek that forms Lake Casitas near Ojai and is part of the Ventura River Project. Lake Casitas has a capacity of 254,000 acre-feet and stores water for irrigation and municipal use in the Casitas Municipal Water District service area. The Santa Felicia Dam is in Los Padres National Forest and Topatopa Mountains of Ventura County and is a 87,187 acre feet (AF) reservoir. Both dams have areas of potential inundation in the City of Ventura.

If the Castaic and/or Pyramid dams were to fail, they would have the potential to flood the lower portion of the Victoria Avenue Corridor. Castaic Dam was built between 1965 and 1974 and is approximately 47 miles to the northeast of Ventura. Its reservoir, Castaic Lake, holds 324,000 acre-feet of water. The Pyramid Dam was built between 1969 and 1973 and is an additional 15 miles north of the Castaic dam. Its reservoir, Pyramid Lake, holds 222,000 acre-feet. Both dams meet applicable safety requirements and are inspected by the Division of Dam Safety and the California Department of Water Resources twice per year to ensure compliance and that any necessary maintenance is performed.

## Water Supply

The City of Ventura currently receives 100 percent of its water from local water sources. The sources include surface water from Lake Casitas and Ventura River, groundwater from three groundwater basins (Oxnard Plain, Santa Paula, and Mound basins), and recycled water. The City's water supply capacity is 22,189 AF and the current water supply is 15,744 AF under drought conditions for 2020. Due to the continued drought conditions water supplies will be significantly challenged with future water demands. More information on the characteristics of each groundwater basin are provided in the Groundwater section of this report.

The City purchases treated water from Casitas Municipal Water District (Casitas). Lake Casitas is located in Ventura County and is dependent on local water supplies in the forms of local rainfall, the Ventura River Watershed, and local groundwater. Based on the 2017 agreement between the City and Casitas, Casitas shall supply the City with sufficient water to meet its in-district projected water demand. 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 2020 water supply capacity from Casitas is 5,421 AFY.

Water from the Ventura River is collected through facilities located at Foster Park, which include a surface diversion, subsurface collector, and shallow wells. The water is treated at the Avenue Treatment Plant prior to entering the City's distribution system. The City's current water supply capacity from the Ventura



River is 4,200 AFY. However, the City's ability to draw water from the Ventura River continues to be challenged and impacted by proposed regulatory and environmental constraints and pending litigations.

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

The City's pumping allocation in the Oxnard Plain Basin is 4,827 AFY effective January 1, 2020. According to the 2021 CWRR, the projected future supply for the Oxnard Plain Basin for 2022 and 2023 is 5,181 AFY and 5,058 AFY respectively. According to the 2021 CWRR, however, the GSP for the Oxnard Subbasin 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 44% by 2040.

The City's water supply capacity from the Santa Paula Basin is 3,041 AFY.

The City collects and treats wastewater at the Ventura Water Reclamation Facility (VWRF). The VWRF is permitted at 14 million gallons per day (MGD). 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 water supply capacity is 700 AFY.

The City has two proposed water supply projects in the planning stages: VenturaWaterPure and the State Water Interconnection Project, to ensure the City has adequate supplies for future demand under various climatic conditions.

According to the 2021 CWRR, the 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 580 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 future water supply provided by the VenturaWaterPure Program is projected to be 2,800 AFY after 2025. It is expected that the AWPF will begin producing at least 4,000 AFY of treated water after 2030 once Phase 1B of the VenturaWaterPure Program is complete.

According to the 2021 CWRR, 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 State Water Project (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 the United Water Conservation District 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.

## Conclusions/Issues and Opportunities

The following identifies issues and opportunities related to water resources that can be addressed in the General Plan Update:

1. The City's stormwater and flood prevention infrastructure should be evaluated during the development of the Vulnerability and Resiliency Report, to assess whether the system is being properly maintained and is able to meet the challenges of sea level rise due to climate change.
2. With SGMA, climate change, environmental and regulatory requirements, and pending litigation, the ability for existing supply sources to meet existing and future potable water demands will be a challenge.
3. Development projects in the City may continue to be impacted by new State and Federal water quality requirements. It is important that the City keeps up to date with regulations to ensure compliance.

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