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To: Water Resources Advisory Committee (WRAC)

From: Kylie Hensley, Planner

Date: May 28, 2020

**Subject: 6-3-20 Meeting – Provide Feedback on District 2 Revisions for 2016-2018 Resource Summary Report & Update on New Development in Los Osos**

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### **Request**

County Planning staff requests the WRAC receive a presentation and provide feedback on:

- 1) Revisions to the 2016-2018 Resource Summary Report to include the District 2 sections that were previously extracted, with an updated assessment of the Los Osos water supply to reflect the most recent annual monitoring reports prepared for the Los Osos Basin Management Committee and clarification of agricultural and rural water supply and demand estimates, and
- 2) The proposed process to allow new development in Los Osos consistent with the available sustainable water supply based on implementation status of the Updated Basin Plan for the Los Osos Groundwater Basin (“Basin Plan”).

### **Discussion**

#### ***Revisions to 2016-2018 Resource Summary Report (“RSR”)***

The RSR is an alert system that assigns Levels of Severity (LOS) to resources to indicate deficiencies to meet existing or forecasted community need. There are three LOS levels – I, II, and III – with LOS III indicating the highest level of concern. The RSR is informational and not a policy document. The LOS designation does not specify policies; rather, it identifies an area of concern that the Board of Supervisors may choose to implement policies to address.

On March 12, 2019 the Board of Supervisors received and filed the 2016-2018 RSR, excluding District 2 entities due to concerns about the water supply analysis for District 2 areas, specifically agricultural and rural water demand and supply estimates and the Los Osos water supply assessment. On **July 7, 2020**, County Planning will submit a revised 2016-2018 RSR to the Board of Supervisors that includes the extracted District 2 sections with an updated assessment of the Los Osos water supply and clarification of the agricultural and rural water supply and demand estimates for District 2 areas. Although the RSR is for fiscal years 2016-2017 and 2017-2018, information from the most recent 2019

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annual monitoring report prepared for the Los Osos Basin Management Committee is also included. The revisions are summarized as follows:

- 1) Updated Los Osos water supply section. The revised RSR assigns a Level of Severity to the Los Osos Basin Plan area instead of the Los Osos Water Planning Area and includes updated information about the implementation status of the Los Osos Basin Plan, based on data from the 2016-2019 annual monitoring reports prepared for the Los Osos Basin Management Committee, which is composed of the three water purveyors and the County. The Basin Plan recommends programs to address nitrate contamination in the Upper Aquifer and seawater intrusion in the Lower Aquifer. Although much progress has been made in Los Osos with construction of the Los Osos Water Reclamation Facility to remove the nitrate contamination point source and successful implementation of water use efficiency technologies to reduce water demand, the revised RSR continues to recommend a Level of Severity III because the programs recommended for immediate implementation in the Basin Plan to halt and reverse seawater intrusion have not been completed. At least two expansion wells to shift production into the Upper Aquifer and inland remain to be constructed for Basin Infrastructure Programs "A" and "C". Also, the estimated water supply based on modeling of the basin is being verified with ongoing monitoring. The LOS may be reduced as the programs are completed and depending on monitoring results. The revised Los Osos water supply section of the RSR circulated for public review is in Attachment 2.
  
- 2) Clarification of agricultural and rural water demand and supply estimates. The revised RSR includes the following footnote beneath the water supply and demand analysis tables in the District 2 water supply sections (San Simeon, Cambria, Cayucos, Los Osos) to clarify the methodology for the agricultural and rural estimates:  
*Agricultural and rural demand and supply have a high margin of error. The calculations are based on linear regressions of estimates in the 2012 Master Water Report and 2014 Integrated Regional Water Management Plan for the **XXX Water Planning Area**. These reports base demand on crop-specific applied water factors and 2013 irrigated crop data from the Ag Department. They do not account for livestock operations.*

The revised RSR also includes an updated map of the water purveyor service areas for each District 2 water supply section showing the 2014 water planning area boundaries on which the agricultural and rural water demand and supply estimates are based to clarify the area to which the Level of Severity is assigned, except for Los Osos. The Los Osos water supply section includes an updated map showing the

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Basin Plan Area and Los Osos Groundwater Basin Boundary as defined in the Basin Plan.

- 3) Edits to Agricultural Water Demand Forecasts. The revised RSR lowers several of the forecasted agricultural water demand values for San Simeon and Cayucos to fix errors in the linear regression calculation.

### ***New Development in Los Osos***

County Planning is preparing to take the Estero Area Plan Los Osos Urban Area (commonly known as the “Los Osos Community Plan”) and Community-Wide Habitat Conservation Plan through the hearing process for final adoption. The draft Los Osos Community Plan requires new dwelling units to be limited with a growth rate in the Growth Management Ordinance, Title 26 of County Code, based on the available sustainable basin yield as determined by the status of Basin Plan program implementation and annual monitoring of Basin Plan program effectiveness, program modifications, and water usage trends.

New development in the Los Osos sewer service area has been restricted since the 1990s based on the Regional Water Quality Control Board’s moratorium on new septic systems in this area and a condition of the Coastal Development Permit for the Los Osos Water Reclamation Facility (“LOWRF”) that requires the updated Los Osos Community Plan and Community-Wide Habitat Conservation Plan (“HCP”) for Los Osos to be adopted before the LOWRF may serve vacant parcels. Once the Community Plan and HCP have been adopted, the LOWRF may serve vacant parcels in its service area. There is currently a waitlist for vacant parcels in the sewer service area to apply for building permits for new dwelling units with requests for 215 new single family dwelling units and 130 new multi-family dwelling units.

On **July 7, 2020**, County Planning is introducing GMO amendments to the Board of Supervisors to be considered for adoption on **August 18, 2020** to establish a growth rate for new dwelling units in the Los Osos Urban Area (except those units that are exempt) of 0% until the six Basin Plan Programs recommended for immediate implementation are complete and 1.3% for five years once the programs are complete, as certified by a Board resolution, accounting for program modifications made through the Plan’s adaptive management provision. The 1.3% growth rate was calculated using the formula for compounding annual growth rate because the GMO specifies the annual increase in new dwelling units shall be based on the number of existing units, which will compound over time. The 20-year buildout timeframe of the draft Los Osos Community Plan was used in the formula to allow the growth rate to be sufficient to allow residential buildout if maintained beyond the initial 5 year time period. 35% of the 1.3% annual increase is reserved for multi-family dwellings, and 80% of the annual increase allowed for single

family dwellings is reserved for use within the sewer service area, with preference given to the existing waitlist.

This growth rate would allow an annual increase of 82-86 new dwelling units each year, 11 outside and 71-75 within the sewer service area with an estimated 12-13 AFY annual increase in water demand for five years, for a total increase of 421 new dwelling units and 63 AFY estimated increase in water demand over five years. All of the dwelling units requested on the existing waitlist could be built within the five years if the maximum allowed number was built each year. The 63 AFY proposed estimated increase in residential urban water demand over five years is significantly less than the difference between estimated sustainable basin yield and 2019 total groundwater extraction. In 2019, the total groundwater production was estimated as 1,900 AFY, 69% of the estimated sustainable basin yield of 2,760 AFY once the Basin Plan Program A 8<sup>th</sup> Street expansion well is complete, as required by the draft Los Osos Community Plan before new development may occur. The Basin Plan recommends pumping 80% of sustainable yield or less to account for uncertainties such as climate change and inaccuracies in basin modeling. The growth rate calculations and proposed GMO amendment are available at:

[www.slocounty.ca.gov/LosOsosPlan.aspx](http://www.slocounty.ca.gov/LosOsosPlan.aspx)

Note: Affordable housing, agricultural worker dwellings, accessory dwellings, and replacement dwellings are exempt from the GMO growth rate and would continue to be allowed while there is a 0% growth rate.

Note: The Title 19 requirement to offset water use for new construction at a 2:1 ratio with retrofits completed by the project applicant will remain in place. The Planning Director has the discretion to allow new water use efficiency technologies to meet the offset requirement.

### **Public Comment Period**

Please email comments to [khensley@co.slo.ca.us](mailto:khensley@co.slo.ca.us) by June 26, 2020.

### **Board of Supervisors Hearing Dates**

July 7, 2020 – Submittal of revised RSR and introduction of GMO amendment

August 18, 2020 – Hearing to consider adopting GMO amendment and Los Osos Community Plan

### **Attached:**

- 1) Presentation
- 2) Revised Los Osos water supply section of RSR

# District 2 Revisions to the 2016-2018 Resource Summary Report & New Development in Los Osos

Water Resources Advisory Committee (WRAC)  
June 3, 2020



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## Background – RSR & GMO

- **Resource Summary Report (“RSR”)**
  - Informational document to alert the Board of Supervisors of existing and forecasted resource deficiencies.
  - Assigns Level of Severity (“LOS”) to resources – I, II, or III – with III indicating highest concern.
  - Board of Supervisors may choose to implement policies to address identified resource deficiencies.
  - Not a policy document.
- **Growth Management Ordinance (“GMO”)**
  - Establishes an annual growth rate for new dwelling units.
    - 2.3% Countywide. 1.8% Nipomo Mesa and 0% Cambria based on water supply concerns.
    - Exempts affordable housing, ag worker dwellings, ADUs



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## Background – Los Osos Development

- **Community Plan.** The Los Osos Community Plan (“LOCP”) and Community-Wide Habitat Conservation Plan (“HCP”) will be brought to the Board of Supervisors for adoption this year.
- **Waitlist.** Vacant lots in sewer service area have been unable to apply for construction permits since 1990s. There is a waitlist for 215 single family and 130 multi-family dwelling units. Once LOCP and HCP are adopted, vacant lots in sewer service area would be allowed to build.
- **Growth Rate.** LOCP requires an annual growth rate in GMO for new residential development based on available water supply, as assessed in most recent RSR and annual basin reporting.
  - **July 7, 2020 BOS** – Proposed amendment to GMO to establish a growth rate for Los Osos will be introduced to the Board of Supervisors.
  - **August 18, 2020 BOS** – Board of Supervisors will consider GMO amendment with the Los Osos Community Plan for adoption.



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## Background – RSR District 2 Revisions

- **March 12, 2019 BOS** – Board of Supervisors adopted the 2016-2018 RSR and extracted District 2 information due to concerns with the water supply sections.
- **July 7, 2020 BOS** – Revised 2016-2018 RSR will be submitted to Board of Supervisors to include the District 2 information with the following revisions:
  - Clarify agricultural and rural water demand and supply estimates.
  - Update agricultural and rural water demand forecasts for Cayucos and San Simeon.
  - Update Los Osos water supply section to reflect most recent annual monitoring report prepared for the Basin Management Committee.



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## Clarify Ag and Rural Water Demand

The revised RSR includes this language in footnote for District 2 water supply sections (San Simeon, Cambria, Cayucos, Los Osos):

*Agricultural and rural demand and supply have a high margin of error. The calculations are based on linear regressions of estimates in the 2012 Master Water Report and 2014 Integrated Regional Water Management Plan for the **XXX Water Planning Area**. These reports base demand on crop-specific applied water factors and 2013 irrigated crop data from the Ag Department. They do not account for livestock operations.*

The revised RSR includes updated maps of the water service areas to show the 2014 Water Planning Area Boundary, the area to which the agricultural and rural water demand forecasts apply.

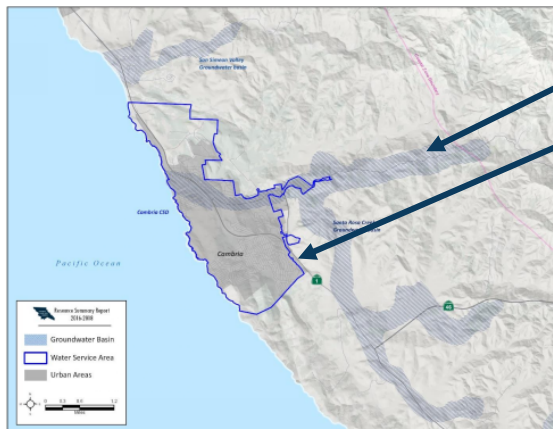


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## Previous Map - Cambria for Example



Groundwater Basins

Water Service Area

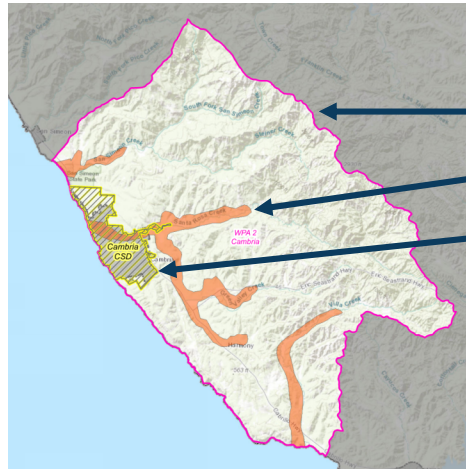


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## New Map - Cambria for Example



2014 Water Planning Area

Groundwater Basins

Water Service Area



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## Update Ag Water Demand Forecasts

**Table II-10 - San Simeon Area:  
Existing and Forecasted Water Supply and Demand  
Based on the 1996 Coastal RMS Criteria**

Demand	San Simeon CSD	Agriculture <sup>3</sup>	Rural <sup>2</sup>
FY 2017/2018 Demand (AFY)	66.1 <sup>1</sup>	70	20
Forecast Demand In 7 Years (AFY)	156	85-57	33
Forecast Demand in 9 Years (AFY)	178	89-53	37
Buildout Demand (30 Or More Years) (AFY) <sup>2</sup>	250 <sup>2</sup>	10-60	50



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## Update Ag Water Demand Forecasts

**Table II-13 – Cayucos Area:  
Existing and Forecasted Water Supply and Demand  
Based on the 1996 Coastal RMS Criteria**

Demand	Morro Rock MWC	Cayucos Beach Water Assoc.	CSA 10A	Cayucos Cemetery District	Agriculture <sup>5</sup>	Rural <sup>5</sup>
FY 2017/2018 Demand (AFY) <sup>1</sup>	100.2	130.5 <sup>1</sup>	94.4 <sup>1</sup>	Not provided	562	91
Forecast Demand in 7 Years (AFY)	128	165	202	17	584	109
Forecast Demand in 9 Years (AFY)	138	178	234	18	690590	114
Buildout Demand (30 Or More Years) (AFY)	164-173	207-218	220-232	17-18	430-800	130-140



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## Updated Los Osos Water Supply Section

- o Groundwater basin is sole water source.
- o Septic systems contaminated Upper Aquifer with nitrate.
- o Overpumping in Lower Aquifer causing seawater intrusion.
- o Los Osos Water Reclamation Facility ("LOWRF") reduced number of septic systems.
- o Nitrate contamination should degrade over time, needs to be removed from drinking water until then.
- o 2015 Updated Basin Plan for the Los Osos Groundwater Basin ("Basin Plan") prepared by three water purveyors and County for groundwater rights litigation settlement **recommends six programs for immediate implementation** to halt and reverse seawater intrusion to meet existing demand and allow for marginal development.
- o Seawater intrusion front has retreated from 2016 position.



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## Los Osos Basin Plan Programs

Six programs recommended for immediate completion:

**1. Program "M" – Groundwater Monitoring**

In place, ongoing annual reporting.

**2. Program "E" – Urban Water Use Efficiency**

99% complete, 44 properties remain to be retrofitted and connected to the LOWRF.

**3. Program "U" – Urban Water Reinvestment**

In place, ongoing supply of treated wastewater from the LOWRF to the Broderon and Bayridge Estates leach fields and Sea Pines Golf Course. Annual monitoring detects a small mound detected hydraulically downgradient of Broderon leach field beginning in June 2017. New adaptive management efforts include a creek discharge program and storm water recovery project.



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## Los Osos Basin Plan Programs

**4. Program "A" – Infrastructure Program A**

One expansion well to be constructed.

**5. Program "C" – Infrastructure Program C**

One or two expansion wells to be constructed, depending on capacity of the first well.

**6. Program "P" – Wellhead Protection**

Drinking Water Source Assessment and Protection surveys to be completed

Program status based on 2019 annual monitoring report prepared for the Los Osos Basin Management Committee.



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## Los Osos Basin Plan Programs

Potential programs not yet initiated that could accommodate buildout:

- **Program “B” - Infrastructure Program B**  
Construct a community nitrate removal facility and additional purveyor wells to maximize production from the Upper Aquifer.
- **Program “D” - Infrastructure Program D**  
Construct additional purveyor wells to shift groundwater production within the Lower Aquifer inland to induce less seawater intrusion.



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## Los Osos Basin Plan Programs

- **Program “G” - Agricultural Water Reinvestment**  
Offset agricultural pumping with recycled treated wastewater from the LOWRF.
- **Program “S” - Supplemental Water**  
Offset groundwater pumping with supplemental sources such as rainwater harvesting, stormwater capture, greywater reuse, and groundwater desalination.

The Basin Plan includes an adaptive management provision that allows programs to be modified and new programs created.



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## Level of Severity III

"Based on the 1996 Coastal RMS Criteria, **Recommended Level of Severity III**. While in 2018 and 2019 water supply was estimated as sufficient to meet demand, the RSR conservatively estimates LOS III for the Los Osos Basin since the Basin Plan programs for immediate implementation were not completed as of the end of the 2016-2018 RSR reporting period. The LOS may be revised down as the Basin Plan programs are completed and depending on basin monitoring results."



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## Los Osos Urban Area Growth Rate

**compounding annual growth rate for buildout by 2040**  

$$= (\text{buildout units/existing units})^{(1/\text{years})} - 1$$

$$= (8,182/6,321)^{(1/20)} - 1 = 1.3\%$$

- 0% until six Basin Plan Programs recommended for immediate implementation are complete (at least two expansion wells remain to be completed).
- 1.3% for 5 years for new residential growth once these Basin Plan Programs are complete.
  - 35% reserved for multi-family units
  - 80% of single family units reserved for sewer service area
- Reviewed annually based on most recent annual monitoring report for the Basin Management Committee.
- Affordable housing and accessory dwelling units are exempt.



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## Los Osos Urban Area Growth Rate

- If maximum allocation is used each year, the growth rate would allow:
  - 82-86 new dwelling units and an estimated increase in 12 AFY of water demand per year for 5 years, and
  - 421 new units and an estimated 63 AFY increase in water demand by end of year 5.
- All vacant lots on the waitlist could build by end of year 5.
- The proposed increase of 63 AFY for new dwelling units is significantly less than the difference between 2019 estimated groundwater production (1,900 AFY) and 80% of the estimated sustainable yield once six Basin Plan Programs are complete (3,000 AFY). The Basin Plan recommends pumping 80% of sustainable yield or less to account for uncertainties such as climate change and inaccuracies in basin modeling.



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## Questions and Comments

- Email [khensley@co.slo.ca.us](mailto:khensley@co.slo.ca.us) comments by June 26, 2020.
- Board of Supervisors on July 7, 2020.
  - Submittal of revised 2016-2018 RSR.
  - Introduction of GMO amendment to establish Los Osos growth rate.
- Board of Supervisors on August 18, 2020 (tentatively).
  - Consideration of GMO amendment and Los Osos Community Plan.
- Public review drafts available at: [www.slocounty.ca.gov/LosOsosPlan.aspx](http://www.slocounty.ca.gov/LosOsosPlan.aspx)



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2016 -2018

# Resource Summary Report

San Luis Obispo County General Plan  
Volume II of II – Supporting Data and Analysis  
Adopted by the Board of Supervisors March 12, 2019

## PUBLIC REVIEW DRAFT

### District 2 Addition

## Los Osos Water Supply Section

**Public comments accepted until June 26, 2020.**

**Please email comments to [khensley@co.slo.ca.us](mailto:khensley@co.slo.ca.us).**

### Introduction

On March 12, 2019, the Board of Supervisors approved the 2016-2018 Resource Summary Report. The Board's approval included the removal of all references to resources within Board of Supervisor District 2 due to concerns about the water supply sections. On July 7, 2020, the Board of Supervisors will consider revisions to this 2016-2018 Resource Summary Report to add District 2 information back into the report. Updated information from the 2019 annual monitoring report for the Los Osos Groundwater Basin is also included for consideration in evaluating the Recommended Level of Severity Designation for Los Osos water supply.

## Level of Severity Criteria

### WATER SUPPLY

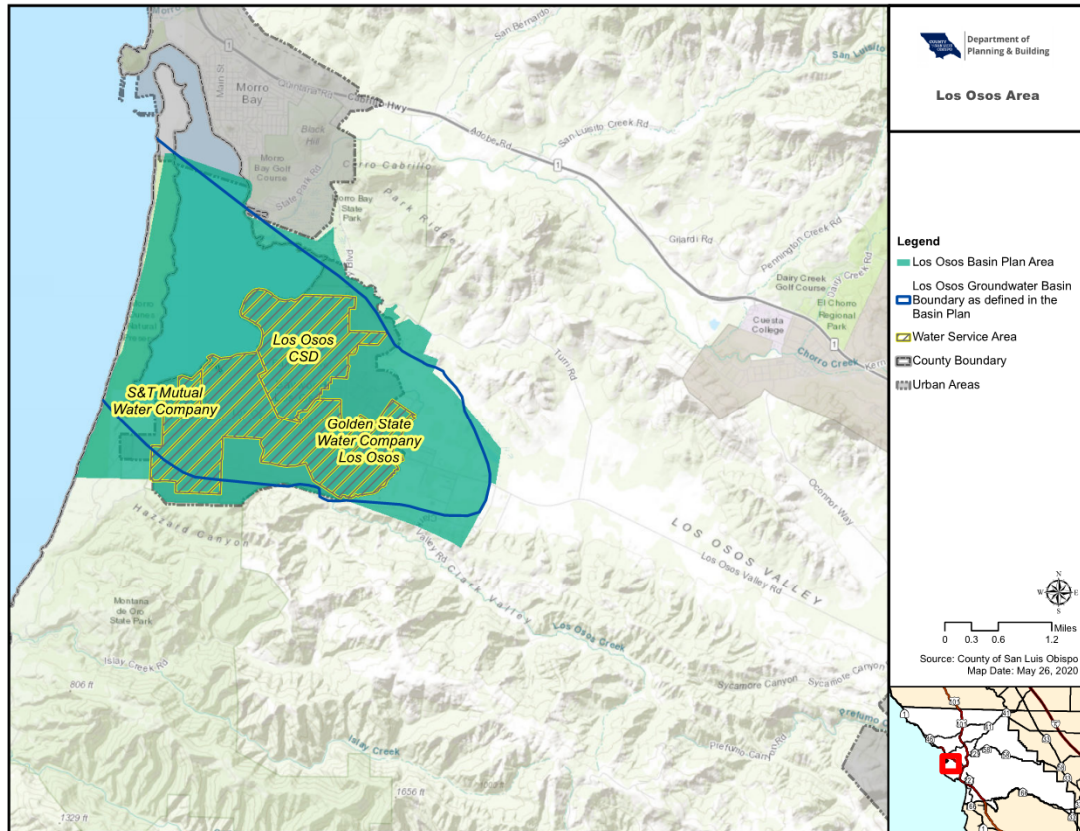
Level of Severity	Water Supply Criteria*	
	Coastal Zone	Inland Areas
I	Timeframe for remaining dependable water supply is 9 years	Water demand projected over 20 years equals or exceeds the estimated dependable supply. LOS I provides five years for preparation of resource capacity studies and evaluation of alternative courses of action.
II	Timeframe for remaining dependable water supply is 7 years	Water demand projected over 15-20 years (or other lead time determined by a resource capacity study) equals or exceeds the estimated dependable supply.
III	Demand equals or exceeds estimated dependable supply	Water demand projected over 15 years (or other lead time determined by a resource capacity study) equals or exceeds the estimated dependable supply, OR The time required to correct the problem is longer than the time available before the dependable supply is reached.

\*These criteria do not consider the cyclical effects of drought or above-average rainfall.

## Recommended Levels of Severity

### Los Osos Area

Figure II-10 –Water Purveyors Serving the Los Osos Area



The Los Osos Valley Groundwater Basin (DWR Bulletin 118 No. 3-008)<sup>1</sup> is the primary source of water supply in the Los Osos area. Groundwater extractors are the three water purveyors in the urban area – Golden State Water Company, S&T Mutual Water Company, and the Los Osos Community Services District -- and overlying private well owners, including rural residents, community facilities and agricultural operations. The 2015 Updated Basin Plan for the Los Osos Groundwater Basin (“Basin Plan”) was prepared by the three water purveyors, along with the County, as a part of the settlement of groundwater rights litigation, which was approved by the San Luis Obispo Superior Court in October 2015. The purveyor boundaries, Basin Plan management area, and the locally defined groundwater basin boundary used in the Basin Plan are shown in the figure above.

<sup>1</sup> The Final 2018 Basin Boundary Modifications were released by the California Department of Water Resources on February 11, 2019, which identified two subbasins of the Los Osos Valley Groundwater Basin: the Los Osos Area Subbasin (No. 3-008.01) and the Warden Creek Subbasin (No. 3-008.02).



The section of the groundwater basin assessed by the Basin Plan consists of five layered coastal aquifers. Historically the urban area relied on septic systems, which resulted in nitrate contamination in the Upper Aquifer. Overpumping in the Lower Aquifer contributed to seawater intrusion. The Los Osos Water Recycling Facility (LOWRF) community sewer/recycled water system became operational in 2016. This facility allowed the community to move off of individual septic systems in the majority of the urban area, reducing the nitrate loading on the basin, and also providing tertiary-treated effluent to offset basin uses and recharge the basin, which is projected to push back the seawater intrusion front over time. Nearly 100% of the community within the sewer service area are now connected to the community wastewater system, which is discussed in greater detail in Chapter III -- Wastewater. With the point source of contamination significantly reduced, the nitrate contamination in the Upper Aquifer is expected to degrade over time.

The Basin Plan analyzed the impacts of implementing various combinations of programs through use of a groundwater model for the multiple aquifers and recommended programs for immediate implementation to increase the sustainable basin yield to accommodate the existing demand and halt and reverse seawater intrusion over time. The Basin Plan also identified possible combinations of programs to be implemented to accommodate buildout demand. The annual monitoring reports prepared for the Basin Management Committee provide updates on the program implementation status and program modifications made through the Plan's adaptive management provision. The 2017, 2018, and 2019 annual reports show the seawater intrusion front moving back towards the coast from its position in 2016.

### **Los Osos Groundwater Basin - Sustainable Yield**

The sustainable basin yield refers to the volume of groundwater that can be extracted while halting and reversing seawater intrusion. The Basin Plan estimated the sustainable basin yield as 2,450 AFY for a "No Programs" scenario without implementation of any of the recommended programs in the Basin Plan. The Basin Plan recommends six (6) programs for immediate implementation. These programs are modeled to increase sustainable basin yield to 3,000 AFY. The 2017 annual report estimates sustainable yield as 2,760 AFY accounting for the two incomplete Program C wells with the rest of the immediate programs complete. The Basin Plan identifies four (4) additional programs that could be implemented to increase the sustainable yield to accommodate buildout demand and buffer for uncertainties of climate change.

### Basin Plan Programs for Immediate Implementation (increase basin yield to 3,000 AFY)

The Basin Plan recommends the following programs for immediate implementation. The goal and status of each are summarized below, based on information from the 2017, 2018, and 2019 annual monitoring reports.

- Program "M" – Groundwater Monitoring
- Program "E" – Urban Water Use Efficiency
- Program "U" – Urban Water Reinvestment
- Program "A" – Infrastructure Program A
- Program "C" – Infrastructure Program C
- Program "P" – Wellhead Protection

**Program "M" – Groundwater Monitoring (Complete).** The groundwater monitoring program includes annual reporting on metrics to measure nitrate impacts to the Upper Aquifer, seawater intrusion within the Lower Aquifer, and the effect of implemented Basin Plan programs and adaptive management efforts, with flexibility to adapt over time. This program is complete and subject to ongoing adaptive management. In 2019 an additional monitoring well was constructed in Cuesta by the Sea to improve assessment of the seawater intrusion front.

**Program "E" – Urban Water Use Efficiency (99% Complete).** This program retrofits commercial and institutional uses and requires residential properties to retrofit existing fixtures to be water efficient before connecting to the LOWRF and also provides rebate programs to incentivize further conservation efforts. At the end of 2017, only 177 properties remained to be retrofitted within the sewer service area. As of April 2020, only 44 properties remained to be retrofitted and connected to the sewer (CHG, 2018, 2020). More efficient urban water use allows purveyors and well users to decrease the amount of groundwater extracted from the Basin to stabilize the freshwater-seawater interface.

**Program "U" – Urban Water Reinvestment.** This program reinvests treated wastewater from the LOWRF back into the hydrologic cycle to reduce extraction volumes and reverse seawater intrusion over time. In 2017, this program came online and 452 AFY of recycled water from the LOWRF was reinvested to the Broderson (445 AFY) and Bayridge Estates (7 AFY) leach fields. The average wastewater flows were 200 AFY less than the anticipated volume of 780 AFY (CHG, 2018). In 2018, 505 AFY of recycled water was reinvested to the Broderson (486 AFY) and Bayridge Estates (20 AFY) leach fields (CHG, 2019). In 2019, 516 AFY of recycled water was reinvested to the Broderson (431 AFY) and Bayridge Estates (14 AFY) leach fields and 71 AFY to the Sea Pines Golf

Course. The mounding at the leach fields is being monitored and is projected to take years to form; however, preliminary signs of a small mound were detected hydraulically downgradient of the Broderson leach field beginning in June 2017. (CHG, 2020). As part of Basin Plan adaptive management, as of 2019, the Basin Management Committee approved a contract for a Creek Discharge Program for recycled water from the LOWRF and approved funding for an urban storm water recovery project (CHG, 2020).

**Program "A" – Basin Infrastructure Program A.** Program A supports the mitigation of seawater intrusion by shifting groundwater production from the Lower Aquifer to the Upper Aquifer to the greatest extent practicable without construction of large-scale nitrate removal facilities. One Upper Aquifer well on 8<sup>th</sup> Street remains to be complete, although it is fully funded and the design is complete (CHG, 2020).

**Program "C" – Basin Infrastructure Program C.** Program C shifts groundwater production within the Lower Aquifer from the Western Area to the Central Area with three expansion wells and purveyor interconnection to mitigate seawater intrusion. The first expansion well at Los Olivos was completed, resulting in an estimated increase in basin yield of 110 AFY (CHG, 2017). Two more wells remain to be completed. One well may be deferred per the adaptive management process (CHG, 2020).

**Program "P" – Wellhead Protection.** This program manages activities within a delineated source area or protection zone around drinking water wells to protect water quality. This program consists primarily of the purveyors conducting Drinking Water Source Assessment and Protection surveys for each of their wells. The purveyors have deferred performing the surveys (CHG, 2020).

The status of the Basin Plan Programs recommended for immediate implementation is as follows:

- Program E - 177 properties remained to be retrofitted and connected to the LOWRF at the end of 2017 and 44 properties as of April 2020.
- Program U – Reinvestment volume from the LOWRF was 200 AFY less than projected in 2017 and 264 AFY less than projected in 2019. Adaptive management efforts include a creek discharge program and storm water recovery project.
- Program A - One well (8<sup>th</sup> Street) needed to be completed at the end of 2017. The well still remained to be completed and was fully funded and designed at the end of 2019. The well is anticipated to be complete by 2021.
- Program C - Two wells needed to be completed at the end of 2017 and 2019. One well may be deferred through the adaptive management.

- Program P - Surveys still needed to be completed at the end of 2017 and 2019.

#### Additional Basin Plan Programs (increase basin yield to meet buildout)

The Basin Plan identifies the following programs that could be implemented to increase the sustainable basin yield to accommodate buildout demand and buffer for uncertainties such as climate change. The goal and status of each are summarized below, based on information from the 2017, 2018, and 2019 annual monitoring reports.

- Program "B" – Basin Infrastructure Program B
- Program "D" – Basin Infrastructure Program D
- Program "G" – Agricultural Water Reinvestment
- Program "S" – Supplemental Water

**Program "B" – Basin Infrastructure Program B.** Program B is the construction of a community nitrate removal facility and additional purveyor wells to maximize production from the Upper Aquifer. This program is not complete. Completion of Program B is estimated to contribute 350 AFY and achieve a sustainable basin yield of 3,350 AFY.

**Program "D" – Basin Infrastructure Program D.** Program D is constructing additional purveyor wells to shift groundwater production within the Lower Aquifer from the Western Area to the Central and Eastern Areas to induce less seawater intrusion and increase the sustainable basin yield. This program is currently deferred. Completion of Program D is estimated to contribute 150 AFY and achieve a sustainable basin yield of 3,500 AFY.

**Program "G" – Agricultural Water Reinvestment.** Program G is to reinvest treated wastewater from the LOWRF or recycled water for agricultural purposes to reduce agricultural groundwater pumping. This program is not complete. Program G would not increase the sustainable yield of the basin.

**Program "S" – Supplemental Water.** Potential sources of supplemental water include rainwater harvesting, stormwater capture, greywater reuse, and groundwater desalination. Program S is not recommended in the Basin Plan but is estimated to decrease basin demand by 250 AFY or 750 AFY, although proposed updates to the urban water use efficiency program include offering rebates for rainwater harvesting and greywater reuse.

The Basin Plan recommends that total annual groundwater extraction not exceed 80% of the estimated sustainable annual basin yield to account for uncertainties in the projected basin yield and demand over time, such as reduced basin yield due to climate change or an increase in agricultural water demand. A 2013 study funded by the US EPA's Climate Ready Water Utilities Project determined that reduced

precipitation would have the most significant effect on basin yield, compared to increased temperature and sea-level rise. The sea-level rise projections that CHG considered correspond with the 5% probability scenario appropriate for medium risk adverse decisions per the 2018 California Ocean Protection Council (OPC) Sea-Level Rise Guidance. The study projected the basin yield may reduce to 2,325 AFY by 2050 due to climate change with basin infrastructure improvements in place. The planning horizon for the draft Estero Area Plan Los Osos Urban Area (commonly known as the "Los Osos Community Plan") is 2040. If the programs needed to achieve buildout as identified in the Basin Plan are implemented by 2040, the climate change study estimates that keeping groundwater extraction within 80% of the estimated basin yield is enough buffer for the potential reduction in yield due to climate change.

The County is in the process of updating the Los Osos Community Plan. The Coastal Development Permit for the LOWRF prohibits vacant lots within the service area from connecting to the sewer until the Los Osos Community Plan and Community-Wide Habitat Conservation Plan are adopted. Vacant parcels within the sewer service area are prohibited from using septic systems, so they are unable to develop until the two planning documents are adopted. The County maintains a waitlist for vacant properties within this prohibition zone until they can apply for construction permits. As of May 14, 2020, there were 215 requests for single family dwellings and 130 requests for multi-family dwellings on the waitlist. In addition, the County Construction Ordinance (Title 19) requires new development to offset its water use at a 2:1 ratio by completing retrofit projects on existing uses within the groundwater basin. An average of two dwelling units are constructed each year, but the new development decreases overall demand.

The draft Los Osos Community Plan requires new dwelling units to be limited with the Growth Management Ordinance (Tile 26) based on the available sustainable basin yield as determined by the status of Basin Plan program implementation and annual monitoring of Basin Plan program effectiveness and water usage trends.

In June 2017, the County, acting as the GSA, initiated a hydrogeological basin characterization study of the fringe areas, to support a Basin Boundary Modification Request to DWR. In September 2018, the County submitted a Basin Boundary Modification Request to DWR, which included: (1) a jurisdictional basin subdivision to create two proposed subbasins (i.e., Los Osos Area subbasin and Warden Creek subbasin), and (2) a scientific basin exclusion to remove two non-basin areas from Bulletin 118 basin boundary. The proposed Los Osos Area subbasin underlies the adjudicated area, except for a minor northern fringe area, and is covered under the court approved Basin Management Plan. DWR approved the boundary modification in its 2019 Basin Prioritization. The Los Osos Area subbasin (3-008.01) and the Warden Creek subbasin (3-008.02) are classified as very low priority and are no longer subject to SGMA requirements. Therefore, the Level of Severity for water supply is assigned to the Los Osos Basin Plan Area.

<b>Table II-14 – Los Osos Basin Plan Area<sup>1</sup>: Existing and Forecasted Water Supply and Demand Based on the 1996 Coastal RMS Criteria</b>					
<b>Demand</b>	<b>Los Osos CSD</b>	<b>S&amp;T Mutual Water Co.</b>	<b>Golden State Water Co.</b>	<b>Agriculture</b>	<b>Rural</b>
FY 2017/2018 Demand (AFY) <sup>2</sup>	470.0	32.6	443	(2)	(2)
2017 Demand (AFY) <sup>3</sup>	568	32	450	670	350
2018 Demand (AFY) <sup>3</sup>	522	32	464	670	340
2019 Demand (AFY) <sup>3</sup>	506	31	454	630	280
Forecast Demand in 7 Years (AFY) <sup>5</sup>	(4)			270-750	290
Forecast Demand in 9 Years (AFY) <sup>5</sup>	(4)			270-750	290
Buildout Demand (30 or More Years) (AFY) <sup>5</sup>	1,840			270-750	290
<b>Supply</b>					
Los Osos Basin Plan Area <sup>1</sup>	2,048 AFY <sup>6</sup> 2,208 AFY when Program A 8 <sup>th</sup> Street expansion well is complete <sup>6</sup>				
<b>Water Supply Versus Forecasted Demand</b>	In 2017, the total water demand (2,070 AFY) exceeded the estimated supply. In 2018 and 2019, the water demand (2,030 AFY and 1,900 AFY) did not exceed the estimated supply. However, the estimated water supply is based on the Basin Plan modeling and is being verified with ongoing monitoring, and the Basin Plan programs recommended to meet existing demand have not been completed. The forecasted demand in 7 and 9 years may exceed the water supply if existing usage rates increase or if the estimated water supply is adjusted. For these reasons, the RSR conservatively recommends LOS III for the Los Osos Basin. The LOS may be reduced as Basin Plan programs are completed and depending on monitoring results.				

Sources: <sup>1</sup>Water System Usage forms: July 2016 – June 2017 and July 2017 – June 2018, 2015 Basin Plan, 2017, 2018, and 2019 Annual Monitoring Reports prepared for the Basin Management Committee, 2012 Basin Model Results for Los Osos Climate Ready Water Utilities Project.

## Notes:

1. As defined locally in the 2015 updated Basin Plan for the Los Osos Groundwater Basin.
2. Based on water purveyor reported data. See Table II-1. Fiscal year data is not available for non-purveyor usage rates.
3. Based on 2017, 2018, and 2019 annual monitoring reports prepared for the Basin Management Committee based on a calendar year reporting period rather than fiscal year. Rural water demand is extraction from private wells, listed as "domestic" and "community" usage in the annual monitoring reports.
4. Subject to changes in water usage rates for existing development and timing of Basin Plan programs implementation, which is not forecasted. The majority (75%) of urban water use is residential. The draft Los Osos Community Plan requires new dwelling units to be limited with the Growth Management Ordinance (Tile 26) based on the available sustainable basin yield as determined by the status of Basin Plan program implementation and annual monitoring of Basin Plan program effectiveness and non-residential water usage trends.
5. Based on the 2015 Basin Plan, Table 44. Summary of Water Demand Program Combinations with Programs E+U or E+UG implemented. Of 2,060 AFY for urban and 70 AFY for community usage, 220 AFY of "urban" use is considered domestic private wells, listed under "rural" for this report.
6. Water supply is considered 80% of the sustainable basin yield estimated in the Basin Plan, per the Basin Plan goal of extraction not exceeding 80% of estimated yield to account for uncertainty. The annual reports indicate 2,760 AFY as the sustainable yield, but the Program A 8<sup>th</sup> Street expansion well is not yet completed. Until the well is complete, the sustainable basin yield estimate for the Basin Plan "No Programs" scenario is used, with a 110 AFY increase in yield estimated for completion of first Program C expansion well (CHG, 2017). The estimated sustainable basin yield may be adjusted based on ongoing monitoring of Basin Plan program effectiveness.

## Key observations for the area include:

- A coastal aquifer subject to seawater intrusion that has been contaminated with nitrate is the sole water supply source for the community of Los Osos.
- Completion of the LOWRF and decommissioning of septic systems within the sewer service area reduced the point source of nitrate contamination. The nitrate contamination is expected to degrade over time. Recharged water from the LOWRF is projected to help reverse seawater intrusion over time.
- A Habitat Conservation Plan will be adopted before significant increase in new development to address water supply availability for ecological needs.
- The Basin Management Committee has almost completed the programs recommended for immediate implementation, which are projected to halt seawater intrusion based on the existing development scenario with marginal population growth.
- Los Osos participated in the US EPA Climate Ready Water Utilities Project to identify potential reductions in basin yield due to reduced precipitation, sea-level rise, and increased temperature through the rest of the century. Implementation of additional Basin Plan programs is projected to increase

sustainable basin yield and reduce demand to accommodate buildout demand and potential reductions in basin yield due to climate change.

- The 2016 - 2019 annual monitoring reports prepared for the Basin Management Committee have shown the annual groundwater production to be below 80% of the sustainable basin yield (2,760 AFY) estimated assuming the Basin Plan programs recommended for immediate implementation are complete, except for two Program C expansion wells (CHG, 2017). However, one Program A expansion well remains to be completed. The 2017 estimated production (2,070 AFY) was 75% of this estimated sustainable basin yield. The 2018 estimated production (2,030 AFY) was 74% of this sustainable basin yield. (The 2019 estimated production (1,900 AFY) was 69% of this estimated sustainable basin yield.
- The estimated groundwater production in 2017 (2,070 AFY) was 81% of the estimated sustainable basin yield for a "No Programs" scenario in the Basin Plan (2,450 AFY). However, one well for Program C was completed, which increased the estimated sustainable basin yield by 110 AFY (2,560 AFY). Assuming 2,560 AFY sustainable basin yield, the 2017 production was less than 80% of the sustainable basin yield.
- The estimated groundwater production in 2019 (1,900 AFY) was 78% of the estimated sustainable basin yield for a "No Programs" scenario in the Basin Plan (2,450 AFY). However, one well for Program C was completed, which increased the estimated sustainable basin yield by 110 AFY (2,560 AFY). Assuming 2,560 AFY sustainable basin yield, the 2019 production was 69% of the sustainable basin yield.
- The Basin Management Committee maintains a groundwater monitoring network, releases annual monitoring reports with updates on program status and effectiveness, and practices adaptive management. The estimated sustainable basin yield may be re-evaluated based on the Basin Plan programs' effectiveness, especially considering halting and reversing seawater intrusion.

Based on the 1996 Coastal RMS Criteria, **Recommended Level of Severity III**. While in 2018 and 2019 water supply was estimated as sufficient to meet demand, the RSR conservatively estimates LOS III for the Los Osos Basin since the Basin Plan programs for immediate implementation were not completed as of the end of the 2016-2018 RSR reporting period. The LOS may be revised down as the Basin Plan programs are completed and depending on basin monitoring results.



**Sources:**

Cleath-Harris Geologists, Inc. (CHG). 2012. *Model Results for Los Osos Climate Ready Water Utilities Project.*

\_\_\_\_\_ 2017. *Basin Yield Metric response to reduced long-term precipitation in the Los Osos Groundwater Basin.*

\_\_\_\_\_ 2018. *Los Osos Basin Plan Groundwater Monitoring Program 2017 Annual Monitoring Report.*

\_\_\_\_\_ 2019. *Los Osos Basin Plan Groundwater Monitoring Program 2018 Annual Monitoring Report.*

\_\_\_\_\_ 2020. *Los Osos Basin Plan Groundwater Monitoring Program 2019 Annual Monitoring Report.*