

Appendix E: Status of Public Facilities

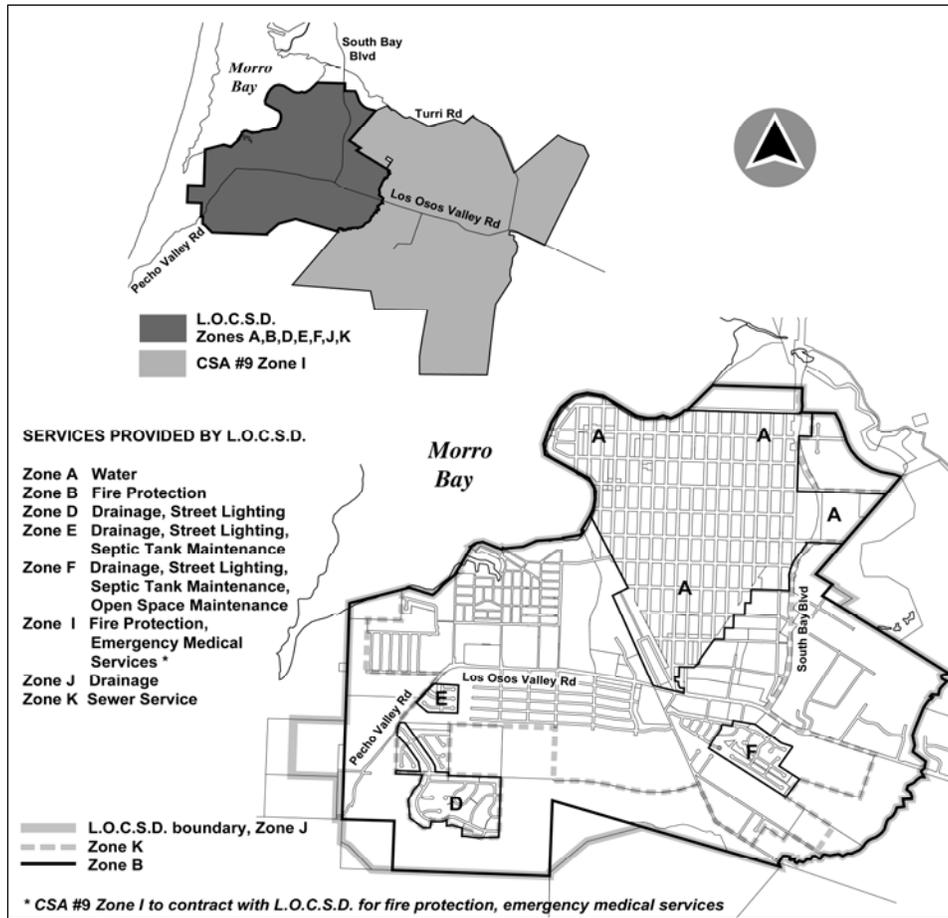
E.1 Introduction

To monitor the relationship between resources and demand levels, the county has developed the Resource Management System (RMS). The RMS monitors water supply, sewage disposal, schools, roads, air quality and parks, using three "levels of severity" to inform decision makers of current and potential deficiencies.

The status of resources monitored by the Resource Management System (RMS) is frequently updated as new information becomes available. Detailed resource information is included in the most recent edition of the Biennial Resource Summary Report. RMS procedures are fully discussed in Framework for Planning, Coastal Zone, Chapter 3.

Services in Los Osos are provided primarily through the Los Osos Community Services District (LOCSD). Within the boundaries of the LOCSD, some services are provided to the entire district and others to smaller specific zones of benefit. The LOCSD zones of benefit are shown in Figure E-1, below. Water service is also provided by Golden State Water Company and S & T Mutual Water Company in areas of the community not served by LOCSD. Some properties in the URL are served by private, individual wells. Irrigated agriculture just outside the URL also use private wells that use the groundwater basin as their source. Service areas for water supply are shown in Figure E-2.

Figure E-1: Services Provided by Los Osos CSD

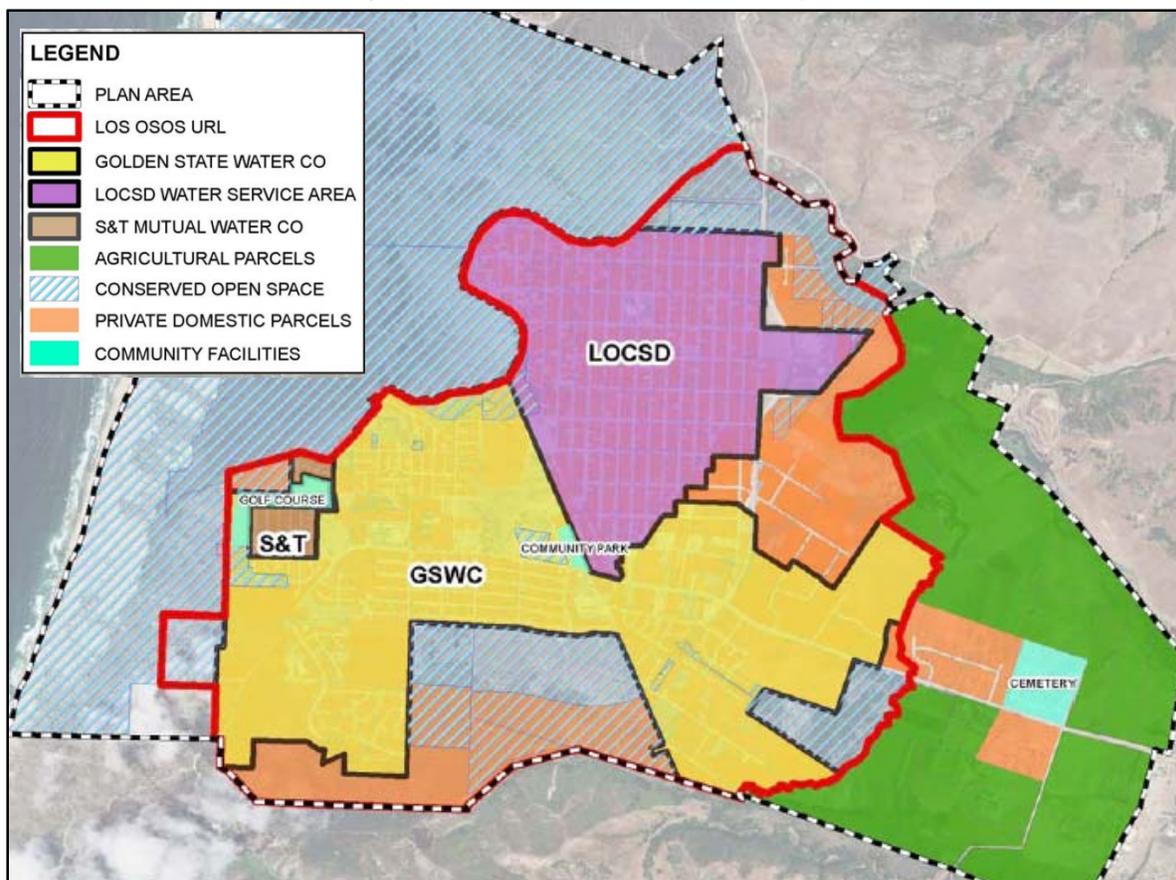


E.2 Water Supply

E.2.1. Background

The sole water source in the Los Osos area is groundwater from the Los Osos Groundwater Basin. The groundwater is withdrawn from the basin by private wells, for agricultural irrigation, and for municipal use by three principal water purveyors. The service districts for these municipal purveyors are shown in Figure E-2.

Figure E-2: Los Osos Water Purveyors



The basin is made up of several aquifer layers underlying Los Osos and the surrounding area. The upper and lower aquifers are the main sources of municipal and domestic water supplies. Due to water quality degradation of the upper aquifer from septic systems (nitrates), the water purveyors have been pumping from the lower aquifer. Groundwater extractions have exceeded the sustainable yield of the lower aquifer in the western area; this has resulted in seawater intrusion.

E.2.2. Draft Basin Plan

The Los Osos Groundwater Basin is under adjudication in the case of *Los Osos Community Services District v Golden State Water Company, et al.* As a result of the adjudication, a Public Review Draft of the *Basin Plan for Los Osos Groundwater Basin (Draft Basin Plan)* was developed and then released in August 2013. The *Basin Plan* was prepared by the Los Osos Community Services District, Golden State Water Company, S & T Mutual Water Company, and the County.

The *Draft Basin Plan* calls for reduced pumping in the lower aquifer, a decrease in overall basin water demand, and an increase in water supplies in the upper aquifer and lower aquifer (in the central and eastern portions). In order to access these new water supplies, the water purveyors (with financial backing of the water consumers) will need to construct new infrastructure, for example, new groundwater production wells and distribution pipelines.

Table E-1 summarizes the eleven programs analyzed in the *Draft Basin Plan*.

In order to support the community's existing population, without even considering demands from future development, several programs would need to be implemented under all future scenarios:

- **M** Groundwater Monitoring
- **E** Urban Water Efficiency
- **U** Urban Water Reuse
- **A** Infrastructure Program A (upper aquifer)
- **P** Wellhead Protection

In addition, the community will need to implement one additional infrastructure program in order to bring the basin into balance with the existing population. Depending on the next program implemented, a certain amount of new development may be authorized. These programs include:

- **B** Infrastructure Program B (Nitrate Removal)
- **C** Infrastructure Program C (Shift to Central Area)
- **S** Supplemental Water (Brackish Water Desalination)

The *Draft Basin Plan* contains detailed discussions of the various strategies for managing the Los Osos Groundwater Basin. The following is a summary of the strategies analyzed in the *Draft Basin Plan*:

1. **Groundwater Monitoring [M].** A standardized groundwater monitoring program should be administered by the Los Osos Groundwater Basin Watermaster. The program would standardize monitoring and reporting procedures for the community's three purveyors. The program would allow continued monitoring of the two main problems facing the basin: nitrate contamination in the upper aquifer and seawater intrusion into the lower aquifer.

The *Draft Basin Plan* also discusses two options for monitoring and reporting on private domestic wells overlying the basin. This can be accomplished through a voluntary program, or by adoption of a County ordinance requiring metering and monitoring of private wells.

2. **Urban Water Efficiency [E].** Under the water efficiency program, the County and purveyors would implement regulations and rebate programs to promote efficient water use in Los Osos. The measures in this program are largely based on the California Urban Water Conservation Council's Best Management Practices. The measures are intended to reduce residential water demand, reduce commercial and institutional water demand, educate the public, and apply restrictions to new development. The *Draft Basin Plan* seeks to reduce Los Osos's urban water demand to 1,450 acre-feet per year (AFY) for the current population and to 2,100 AFY for the community's buildout population.

Table E-1: Strategies for Managing the Los Osos Groundwater Basin

Draft Los Osos Basin Plan Program and Purpose		Provides Data	Reduces Basin Water Demand	Shifts Pumping from Lower to Upper Aquifer	Shifts Lower Aquifer Pumping away from Western Area	Increases Perennial Yield	Promotes Water Quality	Draft Basin Plan Reference
<i>RECOMMENDED PROGRAMS – The Draft Basin Plan recommends implementation of the following programs:</i>								
M E U A C P	Groundwater Monitoring To collect and organize data to improve access, reporting, and data access efficiency	✓						Chap 7
	Urban Water Use Efficiency To increase efficiency in urban water use, thus ensuring that a sufficient amount of water remains in the basin to stabilize the freshwater-seawater interface.		✓					Chap 8
	Urban Water Reinvestment To maximize use of basin resources by reinvesting used urban water in the hydrologic cycle.		✓			✓		Sec 9.3
	Infrastructure Program A To increase groundwater production to the upper aquifer without construction of nitrate removal facilities.			✓		✓		Sec 10.2
	Infrastructure Program C To allow the purveyors to shift lower aquifer groundwater production from the Western Area to the Central Area.				✓	✓		Sec 10.4
	Wellhead Protection To prevent drinking water source contamination.						✓	Chap 13

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ADDITIONAL PROGRAMS – The Draft Basin Plan <u>does not</u> recommend implementation of the following programs:								
G	Agricultural Water Reinvestment To maximize use of basin resources by reinvesting used urban water for agricultural purposes.		✓			✓		Sec 9.4
B	Infrastructure Program B To maximize use of the upper aquifer through construction of additional wells and a community nitrate removal facility.			✓		✓	✓	Sec 10.3
D	Infrastructure Program D To increase groundwater production in the Eastern Area.				✓	✓		Sec 10.5
S	Supplemental Water To increase the supply of potable groundwater through brackish water desalination.		✓				✓	Chap 11
I	Imported Water To import water to Los Osos from a non-basin source.		✓					Chap 12

3. **Water Reinvestment Programs [U & G].** The Water Reinvestment Program is part of the Los Osos Wastewater Project and it involves returning all water collected and treated by the wastewater project to the basin. This would be accomplished by direct percolation or reuse. The program is further divided into urban water [U] and agricultural irrigation [G].
4. **Infrastructure Programs [A, B, C, & D].** The *Basin Plan* includes four infrastructure improvement programs that would be implemented and funded by the water purveyors. These programs are focused on two strategies: a) allow groundwater pumping to shift from the lower aquifer to the upper aquifer and b) shift lower aquifer production away from the Western Area, where seawater intrusion is most pronounced.

Program A has been funded and is being fully implemented. This program focuses on actions that can be taken to increase upper aquifer production as much as possible without necessitating a community nitrate removal facility.

Program B would entail construction of a community nitrate removal system in order to maximize use of the upper aquifer.

Program C includes a set of infrastructure projects that would allow the purveyors to shift lower aquifer production from the Western Area to the Central Area.

Program D includes construction of additional wells in the Eastern Area of the lower aquifer.
5. **Wellhead Protection [P].** The Wellhead Protection Program is designed to protect water quality by managing activities within a delineated source area or protection zone around drinking water wells.
6. **Other Programs [S & I].** The *Draft Basin Plan* addresses two other programs that are not included in its recommendations based on cost-effectiveness. The Supplemental Water Program [S] would entail construction of a desalination facility to render brackish groundwater drinkable. The Imported Water Program [I] would import water from an outside source (e.g. State Water or Nacimiento Water) for urban use in Los Osos.

E.2.3. Projected Supply

Sustainable yield of a groundwater basin can be defined as the maximum quantity of water that can be annually withdrawn from a groundwater basin over a long period of time (during which water supply conditions approximate average conditions) without developing an overdraft condition. The *Draft Basin Plan* estimates the current sustainable yield at 2,450 acre-feet per year (AFY). Depending upon which implementation programs are undertaken, the sustainable yield could rise as high as 4,170 AFY under an aggressive implementation scenario. Under the *Draft Basin Plan's* recommendation, sustainable yield would increase to 3,000 AFY. *Basin Plan* programs that would increase sustainable yield include the infrastructure programs (A, B, C, and D) and the reinvestment programs (U and G).

E.2.4. Historical Demand

The *Draft Basin Plan* indicates that groundwater extractions have exceeded the sustainable yield of 2,450 AFY every year since 1979. The peak quantity of groundwater extraction occurred in 1988 and is estimated at 3,720 AFY. The most recent extraction quantities (2012) are estimated at 2,610 AFY. The following Table E-2 summarizes the pumping quantities in 2012.

Table E-2: Groundwater Production in 2012	
User	Production in 2012 (AFY)
Water Purveyors	1,520
Private Domestic Wells	200
Community	140
Agriculture	750
Total	2,610
Sustainable Yield	2,450

Source: *Draft Basin Plan*

In addition to the continuing problem of overdraft, groundwater production has been distributed in such a way as to cause excessive pumping in some areas, resulting in sea water intrusion in the vicinity of Pecho Road. In other areas, pumping has not been sufficient to offset recharge of wastewater from on-site septic systems, resulting in rising water levels. The addition of new wells and revised pumping patterns are expected to solve this problem.

E.2.5. Comparing Projected Supply and Demand

The *Draft Basin Plan* uses the Basin Yield Metric to assess basin sustainability. The yield metric is calculated by comparing basin groundwater production to the sustainable yield. A resulting ratio of less than 100 percent would indicate that the current production is sustainable. The *Basin Plan* goes further by setting a goal to keep the Basin Yield Metric at 80 percent. This creates a 20 percent margin of safety for the community.

Under current conditions, extractions from the Los Osos Groundwater Basin exceed sustainable yield. The resulting Basin Yield Metric is 107%, indicating that the basin is in overdraft. The recommended set of programs in the *Draft Basin Plan* would bring that metric down to 74% when considering a scenario in which there would be no further development. A more aggressive approach, though costly, could bring the metric as low as 42%, leaving a substantial marginal water supply to support new development.

The *Draft Basin Plan* projects future demand based on two different scenarios. The "No Future Development Scenario" (NFDS) assumes that no substantial new development would occur in the community. Depending on the programs implemented, projected demand may be reduced. For example, Program U (Urban Water Reinvestment) would reduce groundwater demand by reusing treated wastewater for irrigation of community park facilities.

The second scenario being considered would allow new development to occur such that the demand could rise to 80 percent of the sustainable yield, but no higher. This scenario allows calculation of future supportable population for the community. The ability to achieve this depends largely upon the completion of *Basin Plan* programs. Reduction in demand can also be achieved through importation of water and implementation of a program to irrigate agricultural lands with treated wastewater.

The following Table E-3 summarizes sustainable yield and demand values under two different scenarios: (1) No Further Development Scenario (NFDS); and (2) assuming population growth up to an 80 percent Basin Yield Metric.

Table E-3: Sustainable Yield and Demand				
Basin Plan Implementation	Sustainable Yield (AFY)	NFDS Demand (AFY)	Demand @ 80% (AFY)	Supportable Population
Existing Conditions (2012)	2,450	2,610 (107%)	1,960	8,410
Recommended M, E, U, A, C, P	3,000	2,230 (74%)	2,400	16,220
Moderate M, E, U, A, B, C, D, P	3,500	2,230 (64%)	2,800	20,030
Aggressive M, E, U, G, A, B, C, S, P	4,170	1,750 (42%)	3,336	24,600

Notes

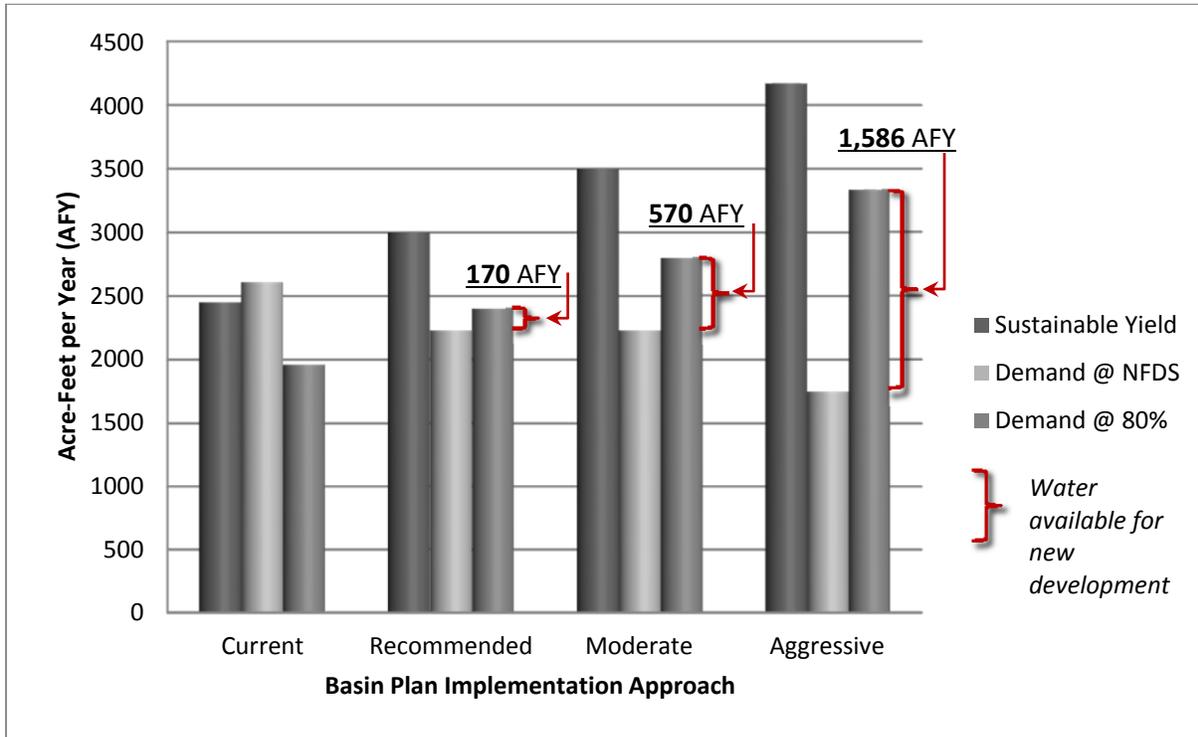
- (1) Sustainable Yield and NFDS Demand figures are derived from the *Draft Basin Plan*.
- (2) Demand at NFDS refers to the No Future Development Scenario. This considers future water demand assuming no additional development will occur. The identified percentage is the Basin Yield Metric.
- (3) Demand at 80% estimates water demand if development were allowed to occur until demand reaches 80 percent of the sustainable yield.
- (4) The supportable population represents the population that would be supportable with a water demand capped at 80 percent of the sustainable yield.

Figure E-3, also illustrates the difference between the water demand and sustainable yield under different approaches to Basin Plan implementation. The water available for new development is represented by the difference between the NFDS demand and demand at the 80 percent Basin Yield Metric.

The programs recommended in the *Draft Basin Plan* can facilitate a future population of 16,220 while maintaining a Basin Yield Metric of 80 percent. This Community Plan, however, considers a buildout population of about 18,750 within the Los Osos Urban Reserve Line. To support that population and maintain the 80 percent metric, additional programs beyond those recommended by the *Draft Basin Plan* would need to be completed. Adding Infrastructure Program B to the recommendation could allow the basin (which has a somewhat greater buildout than the Urban Reserve Line alone) to accommodate a population of up to about 18,900.

The several components of demand should be closely monitored to ensure that expected water availability for urban use remains realistic. If necessary, general plan amendments should be initiated as needed to assure that the level of future development can be accommodated by the sustainable yield of the groundwater basin without seawater intrusion (see Chapter 4, Section 4.2, Land Use Policies).

Figure E-3: Comparison of Sustainable Yield and Demand



E.3 Sewage Disposal

The community of Los Osos is served by individual septic systems or small package treatment plants. A community sewer system is approved to serve much of the urban area and is currently under construction.

Los Osos currently relies solely on septic tanks for sewage disposal. According to the Regional Water Quality Control Board (RWQCB), percolation from septic tank leach fields is high in nitrates. As population has grown, nitrate levels in groundwater have gradually increased to the point where they have exceeded the State's maximum level allowable for drinking water in the upper aquifer. In response to this condition, the RWQCB established a prohibition zone in 1988 that covers much of the urban area, within which discharge from septic systems is not allowed, with limited exceptions.

The County of San Luis Obispo is currently building a community sewer system that will serve most of the area within the prohibition zone. It is intended to remedy the water quality problem identified by the RWQCB. An assessment district has already been approved by local voters to help fund the sewer project.

The sewer project includes construction and operation of a community sewer, including a treatment plant, collection/disposal/reuse facilities, and all associated development and infrastructure. The treatment plant site, known locally as the Giacomazzi site, is located outside of the Los Osos Urban Reserve Line on Los Osos Valley Road behind the Los Osos Mortuary and Memorial Park. Collection, disposal, and reuse infrastructure will be located throughout the community of Los Osos, with the primary effluent disposal leach field proposed for eight acres above Highland Drive at the site known as the Broderson site. The project will treat wastewater to a tertiary level, and will reuse as much of the treated effluent as possible for urban and

agricultural irrigation. Disposal of effluent will be prioritized to reduce seawater intrusion and otherwise improve the health and sustainability of the underlying Los Osos Groundwater Basin. Besides meeting State water quality standards, the project is intended to provide several benefits, such as reducing seawater intrusion, minimizing septic tank discharge to the Morro Bay Estuary, recharging groundwater to increase the sustainable yield of the groundwater basin, and making recycled water available for irrigation.

The wastewater treatment plant is designed to have a capacity to treat an average daily dry weather flow of about 1.1 million gallons per day (mgd), as adjusted to account for a planned water conservation program. This capacity could serve a population of about 18,400 residents within the area to be served by the sewer system. That population closely corresponds to the estimated population of about 18,500 within the sewer service area at buildout under this plan, as the small difference in the two figures (less than 3 percent) is within the margin of error for such estimates. Therefore, as currently planned, the capacity of the sewer system could accommodate, but not exceed the needs of the projected future population within the sewer service area.

The County should continue to monitor the progress of the sewer project. If necessary, general plan amendments should be initiated as needed to assure that the level of future development can be accommodated by the capacity of the sewer system and the sustainable yield of the groundwater basin without seawater intrusion.

[This section will be updated as necessary, prior to the Public Hearing draft]

E.4 Schools

E.4.1. Current Capacity and Enrollment Trends

Los Osos is in the San Luis Coastal Unified School District. Residents attend two elementary schools (one elementary school has closed) and Los Osos Middle School, all located within the community, and Morro Bay High School. Typically, about 70 percent of students at the middle school and high school come from Los Osos. Elementary school enrollment has generally declined during the 1993-2014 period, and is currently about 72 percent of the capacity of the two remaining elementary schools. Los Osos Middle School enrollment was about 94 percent of capacity in the 2013-2014 school year, while Morro Bay High School's enrollment was slightly under capacity.

E.4.2. Projected Enrollment

The projections used in this plan for Los Osos are based on a simplified version of current student generation rates and assume that those rates will remain constant in the future. At buildout under this plan, assuming a residential occupancy rate of 100 percent, about 176 elementary students, 37 middle school students and 70 high school students would be added, as shown in Table E-4. With those numbers of additional students, the current capacities of the elementary school, middle school and the high school would not be exceeded (not including enrollment changes in the middle and high schools generated from outside of Los Osos).

Table E-4: Capacity and Enrollment, Schools Serving Los Osos			
School	Capacity	Enrollment 2013/2014	Projected Additional Enrollment from Los Osos @ Buildout
2 Elementary Schools (total)	1220	687	+176
Los Osos Middle School	650	560	+37
Morro Bay High School	1000	825	+70

E.5 Parks

Los Osos has only one community park, the 6.2-acre Los Osos Community Park. In addition, Los Osos residents have convenient access to Montana de Oro State Park, El Chorro Regional Park, and other "special" recreation facilities, including Sweet Springs Nature Preserve, Elfin Forest Natural Area, Morro Bay State Park and Golf Course, and Los Osos Oaks State Reserve. Public school facilities augment the community's recreation facilities.

The County's Parks and Recreation Element indicate that a reasonable goal for the amount of parkland needed is a minimum of three acres of parkland per 1,000 people. Using this guideline, new parkland is needed for the current population of Los Osos.. In particular, Los Osos needs more opportunities for "active" recreation, such as ball fields, children's play equipment, recreation programs, etc.

The County should work with the community to develop sufficient parkland (neighborhood and community parks and recreation facilities) to accommodate the needs of existing and future populations. Proposed programs to provide more parks for Los Osos are discussed in Chapter 2, Community Plan Policies.

E.6 Fire Protection

Fire protection and emergency medical services are provided by Cal Fire/County Fire through an agreement with the Los Osos Community Services District (LOCSD). Fire and emergency medical services are provided well beyond the Urban Reserve Line.

For most calls within Los Osos, Cal Fire response times vary from four to seven minutes. The response times are within the performance standards as outlined in the Cal Fire/San Luis Obispo County Strategic Plan.

E.7 Police Protection

Los Osos relies on the County Sheriff and the California Highway Patrol for police services. The Sheriff's coast station is located in Los Osos. The Highway Patrol office is located near the California Boulevard-Highway 101 interchange in San Luis Obispo. Response times for the Sheriff's office vary, based on allocated personnel, existing resources, time and day of week and prioritized calls for law enforcement services. In 2014, the average response time for Los Osos was about 16.6 minutes, according to the County Sheriff's Office.

E.8 Libraries

The Los Osos Library is located at 2075 Palisades Avenue. Measures of service for public libraries have typically been expressed as the number of books or the amount of library floor space per capita. A 1962 study, still regarded as valid by library administrators, contains a guide for estimating the need for library services, based on a survey of libraries from across the country (see Table E-5 below).

Table E-5: Formulas for Library Facilities by Community Size			
Community Size	Book Stock (Volumes per capita)	Total Square Feet	per Capita
Under 10,000	3.5 to 5	0.7 to 0.8	
10,000 to 35,000	2.75 to 3	0.6 to 0.65	

Source: Adapted from Practical Administration of Public Libraries, Wheeler & Goldhov, 1962

Table E-6 summarizes the adequacy of the existing library in Los Osos based on the above guidelines, and indicates facility needs at build-out. It is clear that the existing facility is seriously inadequate. A new 7,000 square-foot library building is planned in Los Osos.

Table E-6: Recommended Library Facilities, Los Osos						
	Building Square Feet		Book Stock (# of Volumes)		Recommended at Buildout	
	2014 Actual	2014 Desirable	2014 Actual	2014 Desirable	Building Square Feet	Book Stock
Los Osos	3976	8700-9400	38345	38500-42000	11250-12188	51563-56250

Increasing use of computers will provide greatly expanded opportunities for people to gain access to digitized information. Libraries can improve their level of service by providing patrons with links to the information network, in addition to increasing the amount of shelf space for book storage.

E.9 Human Services

All government offices providing counseling, mental health, welfare, family planning and other human services are located in the City of San Luis Obispo.

E.10 Drainage

Several street intersections and other locations in Los Osos experience localized flooding. Areas where flooding frequently occurs are shown in Figure E-4. Other drainage concerns are runoff of sediment and pollutants into Morro Bay, which is causing adverse effects on the estuary and wetlands.

Drainage issues have been studied in the Preliminary Engineering Evaluation, Los Osos/Baywood Park Community Drainage Project, County Service Area No. 9J, completed in April 1998. The study attributes drainage problems to a combination of rising groundwater levels, the existence of natural sumps, the paving of open space and subsequent reduction of the area available for storm water infiltration, and disruption of natural surface drainage patterns by urban development. Recommended solutions include the construction of storm drains and retention basins. An assessment district for drainage purposes was approved by Los Osos voters in 1998 to maintain existing drainage facilities.

Figure E-4: Areas of Localized Flooding

