

Re: December 15, 2020 BOS hearing, Item No. 31
Los Osos Community Plan Update and related documents

December 11, 2020
County of San Luis Obispo
Board of Supervisors
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Honorable Supervisors:

The Los Osos Sustainability Group (LOSG) submits the following comments on the Los Osos Community Plan (LOCP), the final EIR (FEIR) for the LOCP, the revised County 2020 Growth Management Ordinance (GMO) LOCP, and related documents.

We incorporate by reference our LOCP and LOHCP comment letters submitted to the Planning and Building Department dated August 25, 2015; November 18, 2019; December 11, 2019; June 26, 2020; July 8, 2020, and August 11, 2020 to the Planning Commission. The August 25, 2015, November 18, 2018, and December 11, 2019 letters were submitted with the Sierra Club, and the July 8, 2020 letter included a follow up letter dated July 13, 2020. Some of the letters commented on related documents, including the Final EIR (FEIR) for the LOCP, the revised County 2020 Growth Management Ordinance (GMO), and the LOHCP. We are also including our letter to the Coastal Commission dated October 1, 2010, on the LOCP and related issues.

In this letter we focus primarily on water-related issues including Section 7.3 “Community Standards,” Subsection D “Los Osos Ground Water Basin,” and on Appendix D, Section D.2. “Water Supply,” Subsection D.2.2. “Basin Plan.”

What is included from earlier versions of the LOCP

The present LOCP draft appears to contain the same criteria for approving exempt and non-exempt housing in the Community Standards section of the document and it includes

numerous Basin Plan program combinations with modeled yield estimates from the Basin Plan in Appendix D. The estimates are apparently proposed as a basis for decision makers to set buildout limits and determine how much new development can be sustained by the Basin now and in the future.

The LOCP and referenced documents have not resolved the fatal flaws we identified and explained in earlier comments, which established that based on the currently available evidence, there is no basis on which to conclude sufficient water supplies exist to justify any new development or expansion of existing development. The LOCP still relies on modeling, a Title 19 retrofit program, and vague and discretionary criteria to justify approval of new development. There is no substantial and/or convincing evidence, however, to show the proposed development will not create unsustainable demand and additional seawater intrusion and/or other undesirable effects, potentially causing irreparable harm to the sole water source of the area, the Los Osos Ground Water Basin, and dependent habitat. As a result, the documents continue to violate and/or are inconsistent with consistent with Special Conditions 5 & 6 of the Los Osos Wastewater Project 2010 Coastal Development Permit (CDP), the Coastal Act (e.g., sections 30231 and 30254), Coastal Plan Policies (e.g., Public Works Policy 1 and Watershed Policies 1 and 2), and the Coastal Zone Land Use Ordinance (CZLUO) (e.g., Section 23.04.403).

What has changed in the LOCP

One apparent change in the current version may be a change in the buildout limit. In earlier versions, the number cited was 18,000 and in Table C-3 of this version it is 18,750 (see p. C-4). However, various tables and sections have different numbers for the existing and buildout populations (see Table 8-2, p. 8-7; Table C-3: p. C-4, and Subsections C.2.4 and C.2.5). Owing to these inconsistencies, neither the decision-makers (i.e. the Board of Supervisors) nor the stakeholders are able to know how much new development the LOCP is proposing in order to make informed decisions. This inconsistency in the “project description” also affects the validity of the EIR because CEQA requires a stable and finite project description.

We note that it is highly unlikely that the population has grown by only 38 people since 2010 as shown on Table 8-2 (13,906 in 2010 to 13,944 in 2020). The U.S. American Community Survey estimated the Los Osos population at 16,292 in 2018. Without an accurate current population count, it would be impossible to predict how much additional

development can reasonably be accommodated in Los Osos.

Another possible change is a plan to front-load the pace of new development. Supervisor Gibson, in a recent New Times article, indicates that the LOCP will allow mostly “exempt” housing (housing exempt from a growth rate restriction) to be approved in the first few years of the plan. After that, housing subject to a rate restriction will be approved (see New Times except below). The LOCP indicates that exempt housing consists of affordable housing, accessory dwelling units (ADUs), and conversion of existing residential structures to residential use (see 7.3 Community Standards, Subsection D 4, p. 7-3). However, the LOCP also exempts housing if an application to build is filed before Board approval of the LOCP and complies with Title 19 (see 7.3 Community Standards, Subsection D 3 or D5), p. 7-3). Without knowing the the number of dwelling units that can be approved in the first few years (upper limit) in all “exempt” categories, the public and other stakeholders can’t know the buildout limit or how much development is actually being proposed.

Bruce Gibson, District 2 Supervisor: quoted in New Times article, November 3, 2020:

Officials like 2nd District Supervisor Bruce Gibson emphasize that the Los Osos Community Plan can be structured in a way that ensures development doesn't outpace water supply or overstress the basin. Under a proposed timeline, in the first two to three years of plan implementation, only accessory dwelling units, affordable housing, and second story commercial conversions to residential can be permitted. After that, it's a 1.3 percent per year growth rate for five years. Gibson said that the number is adjustable, though. "As we get moving forward, we will monitor how the water supply responds. That's where adaptive management comes in," Gibson said. "We're going to grow at a rate we can monitor and adapt to." Gibson said that, like others, he's also concerned about some of the recent water quality metrics. But he wants to keep a big-picture perspective about whether the basin is moving in the right direction, despite the yearly ups and downs. "We need to look at the trends of this," he said. "We've had significant improvement in the metric of seawater, and now the past couple of measurements it's retreated some. The basin has to be sustainable over a long period of time. It has to be able to absorb year-to-year variations." (Emphasis added and paragraphing removed)

Supervisor Gibson is clearly promoting the present LOCP and believes the current Basin condition will sustain substantially more development. We note that his comments make it seem as though the portion of development subject to a growth rate restriction (not exempt housing) will be approved for only five years. The LOCP seems to allow non-exempt development to occur over the 20-year horizon of the plan, with a review and possible revision of the 1.3% growth rate after the five years, and every five years after that.

What is not clear from the record, however, is when this growth rate period begins and exactly how long it will last. It is also not clear whether the 1.3% growth rate is calculated based on the population size after or before the proposed initial increase from “exempt” housing and exactly how much additional development will be allowed yearly under the growth rate limitation. As we have also discussed above, the LOCP does not include any projection of the number of affordable housing and other exempt residential development that is likely to be in addition to the 1.3% growth under the GMO.

The LOCP does not meet the Coastal Commission Special Condition that requires the County to prove the existence of surplus water supplies to support additional development authorized by the LOCP.

In 2010, the Coastal Commission heard the concerns of the community and heeded the hard won lessons of the past, attempting not to repeat the mistakes. It recognized significant uncertainties in modeling and the tremendous growth-inducing potential of the project that would open the doors to development after many years of a building moratorium. As a result, the Commission added Special Conditions 5 and 6 to the project to prevent unsustainable development and protect irreplaceable coastal resources.

Special Condition 5 requires the County to implement a recycled water management plan (RWMP) “to maximize the long-term ground and surface water and related resource sustainability...including with respect to offsetting seawater intrusion as much as possible.” The conservation component requires the County to spend \$5 million to “help Basin residents to reduce their potable water use as much as possible, “ with “enforceable mechanisms” as needed. Condition 5 also requires the County to monitor and use adaptive management to avoid harm to sensitive aquatic habitat as flows decrease with the sewer.

Special Condition 6 was designed to ensure the very large wastewater project did not induce unsustainable development. The condition ensures that unsustainable growth will not be allowed to occur by prohibiting the County from providing wastewater service to undeveloped properties within the service area unless and until “the Estero Area Plan is amended to identify appropriate and sustainable buildout limits, and any appropriate

mechanisms to stay within such limits, based on **conclusive evidence** indicating that adequate water is available to support development of such properties without adverse impacts to ground and surface waters, including wetlands and all related habitats.”

(Emphasis added.)

“Conclusive evidence” in this context is defined as “...evidence that cannot be disputed...(or) contradicted by any other evidence” (Legal Dictionary of the Free Dictionary). It is a higher standard of evidence than “substantial evidence,” which is the usual standard that applies to agencies factual conclusions, for example in the context of approving an EIR or findings in support of approval of plans such as the LOCP. Generally, “[s]ubstantial’ evidence means that the evidence must be of ‘ponderable legal significance.’ It must be ‘reasonable in nature, credible and of solid value.” Pennel v. Pond Union Sch. Dist. (1973) 29 Cal. App. 3d 832, 837. In the CEQA context, substantial evidence includes “fact, a reasonable assumption predicated upon fact, or expert opinion supported by fact” and does not include “argument, speculation, unsubstantiated opinion or narrative, evidence that is clearly inaccurate or erroneous... [Cal. Pub. Res. Code § 21080](#).”

Based on the foregoing, it is evident that the “conclusive evidence” standard set by the Coastal Commission is a higher bar than the typical “substantial evidence” standard that under most circumstances applies to the County’s factual conclusions. Accordingly the County must provide irrefutable or overwhelming evidence to show adequate water exists to support the additional development authorized by the LOCP. As set forth more fully below, the County has not and cannot identify any such “conclusive evidence.”

On this record, the County cannot conclude, based on “conclusive evidence” that the Basin is sustainable under current conditions to meet the current existing demand, let alone the excess water needed to support the additional development allowed under the LOCP. To meet the high bar set by the Coastal Commission, the County cannot merely rely on modeling predictions. It must produce objective and reliable physical evidence such as well-monitoring data. The “conclusive evidence” standard cannot be met with modeling

estimates, expected benefits of compliance with a Title 19 retrofit requirement, reliance on the promise of adaptive management, or the promise of future compliance with vague and uncertain criteria that are so broadly worded that they can reasonably be broadly interpreted. This is especially true as the evidence shows many of the model's key predictions have not materialized.

The evidence shows that under current conditions, the Basin is not sustainable and cannot support any additional water-demand.

The most recent adaptive management technical memorandum prepared for the BMC by Cleath-Harris Geologists (GHC), referred to as the "Program Update TM, released in June of 2020, concludes that a "marginal yield" of 150 AFY is available for new development. A Planning and Building Department memorandum prepared for County Planning Commissioners estimates the exempt housing will use about 50 AFY and it concludes that more than enough added yield exists to support the exempt housing (see Advisory Memorandum #1, July 24, 2020, pp. 4-6). These findings are not supported by "conclusive evidence" as required by the Coastal Commission.

The TM's conclusion concerning the availability of a purported 150 AFY of marginal yield is based on the output of modeling and on two previous TMs by GHC prepared for the BMC: the "Adaptive Management TM," released in February of 2019, and the "Nitrate and Seawater Intrusion TM" released in November of 2019. A close look at the TMs shows they do not support the existence of a 150 AFY marginal yield.

To arrive at the marginal yield of 150 AFY, the Program Update TM first modifies two modeling assumptions to adjust for current conditions. The TM notes that (1) 48 AFY less recycled water is currently being discharged at Broderon leach fields and (2) the TM assumes that as a result of a change in the location of Infrastructure Program C Expansion Well #2, there will be less yield than previously predicted by the model. The TM subtracts a buffer from the modeled sustainable yield as recommended in the Basin Plan (a "buffer against uncertainty") then subtracts the estimated water use (a five-year average of 2100 AFY) from 2250 AFY, the estimated "sustainable yield" to arrive at the 150 AFY of available yield for exempt housing. This projection, however, is not supported by "conclusive" evidence.

The physical evidence that Program Update TM cites to support the modeling in the Adaptive Management TM includes Water Level Metric results from 2017 to 2018 and two years of Chloride Metric results from 2016 to 2018. The Adaptive Management TM refers to the metric results as “trends,” yet one year and two years of monitoring data is too little data to establish trends, and the positive results reversed by 2019. Further, the TM does not adequately address the fact that the “trends” cited depart dramatically from predictions of the Basin Plan (Adaptive Management TM, pp. 4, 5 & 10 and Basin Plan, pp. 108 & 110). The Chloride Metric results suggest that the Basin would reach the Chloride target about 25 years **ahead** of the schedule predicted in the Basin Plan, and the Water Level Metric about eight years **later** than expected. The TM cannot reconcile these clearly inconsistent projections. The TM suggests that some of the chloride reduction may be due to “well bore flow from the Upper Aquifer,” but otherwise provides no reasonable explanation for the significant departure from expectations and concludes that the Basin is sustainable under current conditions except for nitrate increases, which are addressed by the wastewater project (p. 5 & 10). Because the retreat of seawater intrusion westward must follow a rise in water levels above mean sea level (the Basin Plan sets a target of 8’ for the Water Level Metric), the metric results raise serious questions about the validity of the model, the metric, or both. Nevertheless the TM concludes, “No additional Program C wells are needed under the updated existing population scenario to achieve a Basin Yield Metric of below 80 and a distribution of pumping that maintains a stationary seawater intrusion front closer to the coast” (p. 10).

The Nitrate and Seawater Intrusion TM cites and relies on monitoring data that show a groundwater mound is forming under the Broderon leach fields. The Adaptive Management TM cites the observation as evidence that recycled groundwater discharged at the Broderon leach fields, which began in 2016, will eventually push back seawater intrusion westward. In fact, the Nitrate and Seawater Intrusion TM reports that the mound will take 5-7 years from the release of the November 2019 TM to fully form. However, the TM does not adequately explain that before it can push back seawater intrusion, it must push through a 50 feet thick aquitard separating the upper aquifer from the lower (pp. 9 & 10). Neither the TM nor the LOCP EIR include any adequate discussion of this issue or offer any reasonable timeline for when the Broderon groundwater mound can have a significant impact on the seawater intrusion front. The TM, in fact, admits that the timing of the Broderon leach field effect on seawater intrusion is **highly uncertain** and the rate at which the lower aquifer levels begin to rise as a result of the Broderon treated water is

unknown (“Until a known rate of increase in the Lower Aquifer attributable to Broderson mounding is measured, the timing of recovery will be uncertain”—p. 10).

Moreover, as we’ve pointed out in previous letters, the Monterey Bay Watershed Institute found that water takes 171 years to push through the aquitard (AT2 layer) (see CSU Monterey Bay Watershed Report, p. 33, link in “Documents Cited”). The Nitrate and Seawater Intrusion TM provides no evidence other than the “trend” cited in the Adaptive Management TM that Zone E water levels will rise to the targeted 8’ above mean sea level. Further, Eugene Yates in his 2014 review of the Basin indicates that the water level target for Zone E should be 12’ above mean sea level to “prevent intrusion to the bottom of Zone E” (pp. 7 & 12).

Accordingly, the Program Update TM provides no “conclusive evidence” in support of a conclusion that the Basin will be able to produce an additional 150 AFY without exacerbating seawater intrusion in Zone E. Moreover, the physical evidence that the Program Update TM cites and other available evidence does not support a finding that the Basin is currently sustainable. Similarly, the finding of the Adaptive Management TM that the Basin was sustainable under conditions at the time is not supported by “conclusive” evidence.

Recalibrating the model

Based on the Adaptive Management TM, Program Update TM, and a TM prepared for the LOCSB by CHG, referred to as the Program C Update TM, the yield reduction that the Yield Update TM attributes to the 48 AFY cutback in recycled water discharged into the Broderson leach fields is 30 AFY. This is the difference between the modeled yield of 2760 AFY with one Program C expansion well in place, and the modeled yield of 2840 AFY with two expansion wells. Expansion Well #2 adds 80 AFY of yield based on the Program C Update TM (see Adaptive Management TM, p. 6 and Program C Update TM, p. Table 2, p.4). The Program Update TM estimates the “sustainable yield” with adjustments to be 2810 AFY (p. 3). Based on the yield reduction attributed to 48 AFY less recycled water in Broderson, the Yield Metric Target without Broderson leach field effects is about 250 AFY less ($400/48=8.33 \times 30 =249.9$). This may be a conservative estimate because some of the redirected 48 AFY of recycled water may be modeled to increase the yield (see links to TMs in “Documents Cited.”

Therefore, under current conditions with the Broderson leach fields not pushing back seawater intrusion, the Yield Metric Target of 80 may be near 2000 AFY, according to the model, if the model were recalibrated. This would eliminate the estimated “marginal yield” of 150 AFY that the 2020 Program Update TM indicates is available for additional development and it would require another 100 AFY of water use reduction with conservation and/or a yield increase with other programs (according to the model) to provide a sustainable water supply for the current population.

Another significant flaw in the model is its reliance on unrealistic precipitation amounts. The 2019 Adaptive Management TM explains that “the recent exceptional drought (2012-2016) demonstrated that seawater intrusion can occur with a basin yield metric below BYM 100. The Chloride Metric continued to increase overall between 2012 and 2016, despite the Basin Yield Metric dropping below 100 in 2013, and below 80 in 2016” (p. 7) The problem with this statement is that it is inappropriate to call the conditions during the 2012-2016 an “exceptional drought.” The evidence shows because of the warming climate, average annual rainfall in California will continue to trend downwards such that the rainfall amounts during these years can not be characterized as an “exceptional drought.” This is our new normal.

If the model were also recalibrated to incorporate the most recent 15 years of annual rainfall (15.14”), which is 13% less than the 17.5” assumed in the model, the Yield Metric Target of 80 would drop another 260 AFY, reducing the Yield Metric target to about 1740 AFY. Thus, recalibrating the model for current rainfall conditions may indicate that pumping should be reduced Basin wide by about 260 AFY from the approximate current water use with conservation and/or the yield should be increased with an additional Program C expansion well (Expansion Well #3) to provide a sustainable yield for the current population.

The Planning Commission in July of 2020 estimates that the remaining conservation potential in the Los Osos Community is between 160 to 350 AFY, and the estimated (modeled) additional yield increase from Expansion Well #3 of the Infrastructure Program C is conservatively about another 100 AFY based on the Program C Update TM (Table 2)

(also see Advisory Memorandum #1, p. 6) . Thus, recalibrating the model could indicate that both Basin Plan programs, the Water Use Efficiency Program (conservation) and Infrastructure Program C, need to be maximized, according to the model, to provide a sustainable water supply for the current population. As we explain, because modeling has significant uncertainties and the mitigation measures needed to reverse seawater intrusion in Zone E and establish a sustainable Basin are not determined, these programs must be maximized immediately to support the current population and achieve the first two immediate goals of the Basin Plan:

1. *Halt or to the extent possible, reverse seawater intrusion into the Basin.*
2. *Provide sustainable water supplies for the existing residential, commercial, community and agricultural development overlying the Basin.* (Basin Plan, p. 21)

The need to maximize conservation for the current population is why development should not be added even with a Title 19, 2:1 retrofit program as the LOCP (7-3 Community Standards) proposes. As we point out in previous letters, the Title 19 program uses conservation potential at twice the rate of a program for the existing population, providing half the water use reduction even with a 2:1 offset. This is because the water use of the new development adds back half the water use it offsets (also see our letter dated 8.13.20).

Consistent with the Department of Water Resources guidance, the model must be recalibrated.

To assist local agencies with the implementation of the Safe Groundwater Management Act (SGMA), in 2016, the State Department of Water Resources (DWR) issued a set of best management practices (BMPs) to guide ground water modeling efforts. Among other recommendations, SGMA BMPs recommend updating the model regularly as new data becomes available. The BMPs explain that “as new data are made available through annual updates and the 5 year review process, models can be updated and refined. These new data will be useful for regular model updates and recalibration to reduce model uncertainties and better assess the future effects of management actions on the basin’s sustainability indicators.” (SGMA BMPs, at p. 30)

Similarly, the last peer review done on the Los Osos Basin model by Stetson Engineers in 2010 recommends that the model is updated as the effects of moving wells inland are better understood (see SGMA BMP 5 Modeling, pp. 21 & 30 and Stetson Review, p. 20).

The model now must clearly be re-calibrated because (1) the Broderon leach fields are not pushing back the seawater intrusion front, (2) annual rainfall levels have substantially decreased in the past fifteen years, and (3) a test well drilled for Infrastructure Program C Expansion Well #2 near the Middle School revealed that the Zones E did not exist and Zone D could not support supply well production levels as expected (see Test Hole TM, p. 2, in April 15, 2020 agenda packet pdf p. 23).

Although modeling estimates do not meet the standard of “conclusive evidence” required by Special Condition 6, analysis of and final consideration of any new development in Los Osos would be premature until and unless the model has been recalibrated.

The proposed buffer does not adequately account for the substantial uncertainty.

To account for uncertainties in modeling, the Basin Plan subtracts a 20% buffer from what it considers a “sustainable yield” (the Yield Metric Target of 80), which the Basin Plan and LOCP EIR assume will account for all the uncertainties associated with modeling. According to the Basin Plan (which has never been adequately reviewed subject to the requirements of CEQA), the 20% buffer will sufficiently buffer against any inaccuracies in the model to ensure the current set of Basin Plan programs are capable of adequately addressing seawater intrusion and supporting the development at proposed levels.

The Nitrate and Seawater Intrusion TM demonstrates why the 20% buffer is not enough to avoid potentially irreparable harm to the Basin by exacerbating seawater intrusion.

In November 2019, by the time the TM was released, basin-wide pumping had been below the Yield Metric Target of 80 for four years. According to the model, pumping at this level means that the entire 20% “buffer” is being used to address seawater intrusion—i.e., no additional reduction would be needed to avoid undesirable results such as seawater intrusion (the purpose of a sustainable yield). Thus, if seawater intrusion or other undesirable impacts to sensitive habitat occur, conditions are not considered sustainable, which in turn means the 20% buffer is not sufficiently protective of the Basin.

The evidence shows that despite reducing pumping by more than 20% below the “sustainable yield” for four years, seawater intrusion has not abated and is advancing in Zone E. The TM attempts to explain this outcome by claiming that modeling predicts seawater intrusion would continue to advance until the Broderon mound begins to

migrate into the lower aquifer and push back seawater intrusion. The TM does not give a time frame for leach field effectiveness. Instead, it provides an estimate of the time it will take water levels at Well LA11 to rise to the Water Level Target of 8' above mean sea level, which the Basin Plan sets as a target for stopping and reversing seawater intrusion. However, the time estimate (about 14 years--by 2033) is based on the same one-year Water Level Metric "trend" which, as we explained above, reversed in 2019. Without a reliable timeline, the contention that the Broderson recharge will eventually reverse seawater intrusion does not amount to "convincing evidence" that the 20% buffer is adequately protective of the basin. Accordingly, the current data and technical analysis does not justify any decision by the County to approve additional residential development at this time.

Further, when a three-year Water Level Metric trend is calculated based on monitoring data from the 2016 to 2019 Annual Monitoring Reports¹ the time needed to reach the 8' target is about 31 years (by about 2050) (see Water Levels #1).

Moreover, the Water Level Metric is not likely reliable for Zone E because it includes only one Zone E well. When the water levels at the three Zone E wells near the estuary (LA4, LA11, and LA40) are averaged, the result is -1.3' (more than 3' lower than the 2019 Water Level Metric), and the three-year trend for the three wells is a negative trend—meaning the metric target would never be reached if the trend continues (see Water Levels #2).

The Basin Plan estimates the seawater intrusion front is not expected to respond (reach the Chloride Metric Target of 100) until about 30 years after the Yield Metric Target is reached (it was reached in 2016), and the Water Level Metric target of 8' is not supposed to be reached until about 10 years after the Yield Metric Target. However, by 2019 after four years of pumping more than 20% below the sustainable yield (31% below in 2019), water levels in Zone E along the estuary should reasonably show signs of rising if the model correctly estimates the sustainable yield.

Thus, available data and other evidence does not support a conclusion that the model and the identified "sustainable yield," or even the Yield Metric Target of 80, using the full uncertainty "buffer," avoids an undesirable condition (seawater intrusion into Zone E).

See our letter to the Coastal Commission dated October 1, 2020 (pp. 3 & 4) for why

¹ We included spring and fall data for a more complete picture of year-to-year changes--the Basin Plan includes only spring data.

seawater intrusion into Zone E is an undesirable effect that is critically important to reverse if the Basin is to be sustainable.

The 20% buffer also does not adequately address climate change impacts. The USEPA's Climate Ready Utilities Project--joint USEPA-BMC exercise that took place in 2013, which is cited in the LOCP (p. D-12)--estimates that the sustainable yield of the Basin with all Basin Plan programs in place would be reduced from 3400 AFY to 2350 AFY due to sea level rise, higher temperatures, and less rainfall. The LOCP indicates that the reduction is projected for 2050 and states "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." This statement is vague and would need to be clarified. However, it seems highly unlikely that if the "sustainable yield" were reduced to about 2500 AFY by 2040, that the Basin would sustain a buildout population with Basin-wide pumping at the recommended Yield Metric Target of 80, i.e. 2000 AFY.

The LOCP improperly defines "sustainable yield" as the quantity of water that would not cause "overdraft," instead of focusing on the quantity of water that can be extracted without causing "undesirable" impacts including seawater intrusion.

The LOCP provides a definition for sustainable yield that is very similar to the definition provided by SGMA BMPs. However, the seemingly subtle difference between the two could mean the difference between a sustainable and healthy Basin and one that is pumped to extinction.

The LOCP defines sustainable yield of a groundwater basin 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. (pp. 4-5 & D-8). (Emphasis added.)

SGMA, on the other hand, defines "sustainable yield" as

- . the maximum quantity of water, calculated over a base period representative of longterm conditions in the basin and including any temporary surplus, that can be*

withdrawn annually from a groundwater supply without causing an undesirable result. (SGMA BMP 5 Modeling, p. 32). (Emphasis added.)

Accordingly, while the SGMA definition links sustainability of a groundwater basin with the concept of avoiding “undesirable results” which includes overdraft, the LOCP definition of sustainability unreasonably focuses solely on avoiding overdraft conditions which may simply be the exceeding of a modeled sustainable yield value. The LOCP definition ignores the fact that overdraft relative to a modeled estimate is not the only or even the most likely undesirable impact that must be avoided in Los Osos.

From a CEQA perspective, avoiding the “overdraft conditions” is not an appropriate threshold of significance for evaluating the Project’s (i.e. the LOCP’s) potentially significant impacts on water supplies because significant environmental impacts can occur (principally, seawater intrusion) without developing an “overdraft condition.” Any potential development scenario that results in significant seawater intrusion or other impact on the Basin and dependent resources (e.g., sensitive habitat) would have a significant environmental impact within the meaning of CEQA.

By using a threshold that only focuses on overdraft conditions, the County relies primarily on the model to determine what level of pumping would result in overdraft conditions and ignores the physical evidence of seawater intrusion or other impacts. This language also allows the County to justify approving development that exceeds the Metric Target of 80 or below, the goal of the Basin Plan, and to pump at the “sustainable yield” (i.e. not an overdraft condition) which nevertheless moves the seawater intrusion front further inland, potentially leading to other undesirable effects, e.g., excessive pumping of the upper aquifer or near Los Osos Creek leading to degradation of ESHA.

The Basin Plan acknowledges that “sustainable yield” as defined creates an undesirable effect by allowing seawater to move further into the Basin, which is why the Basin sets a goal of pumping 20% below the “sustainable yield” at the Yield Metric Target of 80 (pp. 110 & 111). However, defining “sustainable yield” in this way allows the County and all others pumping from the Basin to claim that pumping is within “sustainable” limits even when it is resulting in seawater intrusion and other undesirable effects (e.g., harm to habitat).

The Basin Plan provides a plan view map (overhead view) of the estimated location of the

seawater intrusion front when the Basin is pumped to “sustainable yield” (see Figure 38, p. 111). As shown, pumping at this level allows the front in Zone D to move into the commercial area, which would apparently result in several supply wells in operation now being taken out of service due to contamination by seawater intrusion.

Accordingly, the County must adopt a definition of sustainable yield that avoids all undesirable effects, including overdraft, seawater intrusion, low water levels, and other undesirable effects. Moreover, any definition of sustainable yield must include quantifiable objectives and the reliable monitoring data needed to conclusively show the sustainable yield avoids undesirable effects.

The LOCP and FEIR must include analysis of uncertainties and incorporate a large enough margin of safety to protect the long-term health of the Basin.

As explained above, the 20% “buffer” is not enough to account for the inherent substantial uncertainties and to adequately guard against “undesirable effects.” Assuming the Yield Metric Target of 80 were to be renamed the “sustainable yield” for the Basin, then the new “sustainable yield” would still require a buffer or margin of safety built into the estimate to account for uncertainties (i.e., leave water in the ground that could be used when unexpected results arise, such as droughts, additional seawater intrusion, reduced flows to habitat, and upticks in water use). Water use in Los Osos has gone up in 2020, based on water use data released by the LOCSD, possibly due to more people being at home as a result of the pandemic. Staying within the current Yield Metric Target is likely to require additional conservation (see LOCSD Utility Report. October 21, 2020).

SGMA BMPs recommend that an uncertainties analysis be completed for basin models and that a range of modeling scenarios be provided based on the analysis. This would inform decision-makers and other stakeholders about the range of possible outcomes (positive and negative) and the risks associated with management actions, climate change, and other factors affecting the basin system (see SGMA BMP 5 Modeling, e.g., pp. 20, 29).

The 2010 peer review of the Basin model conducted by Stetson Engineers also recommends an uncertainties analysis and additional modeling scenarios to inform decision-making (see SWI ISJ Update, pp. 1 & 9, pdf pp. 13 & 21). Completing an uncertainties analysis and a range of modeling scenarios is especially important for the Los Osos Basin because the Basin is undergoing major changes in recharge and pumping

regimes, at the same time it is experiencing significant climate change impacts. The County must undertake a new uncertainties analysis in order to take into account the 5 years of monitoring data and new evidence of continued advancement of the seawater intrusion front.

An uncertainties analysis was never done for the Basin model, and very few modeling scenarios were developed that show less-than-best-case scenarios. The ones that have been provided are not being used to guide planning. For instance, the 2017 Response Analysis TM showing variations in rainfall was prepared for the BMC in 2017, but the results have not been referred to in Annual Monitoring Reports and are not discussed in the LOCP or the LOCP EIR.

The Response Analysis TM points out that the effectiveness of Infrastructure Program C expansion wells is dependent on the flow in Los Osos Creek. The TM indicates that Yield Metric Target values go down in proportion to lower rainfall conditions without the wells in place, but yields drop more with them in place as annual rainfall decreases (e.g., pp. 7 & 11). At 67% of the currently-assumed annual rainfall (17.5”), expansion wells can’t be used because they will contribute to and exacerbate seawater intrusion. Further, the calculations assume a 200 AFY increase in stream flow due to assumed use of in lieu recycled water at the memorial park and at agricultural sites near Los Osos Creek. According to the 2019 AMR, however, no recycled water is going to the memorial park or agricultural sites (Table 28, p. 24).

Because no uncertainties analysis has been done, it is unclear whether the reductions in yield attributed to Program C (and Program D) are adequate to account for such variables as reduced average rainfall and the absence of recycled water at the memorial park and the agricultural sites. Similarly, it is not clear whether the placement of wells closer to each other than assumed in the model is factored into yield estimates. The modeled reduction in yield at planned Expansion Well #2 (mentioned above) is reportedly due to proximity to other production wells located in the commercial area not near the creek (see Program C Update p. 4 in LOCS D November 5, 2020 agenda packet, pdf p. 11).

The effects of the creek on expansion wells highlight the need for a thorough uncertainties analysis. Conversely, the effects of expansion wells on the creek and habitat are reasons for an uncertainties analysis.

Another key source of uncertainty that may not be factored into the model is the potential impact of expansion wells on environmentally sensitive habitat (referred to as ESHA), and impacts to protected species (e.g., endangered steelhead in Los Osos Creek). In his 2014 review of the Basin Plan, Eugene Yates warns about this potential impact (p. 3). However, the Basin Plan does not include impacts to habitat in the list of uncertainties that the 20% buffer is supposed to address (pp. 110-114). Similarly, impacts from shifts in pumping to the upper aquifer (Infrastructure Program B) must be factored into yield estimates. Reduced flows to springs and marshes along the estuary (as well as potentially to non-aquatic ESHA) are likely to occur with greater pumping of the upper aquifer, which must be considered an undesirable and unacceptable outcome. Notably, the EIR fails to consider this potentially significant impact, and does not identify any adequate mitigation measures to address this potentially significant impact. Detrimental impacts to ESHA would also be in contravention of the LCP and the conditions of the CDP, which make clear that the implementation of the LOCP cannot result in any significant degradation of ESHA.

Other potential impacts on yield that should be considered are the potential impacts of expansion wells on private well use and related social impacts that affect yield estimates. For example, there is anecdotal evidence that ranchers east of Los Osos Creek will oppose Zone D wells located there, and neighbors near one of the sites considered for Expansion Well #2 have already voiced their opposition due to potential impacts on their wells (see LOCSO November 5, 2020 agenda packet, pdf pp. 47-50). Again, the EIR does not include any meaningful analysis of the potential impacts on neighboring wells. The above analyses are critically needed because the County has not conducted any meaningful analysis of the potential impacts of expansion wells on neighboring wells and sensitive flora and fauna when the Basin Plan was being developed or after.

Other factors that should be included in an uncertainties analysis and incorporated into sustainable yield margins of safety and modeling scenarios include impacts to water use from an increasing number of people working remotely from home. Since historically most Los Osos residents have worked outside of the community, more people working at home will likely increase indoor and outdoor water use in the area.

Also, many private wells are not metered, which means the County has no reliable estimate of about 40% of the water used in the Basin because, in the absence of metering, this water is being estimated. The Basin Plan indicates unmetered water use adds 5% of uncertainty

to yield estimates (about 100 AFY), but actual water could add significantly more than 5%, especially with climate change impacts, given that unmetered water use occurs on agricultural sites and properties with the largest lot sizes in the area.

The SGMA BMP guidelines stress the need for robust uncertainties analysis to aid planning and water management efforts.

Stetson Engineers, in its peer review, also mentions the need to quantify the uncertainties in a “pre-processor” used in modeling to arrive at percolation rates, which may have significant levels of uncertainty (see Stetson Review, p. 9 in ISJ SWI Update 2010, pdf p. 21). A related source of uncertainty is the question of how water moves from the upper to the lower aquifers and the timescales involved. The CSU Monterey Bay Watershed Institute points out that, due to the low permeability of the clay layer between the upper and lower aquifers which has not been directly measured, most of the post development recharge of the lower aquifer is likely through well bore leakage or “natural holes in the clay layer” (p. 33). The Institute’s report published in 2010 recommends testing to resolve the question because “it is key to estimating the recharge potential and safe yields for the lower aquifer” (CSU Monterey Bay Watershed Institute Report, p. 34).

Further, a recent test well for a proposed LOCSD expansion well near the Middle School revealed that Zone E does not exist in the area, indicating a need to recalibrate the model for changes in assumed Basin structure (e.g., less Basin capacity) (see Test Hole TM, p.2, pdf p. 23 in BMC April 15, 2020 agenda packet).

There is no substantial or convincing evidence to show adaptive management will avoid substantial harm to the Basin.

The LOCP proposes “adaptive management” as a means to avoid overdraft and mitigate harm to the Basin that could result from the implementation of the LOCP (LOCP, p. 7-3, D-9, D-11). This contention, however, is not supported by the manner in which “adaptive management” has been implemented to this point, as shown by the Adaptive Management TM, Nitrate and Seawater Intrusion TM, and Program Update TM cited above². Both the Adaptive Management TM and the Program Update TM conclude that Basin conditions are sustainable based on limited and unreliable metric results and other evidence. A third, the

² (Note that the Nitrate and Seawater Intrusion TM is also referred to as adaptive management TM; we changed its name to avoid confusion.)

Nitrate and Seawater Intrusion TM, projects an overly optimistic timeline for Basin sustainability based on limited and unreliable metric results.

Adaptive management has not worked in this case because, despite the evidence that shows seawater intrusion has not been abated in Zone E, the adaptive management program has not produced a time-specific plan to reverse it. The Nitrate and Seawater Intrusion TM recommends monitoring, developing a transient model, and Infrastructure Program B as adaptive management strategies to address the problem, but one year later no plan has been developed and/or action taken, and only transient modeling and additional monitoring are being considered. Further, Stetson Engineers in its 2010 peer review of the model recommended development of a transient model to better account for changing conditions, and Eugene Yates recommended more monitoring in his 2014 peer review of the Basin Plan (see Stetson Review, pp. 2 & 9 and 2014 Yates, pp. 9&10). The 2019 Nitrate and Seawater Intrusion TM indicates that transient modeling will “provide better input on the timing of Basin recovery” (of Zone E) (p. 10). A transient model should capture the reduced yield due to the Broderson leach fields being non-operational and less rainfall over 15 years, if appropriately calibrated.

Further, the programs available for adaptive management are, for the most part, the same seawater intrusion programs proposed for mitigating seawater intrusion for current development and increasing yield to support further development (reuse, conservation, and infrastructure programs--plus monitoring). The programs are not able to do both at once. If they are used to support development, they are not available to address unexpected situations not already predicted by the model. .

The use of the County conservation program reinforces our concerns about the effectiveness of adaptive management. Every Annual Monitoring Report prepared for the BMC since 2015 has included “additional conservation measures” as an adaptive strategy to achieve the first immediate goals of the Basin Plan (e.g., 2019 Annual Monitoring Report, Table 23 & pp.75-77). However, the County-run conservation program (required by Special Condition 5 of the wastewater project permit and now the BMC conservation program) has issued just forty retrofit rebates between 2016 and 2019 at a cost of about \$13,000, and there has been no effort to increase participation, that we know of. Considering that the County is required to spend \$5 million on the program and to use enforceable mechanisms if needed “to maximize long-term ground and surface water....sustainability...” The weak

performance of the program shows the County is not focused on achieving the immediate goals of the Basin Plan (see 2019 Annual Monitoring Report, p. 81).

On the other hand, the County is approving development with a Title 19 retrofit offset program using the same measures and conservation potential within the Basin as the Special Condition 5 program. These programs directly compete for the remaining conservation potential in the area and the County's support of a Title 19 program over the Condition 5 program shows the County's priority.

The County is also apparently not implementing the required "adaptive management" component of the Environmental Monitoring Program (EMP) required by Special Condition 5 (c & d) of the 2010 wastewater project coastal permit. The EMP annual reports have indicated impacts to riparian habitat near Willow Creek (the Donna Avenue Marsh site) above the maximum threshold for the past three years, yet no adaptive measures have been implemented (see Special Condition 5(d) and EMP Third Annual Rep. 2019, Executive Summary, p. i).

An effective adaptive program requires having a reliable set of strategically placed monitoring sites, identified minimum thresholds (e.g., minimum water levels and chlorides at specific wells), and specific plans in place to respond to the first signs of thresholds being exceeded. Current Basin Plan metrics, monitoring, and planning do not have nearly the level of reliability and specificity needed to detect and respond effectively to problems. Zone E is not even being tracked and the chloride metric has acknowledged unreliability.

The Annual Monitoring Reports prepared for the BMC basically acknowledge that adaptive programs have not been developed, with the following remarks in the adaptive management section:

Contingency Plan Development. *As metric trends and Basin response become better defined, the BMC intends to develop contingency plans to respond to unforeseen conditions. As funding and siting for Program C projects progress, detailed milestone schedules will also be developed.*

Lower Aquifer Nitrate Trends. *The BMC will continue to monitor the leakage of groundwater with elevated nitrate concentrations from the Upper Aquifer through the regional aquitard into the Lower Aquifer. Trends of increasing nitrate concentrations at some Lower Aquifer community supply wells are projected to exceed State drinking water*

standards, possibly within the next 10 years, as reported in the 2019 Adaptive Management TM (CHG, 2019a). The BMC will address this as part of strategic planning.

Adaptation of Water Conservation Measures. *Evaluate the Urban Water Use Efficiency Program to determine which conservation measures are the most efficient and effective to meet the LOBP's goals (2019 Annual Monitoring Report, p. 76).*

Conclusion

The Basin Plan indicates that permanent harm to the Basin may not be known for 15 years if modeling estimates do not include accurate water use totals due to unmetered private well use (p. 137). With this statement the Basin Plan acknowledges two things: (1) modeling uncertainties can result in permanent harm to the Basin, and (2) signs of that harm maybe be delayed until it is too late to do any thing about it—more of the Basin is permanently lost. The Coastal Commission recognized that unsustainable development could cause irreparable harm and that the large wastewater project would provide a powerful incentive for unsustainable development. To prevent harm to the Basin and dependent Coastal resources, the Commission conditioned the wastewater project on an LOCP that bases sustainable buildout limits and the mechanisms to stay within those limits on an adequate water supply for that development “without adverse impacts to ground and surface waters, including wetlands and all related habitats.” The LOCP and related FEIR does not provide the analysis and conclusive evidence needed to show proposed Basin Plan programs will be capable of preserving the Basin after decades of overdraft and neglect, let alone produce excess capacity to support residential growth.

Above and in previous letters, we explain and provide substantial evidence showing the County’s proposed LOCP and related policies and ordinances do not provide buildout limits and mechanisms to stay within those limits that avoid harm to the Basin and meet the standard of “conclusive evidence.” Such evidence can only be provided by sufficient reliable well data over sufficient time to confirm that seawater intrusion is reversed to a predetermined location in both lower aquifers and water levels are high enough Basin-wide to avoid undesirable effects through droughts, climate change, other adverse conditions.

As we have further pointed out in previous letters and in this letter, there are not enough monitoring wells in the Basin currently that provide reliable data to accurately track seawater intrusion and water levels in the lower aquifers, and the County and BMC is

relying on metrics with acknowledged unreliability that have produced questionable results in the past. Before the LOCP and related policies and ordinances can meet the requirements of the wastewater project CDP, Coastal Policies, the Coastal Zone Land Use Ordinance, the County will have to work cooperatively with the Basin Management Committee to develop policies, practices, and programs capable of providing conclusive evidence or a sustainable water supply that can accurately tract and effectively remediate seawater intrusion and low water level conditions in the Basin. This will be needed to ensure a sustainable water supply for the current and any future population.

In addition to our earlier comment letters that we've submitted to the County relating to the Los Osos Basin, the Los Osos HCP, and the Los Osos Community Plan; we also incorporate by reference related comments submitted to the County by the Los Osos water purveyors (the LOCSO, Golden State Water Company, and S & T Mutual), as well as comments submitted by other stakeholders in the Basin who support a cautious and protective approach to Los Osos Basin management and the approval of further development in Los Osos.

Sincerely,

Patrick McGibney, Los Osos Sustainability Group (LOSG)

Documents Cited

Annual Monitoring Reports prepared for the BMC

1. "Los Osos Basin Plan Groundwater Monitoring Program 2015 Annual Monitoring Report," Cleath-Harris Geologists, Inc, September 2016.
2. "Los Osos Basin Plan Groundwater Monitoring Program 2016 Annual Monitoring Report," Cleath-Harris Geologists, Inc, June 2017.
3. "Los Osos Basin Plan Groundwater Monitoring Program 2017 Annual Monitoring Report," Cleath-Harris Geologists, Inc, June 2018.
4. "Los Osos Basin Plan Groundwater Monitoring Program 2018 Annual Monitoring Report," Cleath-Harris Geologists, Inc, June 2019.
5. "Los Osos Basin Plan Groundwater Monitoring Program 2019 Annual Monitoring Report," Cleath-Harris Geologists, Inc, June 2020.

Technical Memoranda prepared for the BMC

1. (Response Analysis TM 2017)
Technical Memorandum, “Basin Yield Metric response to reduced long-term precipitation in the Los Osos Groundwater Basin” Cleath-Harris Geologists, Inc, March 3, 2017
2. (Adaptive Management TM 2019)
Technical Memorandum, “Metric Trends Review and Infrastructure Program C Evaluation,” Cleath-Harris Geologists, Inc, February 28, 2019
3. (Nitrate and Seawater Intrusion TM 2019)
Technical Memorandum, “Lower Aquifer nitrate concentration trends review and LA11 seawater intrusion evaluation,” Cleath-Harris Geologists, Inc, November 6, 2019
4. (Program C Update TM 2020)
Technical Memorandum, “Los Osos Basin Plan Program C Expansion Well No. 2 Alternatives Update,” Cleath-Harris Geologists, Inc, January 23, 2020 February 19, 2020, (Included in the LOCSD Meeting Agenda Packet, November 5, 2020, pdf pp, 7-11)
5. (Program Update TM 2020)
Technical Memorandum, “Update of Los Osos Basin Plan Programs U and C with respect to Basin Sustainable Yield,” Cleath-Harris Geologists, Inc, June 10, 2020 (Included in the BMC Meeting Agenda Packet 6-17-20, pdf pp. 65 to 68)

Other documents:

1. CSU Monterey Bay Watershed Institute Report
2. EMP Third Annual Rep 2019 (Environmental Management Program report required by Special Condition 5 of the wastewater permit).
3. LOSG letters to Planning Commission and
4. LOCSD Program C Constraints Analysis (included in LOCSD November 5, 2020, agenda packet, pdf pp. 14-47)
5. Neighbor petition against location of Expansion Well #2 (included in LOCSD November 5, 2020, agenda packet, pdf pp. 47-50)
6. SGMA BMP 5 Modeling
7. Special Conditions 5 & 6
8. Stipulated Judgment (between the BMC parties)
9. Water Levels #1 and #2
10. Yates Basin Plan Review (2014)

All documents cited can be accessed on the LOSG website at thelosg.com

AMRs, TMs, and Agenda packets are also available at the County BMC website:
[https://www.slocounty.ca.gov/Departments/Public-Works/Committees-Programs/Los-Osos-Basin-Management-Committee-\(BMC\).aspx](https://www.slocounty.ca.gov/Departments/Public-Works/Committees-Programs/Los-Osos-Basin-Management-Committee-(BMC).aspx)