

Master Response 6.1

Cumulative Analysis

Overview

This master response addresses comments regarding the cumulative impact analysis, which is primarily described in Chapter 17, *Cumulative Impacts, Growth-Inducing Effects, and Irreversible Commitment of Resources*. The California Environmental Quality Act (CEQA) requires a discussion of the cumulative impacts of a project when the project’s incremental effect is cumulatively considerable. (Cal. Code Regs., tit. 14, § 15130, subd. (a).)¹ As defined in section 15355 of the State CEQA Guidelines, cumulative impacts “refer to two or more individual effects which, when considered together, are considerable or which compound or increase other environmental impacts.” (§ 15355.) “The cumulative impact from several projects is the change in the environment which results from the incremental impact of the project when added to other closely related past, present, and reasonably foreseeable probable future projects.” (§ 15355, subd. (b).) The discussion of cumulative impacts should reflect the severity of the impacts and their likelihood of occurrence. Lead agencies need not provide a discussion of the cumulative impacts at the same level of detail as provided for the impacts attributable to the project alone (*Ibid.*). Furthermore, the discussion should be guided by the standards of practicality and reasonableness (*Ibid.*).

Commenters identified the difficulty of analyzing potentially significant cumulative impacts under the plan amendments in light of the broad geographic area under evaluation and the necessary programmatic level of the analysis. In accordance with CEQA, the SED adequately discloses the cumulative impacts of the plan amendments where the incremental effect is cumulatively considerable. In light of the nature of the plan amendments under evaluation, the programmatic nature of the analysis, and the broad geographic area under consideration, the substitute environmental document (SED) presents sufficient information to inform decision makers and the public about potential impacts, guided by standards of practicality and reasonableness (§15130, subd. (b).)

The State Water Board reviewed all comments related to cumulative impacts and developed this master response to address recurring comments and common comment themes. For ease of reference, a table of contents is provided after this *Overview* to guide readers to specific subject areas and to help them find where the topics of their concern are addressed. This master response references related master responses, as appropriate, where recurring comments and common themes overlap with other subject matter areas. This master response addresses, but is not limited to, the following topics.

- The overall approach and the programmatic level of detail for the cumulative impacts analysis.
- The completeness and level of detail of the project list developed and used for the cumulative impacts analysis.

¹ All further regulatory references are to the CEQA Guidelines found in title 14 of the California Code of Regulations unless otherwise indicated.

This master response also addresses cumulative topics related to some specific resource areas commonly identified by commenters. It highlights excerpts from the SED that may contain the information the commenter seeks or more fully describes and explains the intent, approach, or methods of the analyses related to these resources. Accordingly, this master response also addresses the following topic.

- The cumulative evaluation as it relates to specific topics, including service providers; groundwater and the Sustainable Groundwater Management Act (SGMA); climate change; and growth inducement and the need to develop housing.

For more information about the general approach to analyses in the SED, including the programmatic level of analysis, please see Master Response 1.1, *General Comments*. For more information regarding the groundwater impact analysis please see Master Response 3.4, *Groundwater and the Sustainable Groundwater Management Act*. For more information regarding impacts on service providers, please refer to Master Response 3.6, *Service Providers*. For details on climate change as it relates to CEQA requirements, hydrology, and modeling, please see Master Response 3.2, *Surface Water Analyses and Modeling*. For information regarding the approach and scope of the greenhouse gas emissions analysis in Chapter 14, *Energy and Greenhouse Gases*, and Chapter 17, *Cumulative Impacts, Growth-Inducing Effects, and Irreversible Commitment of Resources*, please refer to Master Response 3.7, *Greenhouse Gas Emissions and Analysis*.

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Approach to Cumulative Analysis

Comments related to the approach to the cumulative analysis focused primarily on the level of detail of the cumulative impacts analysis and the completeness and level of detail of the project list developed and used for the cumulative impacts analysis. Some commenters questioned the completeness of the project list and suggested that it may be too narrow; however, many of these commenters and other commenters did not provide names or details of other projects that they thought should be included in the analysis or explain how other projects would alter the cumulative determinations identified in the SED. Some commenters claimed that certain future projects or plans are absent from the SED's evaluation that are, in fact, evaluated in the SED. In the few instances where commenters provided details of either a project or evaluation, specific responses are provided to those unique comments noting and explaining the inclusion or exclusion of certain projects and evaluations.

The overall approach to the cumulative impact analysis is primarily contained in Chapter 17, *Cumulative Impacts, Growth-Inducing Effects, and Irreversible Commitment of Resources*, but also in Chapter 16, *Evaluation of Other Indirect and Additional Actions*, Section 16.7, *Cumulative Impacts*. The SED has been prepared pursuant to the State Water Board's certified regulatory program and is a program-level, not project-level analysis, consistent with CEQA Guidelines, section 15168. A program environmental impact report (EIR) is an EIR that may be prepared on a series of actions that can be characterized as one large project and are related either geographically or in connection with issuance of rules, regulations, plans, or other general criteria to govern the conduct of a continuing program, among other criteria (§ 15168). Section 15355 of the State CEQA Guidelines defines cumulative impacts as individual effects that, when considered together, are considerable or compound or increase other environmental impacts. A cumulative impact occurs from "the change in the environment which results from the incremental impact of the project when added to other closely related past, present, and reasonably foreseeable probable future projects. Cumulative impacts can result from individually minor but collectively significant projects taking place over a period of time" (§ 15355, subd. (b)). The discussion of cumulative impacts should reflect the severity of the impacts and their likelihood of occurrence. Lead agencies need not provide a discussion of the cumulative impacts at the same level of detail as provided for the impacts attributable to the project alone (§ 15130, subd. (b)). Furthermore, the discussion should be guided by the standards of practicality and reasonableness. (*Ibid.*)

When evaluating cumulative impact analyses, State CEQA Guidelines recommend either a list or a projection approach. As described in Chapter 17, the State Water Board used the list approach, which allowed for development of a list of projects unique to each resource topic. The list of projects was created by reviewing other program-level environmental compliance documents in addition to known or foreseeable programs in the plan area or extended plan area and that may cause impacts similar to those caused by the plan amendments. The discussion includes a summary table (Table 17-1) of projects and programs considered as part of the cumulative impact analysis. The summary table generally identifies the project proponent; describes the project and its status; and identifies the resource areas with potential cumulative effects. Some commenters suggested that the list include projects with a range of objectives that relate to the nature of the plan amendments.

Table 17-1 appropriately focuses on projects that could cause related impacts to resource areas identified in the SED, including projects that affect water resources and supply. Table 17-1 also

includes categories of projects, with examples, so that the cumulative effects of a general class of projects can be determined. The list of projects is sufficiently broad yet detailed enough to fully consider past projects, present projects, and reasonably foreseeable probable future projects with related effects in areas potentially affected by the plan amendments.

In accordance with CEQA, the SED adequately discloses the cumulative impacts of the plan amendments where the incremental effect is cumulatively considerable on different resources. In light of the nature of the plan amendments under evaluation, the programmatic nature of the analysis, and the broad geographic area under consideration, the SED presents sufficient information to inform decision-makers and the public about potential impacts, guided by standards of practicality and reasonableness (§ 15130, subd. (b)). To ensure that the SED is sufficiently inclusive in assessing environmental impacts, the SED not only includes a list of past, present, and probable future projects producing related impacts, but also discloses related impacts associated with broad categories of actions that are likely to occur but lack specific details for inclusion in the list. Furthermore, Chapter 16, to the extent feasible, considers possible cumulative impacts on each environmental resource in the plan area and the extended plan area but without reference to specific contributing cumulative projects because their location, scope, timing, and magnitude are unknown. A proposal that has not crystallized to a point at which it would be reasonable and practical to evaluate its cumulative impacts need not be treated as a probable future project (*City of Maywood v. Los Angeles Unified School District* (2012) 208 Cal.App.4th 362, 397).

Although some commenters suggested the project list may be too narrow; those commenters did not provide names or details of any other projects suggested for inclusion. Thus, the State Water Board cannot address whether it was reasonable and practical to include additional projects in the cumulative analysis when commenters did not provide relevant information. The programs and projects identified in the SED represent a reasonable and practical assessment of programs and projects with related effects. As explained in Chapter 17, Section 17.2.1, *Projects Considered*, where “information is not sufficient for a detailed cumulative effects analysis, or there is a high level of uncertainty as to what actions would occur and how they would affect resources, this is noted in the text and no attempt at speculation is made.”

Given the unique character of the water quality control planning process, the broad geographic area under analysis, and the cumulative impacts analysis already undertaken in the SED, the analyses of any additional projects that could contribute to cumulative impacts are unlikely to change determinations regarding the type or significance of cumulative impacts. The SED adequately identifies the significant and cumulatively considerable impacts of the plan amendments and has been prepared with a sufficient degree of analysis to provide decision-makers with information that enables them to make a decision that intelligently takes into account environmental consequences (§ 15151).

Service Providers

Commenters expressed concerns with impacts on water supply reliability, groundwater quantity, and the potential for wells going dry. Some commenters asserted that cumulative impacts for specific diverters of water should have been quantified. Additionally, they asserted that the analysis of cumulative impacts on service providers should take into consideration all the future conditions that would constrain supplies, including drought, SGMA, and more stringent drinking water

standards. Please see Master Response 3.6, *Service Providers*, for specific responses to concerns related to Chapter 13, *Service Providers*.

As noted in the *Approach to Cumulative Analysis*, the SED has been prepared pursuant to the State Water Board's certified regulatory program and is a program-level, not project-level, analysis consistent with State CEQA Guidelines, section 15168. The SED contains extensive program-level analysis of the impacts on service providers, and the cumulative impacts analysis builds on the program analysis. The cumulative analysis of impacts on service providers is informed by data in several chapters of the SED, including but not limited to Chapter 5, *Surface Hydrology and Water Quality*, Chapter 9, *Groundwater Resources*, and Chapter 13. These chapters created a comprehensive picture of water use, water supply, groundwater supply, the different characteristics of service providers within the plan area and extended plan area, their infrastructure, the population they serve, and the challenges they face. All of this data was considered as part of the cumulative impact analysis.

To inform the program-level and cumulative impact analyses, a significant amount of detailed information and data was collected to illustrate the environmental setting regarding service providers and private water users. Chapter 13 identified service providers that rely on surface and groundwater, or a combination of both. There are approximately 15 service providers in the plan area and 55 public water service providers in the extended plan area that may use a combination of surface and groundwater supplies. Additionally, approximately 93 public water suppliers and 66 domestic wells rely heavily or primarily on groundwater within the four subbasins evaluated in the SED. Information collected and presented regarding these water users included the surface water and ground water they use, its quality, locations and depths of groundwater wells, and the percent of use of groundwater. In the southern Delta, comprehensive information regarding six wastewater dischargers and water suppliers, including Contra Costa Water District, State Water Project (SWP), and Central Valley Project (CVP) water users is also presented.

Service providers, large and small, were considered in the impact and cumulative impact analysis. The impact analysis in Chapter 13 compared a larger and a smaller service provider to outline the potential differences in the severity of an impact between the respective entities. For instance, when outlining impacts of the plan amendments on groundwater supply and the potential reduction in available supply to a level that could cause a violation of water quality standards such that drinking water supplies may be affected, the comparative impacts on a larger service providers such as the Modesto Irrigation District, Turlock Irrigation District, and Merced Irrigation District, and a smaller service provider such as LeGrand Community Services District (CSD) are presented. The challenges faced by a smaller provider like LeGrand CSD (e.g., aging infrastructure, range of difference between well depths to groundwater) are noted in the impact discussion.

The program-level analysis of impacts of service providers resulted in all three of the following impacts on service providers to be analyzed for cumulative impacts.

- SP-1: if the project would require or result in the construction of new water supply facilities, wastewater treatment facilities, or expansion of existing facilities.
- SP-2a: if the project would violate any water quality standards such that drinking water quality from public water systems would be affected.
- SP-2b: If the project would violate any water quality standards such that drinking water quality from domestic wells would be affected.

- SP-3: If the project would result in substantial changes to SJR inflows to the Delta such that insufficient water supplies would be available to service providers relying on CVP/SWP exports.

Commenters suggested that the cumulative analysis should address water supply reliability and the potential of wells becoming dry. The cumulative impacts analysis in Chapter 17 generally discloses the impacts that commenters suggested are lacking. For example, Chapter 17, Section 17.2.2, *Cumulative Impact Analysis, Service Providers*, discusses impacts on groundwater levels that could result in reductions in groundwater supply and degradation of the quality of groundwater on which service providers and domestic well owners rely. It goes on to conclude that cumulative impacts on drinking water (Impact SP-2b) in the plan area are cumulatively considerable and significant.

Some commenters noted that more specific modeling resulting in a quantitative cumulative impact analysis should have been conducted for service providers. A quantitative analysis is neither reasonable nor practical; a quantitative analysis is not possible due to the unknown actions, and combination of actions, that individual water users or service providers might take in response to the Lower San Joaquin River (LSJR) flow objectives and the locations where such actions would occur (as discussed in Chapter 13, Section 13.4.2, *Methods and Approach*, and Master Response 3.6, *Service Providers*). The plan amendments do not prescribe specific responses of service providers, who may choose any actions (or suite of actions) that best meet their unique needs. It is speculative to assume what potentially multiple actions service providers in each area would take in response to implementation of the plan amendments. Moreover, speculating on the multiple combinations of these different actions would result in an undetermined amount of modeling assumptions that would be exhaustive and beyond the programmatic scope of the SED.

Nonetheless, the program-level analysis presented broad and thorough modeling results that describe averages and a range of conditions that may be expected from the plan amendments. Chapter 13, Table 13-14 provides the quantitative changes in the cumulative distribution of the diversions that are expected to occur on the Stanislaus, Tuolumne, and Merced Rivers as a result of the LSJR alternatives as simulated by the Water Supply Effects (WSE) model. Chapter 9, Table 9.12, provides the average annual results of reduction in groundwater supply. While these averages may not specifically state what may occur to each known service provider, they effectively explain the types of conditions that may be expected and the potential actions that could result, which in turn informed the qualitative cumulative impacts analysis. A qualitative analysis sufficiently satisfies the requirements of the certified regulatory program and CEQA. Moreover, a quantitative analysis would not likely result in changes to cumulative impact conclusions.

For these reasons, the data collected and presented in the SED was sufficient and adequate to inform the program-level analysis for both impacts and cumulative impacts on service providers. There is no support for any suggestion that the SED seriously understated cumulative impacts. Further evaluation and analysis of each service provider's contribution to related impacts is potentially speculative, does not contribute to improved understanding of the significance of the cumulative impacts, and goes beyond what CEQA requires of a program-level review to adequately provide the public and decision-makers the information necessary to make a decision regarding the project.

Groundwater and the Sustainable Groundwater Management Act

Some commenters stated the cumulative impacts should consider future projects, programs, or conditions with regard to groundwater in the plan area. As described below, the SED did consider cumulative impacts with regard to groundwater. To understand how the SED considered those impacts, it is important to note that the impacts fall into two general categories: SGMA, which could potentially decrease groundwater use in some unknown amount and thus is included in the analysis of potential cumulative impacts on agricultural resources; and, other projects and programs, such as housing and infrastructure, that could increase population growth and thus are included in the analysis of potentially cumulative impacts on groundwater resources (e.g. lower groundwater levels).

As described in Master Response 2.5, *Baseline and No Project*, and Master Response 3.4, *Groundwater and the Sustainable Groundwater Management Act*, SGMA took effect on January 1, 2015, more than five years after the Notice of Preparation was issued for the plan amendments. SGMA required local public agencies in each groundwater basin subject to the Act to form one or more groundwater sustainability agencies (GSAs) by June 30, 2017 and develop groundwater sustainability plans (GSPs). Although GSAs are now formed throughout the plan area, their GSPs are not yet due. Of the four subbasins in the plan area two, the Eastern San Joaquin and Merced (which includes a portion of the Chowchilla subbasin and is referred to as the “Extended Merced” in the SED), are listed by the California Department of Water Resources as critically overdrafted. Therefore, their GSPs will be due on January 31, 2020. For the other two subbasins, the Modesto and Turlock, which are not listed as critically overdrafted, their GSPs are due on January 31, 2022. Once those GSPs are adopted, the GSAs will have twenty years to achieve sustainable groundwater management as defined in SGMA.

The 2016 Recirculated SED acknowledges both the passage of SGMA and the State’s adoption in 2014 of a state policy for sustainable groundwater management (Wat. Code, § 113); however, SGMA provides GSAs a broad variety of tools and the discretion as to which tools to employ (*see especially* Wat. Code §§ 10725-10726.8). Because GSAs have wide latitude and the GSPs are not yet developed, adopted, or implemented, the programs and projects that those GSPs will eventually use to achieve sustainability are still unknown. For this reason, any effects resulting from implementation of hypothetical GSPs would be speculative conjecture and SGMA is not part of the baseline for the purposes of the CEQA analysis. In contrast, while the specifics of SGMA management are unknowable, some type of SGMA implementation is a reasonably foreseeable probable future project. Accordingly, the State Water Board appropriately included SGMA implementation in the cumulative impact analysis in Chapter 17, *Cumulative Impacts, Growth-Inducing Effects, and Irreversible Commitment of Resources*.

While SGMA could result in future protection of the groundwater basin, other activities could result in added demands on the groundwater basin, at least in the short term. Chapter 11, *Agricultural Resources*, analyzes how an increase in stream flow under the LSJR flow objectives could result in a reduction in the amount of surface water available for diversion to agricultural irrigation. The State Water Board’s environmental checklist questions in Appendix B and Chapter 11 then ask whether this reduction in agricultural irrigation might cause Important Farmland, as defined by the California Department of Conservation, to be converted to non-agricultural use. This impact is considered significant and unavoidable for LSJR Alternative 2 with adaptive implementation and

LSRJ Alternatives 3 and 4 with or without adaptive implementation. (For more explanation, please see Chapter 11 and Master Response 3.5, *Agricultural Resources*.)

SGMA includes among its many tools for sustainable management the authority, but not the requirement, for GSAs to “control groundwater extractions by regulating, limiting, or suspending extractions from individual groundwater wells or extractions from groundwater wells in the aggregate” (Wat. Code § 10726.4). Because GSAs have the power to protect groundwater resources in this way, SGMA implementation could mitigate adverse impacts to groundwater basins from over pumping. At the same time however, the majority of groundwater withdrawals in the plan area are for agricultural irrigation. That means that the eventual implementation of SGMA could be a further restriction on irrigation supplies, which could also lead to potential conversions of agricultural land to nonagricultural use. Therefore, impacts from LSRJ Alternative 2 with adaptive implementation and LSRJ Alternatives 3 and 4 with or without adaptive implementation were considered potentially cumulatively significant and unavoidable to agricultural resources when considered in combination with past, present, and future projects, including SGMA.

The LSRJ flow objectives would increase instream flow to reasonably protect fish and wildlife beneficial uses which results in a reduction in the amount of surface water available for diversion to agricultural irrigation. Chapter 9, *Groundwater Resources*, notes that the historic local response to a reduction in surface water supplies is to pump more groundwater. While plans and program under SGMA could eventually protect and stabilize groundwater resources, implementation of SGMA GSPs has not yet begun. Therefore, at least in the short-term, the reaction to the plan amendments could be to pump more groundwater, which could potentially significantly impact groundwater resources, for example by lowering groundwater levels. Chapter 17, includes a discussion of the cumulative impacts on groundwater resources that could result from the plan amendments. It notes that future actions that could affect groundwater resources in the four groundwater subbasins include new municipal, domestic, and agricultural development, including infrastructure. In Chapter 17, Section 17.2, *Cumulative Impacts*, the groundwater resources cumulative impact discussion states:

Several of the projects described in Table 17-1 are expected to encourage population growth, which could increase total municipal and industrial water use demands in a region that has historically relied on groundwater supplies. The projected population growth associated with these projects could increase total water demand and could increase reliance on groundwater resources to meet increased potable water supply demands.

The discussion provides a list of projects that reflect population growth and increase demand for water supply including University of California (UC) Merced 2020 Project, Proposed Merced County 2030 General Plan, Proposed Stanislaus County General Plan Update, and California High Speed Rail Project. It notes that past, present and reasonably foreseeable future projects could have impacts on groundwater through an increased reliance on groundwater resources and a reduction in surface water availability, thereby also increasing the reliance on groundwater.

The qualitative analysis points out that,

...due to varied responses to reduced surface water deliveries and differences in groundwater conditions in the subbasins, the impacts of these projects cannot be determined with certainty. However, because municipalities and suppliers within the subbasins have historically relied on groundwater for all or a portion of their water supply, it is reasonable to conclude that reliance on groundwater would increase as the total water demand increases. The increased reliance could result in increased groundwater pumping, which could lead to an overall decline in groundwater levels in the subbasins and the potential for contaminants to move towards wells. Additionally,

because lowered groundwater levels is associated with an increased risk of subsidence, these and similar projects could also increase the risk of subsidence in the subbasins.

The cumulative impacts discussion concludes that the incremental contribution to groundwater resource impacts from the plan amendments (in both the plan area and extended plan area) would be cumulatively considerable when viewed in connection with past, present, and reasonably foreseeable projects.

As noted in *Approach to Cumulative Analysis*, the SED is a program-level document with a program-level review. A quantitative analysis is neither reasonable and practical nor possible due to the unknowns of the specific actions individual water users might take in response to the LSJR flow objectives or the location where such actions would occur (as discussed in Master Response 3.4). It is speculative to assume how ground water pumping in each area would change in response to implementation of the plan amendments, and such analysis is beyond the programmatic scope the SED. The usefulness of a groundwater model is contingent on model assumptions and the quality of the information (i.e., data) that is input. In this case, a numerical groundwater model would require site-specific data, such as locations of increased pumping, volumes of increased pumping, characteristics of individual wells, locations of reduced recharge, and influences of potential recharge projects. This future site-specific information is unknowable. A qualitative analysis sufficiently satisfies the requirements of the certified regulatory program and CEQA.

Finally, it is important to note the relationship between groundwater resources impacts and agricultural resources impacts. Increased groundwater pumping for agricultural irrigation potentially impacts groundwater resources but decreases the likelihood of conversion to non-agricultural use (i.e. decreases agricultural impacts) by making more irrigation water available. The inverse is also true: decreased groundwater pumping for agricultural irrigation potentially impacts agricultural resources but decreases the likelihood of impacts to the groundwater basin. This highlights why the exact potential impacts in each of these resource areas are unknowable because ultimately there could be a mix of both but to lesser degrees. For additional discussion of the inverse nature of these potential impacts, please see Master Response 3.4 regarding agricultural economic effects, groundwater pumping, and SGMA.

Climate Change and Drought Evaluation

A few commenters were unsure if climate change was addressed as part of the cumulative impact evaluation. Impacts with respect to climate change are discussed in Chapter 14, *Energy and Greenhouse Gases*, Chapter 17, *Cumulative Impacts, Growth-Inducing Effects, and Irreversible Commitment of Resources*, and Chapter 16, *Evaluation of Other Indirect and Additional Actions*. These discussions note that climate change results from multiple sources and is inherently a cumulative effect. Impact EG-5 in Chapter 14 is provided for informational purposes and notes that climate change

...would not significantly affect the LSJR and SDWQ alternatives because the proposed adaptive implementation would allow agencies to respond to changing circumstances with respect to flow and water quality that might arise due to climate change. Furthermore, the required periodic review and update of WQCPs continually accounts for changing conditions related to water quality such as climate change.

Please refer to Master Response 3.2, *Surface Water Analyses and Modeling*, for details on climate change as it relates to CEQA requirements, hydrology, and modeling. Please refer to Master Response 3.7, *Greenhouse Gas Emissions and Analysis*, regarding the approach and scope of the greenhouse gas emissions analysis in Chapter 14 and Chapter 17. Please see Master Response 2.3, *Presentation of Data and Results in SED and Responses to Comments*, regarding the cumulative distributions presented in the impact analysis and the use of cumulative distributions to identify drier years and Chapter 21, *Drought Evaluation*, for an evaluation of water supply effects in dry years and the Water Supply Effects model representation of the most recent drought (e.g., 2011 to 2015).

Growth-Inducing Effects and Housing Factors

In accordance with CEQA, the State Water Board evaluated growth-inducing effects in Chapter 17, *Cumulative Impacts, Growth-Inducing Effects, and Irreversible Commitment of Resources*. The evaluation of potential growth-inducing impacts is qualitative and discusses the possible ways the LSJR and SDWQ alternatives could result in growth-inducing effects. It also addresses whether the alternatives would directly or indirectly foster economic, population, or housing growth; remove obstacles to growth; or encourage and facilitate activities that could significantly affect the environment, either individually or cumulatively (§ 15126.2, subd. (d).) The growth-inducing effects discussion identifies that,

...changes in river flows would generally result in more water remaining in the three eastside tributaries rather than being used for consumptive purposes. Therefore, changes in river flows would not increase the reliable water supply and would not directly or indirectly induce economic, population, or housing growth.

The State Water Board fully discloses the ways in which the plan amendments could foster or induce economic or population growth or the construction of additional housing, either directly or indirectly, in the surrounding environment.

It is the State Water Board's responsibility and authority to reasonably protect the water quality of the state, including through the water quality control planning process and the updates to the Bay-Delta Plan (Master Responses 1.1, *General Comments*, 1.2, *Water Quality Control Planning Process*, and 2.1, *Amendments to the Water Quality Control Plan*). Section 13241 of the Porter-Cologne Act identifies certain factors that must be evaluated when establishing water quality objectives, including the need for developing housing within a region. However, this requirement does not mean the State Water Board is responsible for developing, maintaining, or otherwise planning for housing in the plan area, extended plan area, or elsewhere in the State of California. Moreover, it is important to note that, depending on the actions taken and evaluated throughout the SED, entities may not actually experience a reduction in supply, and as such, would not experience any potential effect on the need to develop housing within their region.

The SED recognizes in the *Executive Summary*, Section ES10, *Intended Use of This SED*, that

...the flow objectives could result in reduced surface and groundwater supplies such that additional infrastructure to treat or provide alternative sources of water may need to be constructed, as explained in Chapter 13, Service Providers. Where alternative sources are not provided, it may affect new housing development because there may be insufficient supplies to serve the development.

Commenters stated that the growth-inducing discussion did not fully consider the need for developing housing in Central Valley communities in the plan area or the potential constriction of housing in the plan area. As identified by commenters, the need for housing and the development of housing in the State of California is driven by a wide variety of factors. These factors include, but are not limited to, economic conditions such as job growth within California and outside of California, income growth, changing demographics, mortgage interest rates, available housing stock and developable land, and factors affecting demand for housing, including location environmental attributes, affordability, and proximity to job centers (HCP 2017; LAO 2015).

The State Water Board evaluated potentially significant environmental impacts resulting from potential water supply reductions throughout the SED, including in Chapter 13, *Service Providers*, Chapter 16, *Evaluation of Other Indirect and Additional Actions*, and Chapter 17 *Cumulative Impacts, Growth-Inducing Effects, and Irreversible Commitment of Resources*. This evaluation considered potential growth-inducing direct and indirect effects of developing new housing as required by CEQA (described previously). However, it would be speculative to identify the geographic and temporal extent of changes related to the need to develop housing in the plan area, extended plan area, and in the Bay Area based on potential water supply reductions alone. It would be speculative given (1) the number of variables that are beyond the control of the State Water Board and are dictated by the housing market, and (2) the decisions of individual regulated entities, including municipal water providers.

Specific combinations of reasonably foreseeable methods of compliance, non-flow measures, and other indirect actions cannot be predictably aligned with each LSJR or SDWQ alternative because lead agencies or other entities could take one or more of the actions described throughout the SED (Chapters 13, 16, and 18, *Summary of Impacts and Comparison of Alternatives*). Because the combination of indirect actions, non-flow measures, and other actions is speculative and unknowable and, as such, the number of actions taken over time and in different locations cannot be identified (Chapters 13, 16, and 18), specific combinations of measures cannot be predictably aligned with the alternatives. It would be further speculative to analyze a hypothetical combination under hypothetical housing market conditions, and assert housing could be affected (e.g., reduced) under those hypothetical conditions, given the unknowable information. For further information on the various issues related to growth or housing in the plan area, please refer to Master Response 8.4, *Non-Agricultural Economic Considerations*.

Some commenters asserted the plan amendments would result in displaced growth and urban sprawl, and could be in opposition to Smart Growth policies adopted in the Bay Area, with resultant cumulative impacts. For additional information related to growth and housing in the Bay Area, please refer to Master Response 8.5, *Assessment of Potential Effects on the San Francisco Bay Area Regional Water System*. Numerous factors influence growth in the Bay Area. The Bay Area is already characterized by generally high land costs, high labor costs, limited availability of land, discretionary regulatory requirements for development projects, and neighborhood opposition to growth. The latter two factors increase costs by increasing the amount of time necessary to guide a project to approval and increasing the uncertainty of that approval. These factors result in a complex relationship to influence growth, development, and urbanization in an area. As such, it would be speculative to assume with any degree of certainty that growth would be displaced solely because of water supply because a wide degree of other factors and variables, such as availability of employment opportunities and development costs, could also dictate and limit where growth would or would not occur. Therefore, it would also be speculative to assume the extent and locations of any

displaced growth associated (and potentially associated environmental impacts) with the plan amendments, as the plan amendments only address one of the multiplicity of factors that influence extent and locations of growth.

For decades, the high cost of housing in the Bay Area has been attributed as the basis for some people leaving the Bay Area. Because this has been occurring for decades, this high cost is not primarily attributable to the availability of water supply. Similarly, spillover of housing demand into the Central Valley has been noted since at least 1978 when it was discussed in *An Urban Strategy for California*, prepared by the Governor's Office of Planning and Research (OPR 1978). Housing availability is limited by existing high housing costs, which, in turn, encourage development in the lower-cost Central Valley. The plan amendments would not alter that existing condition. Furthermore, the plan amendments do not propose any changes to City and County general plans, zoning ordinances, and/or other tools used to implement smart growth strategies other any other growth strategies in the plan area, extended plan area, or the Bay Area. Similarly, the plan amendments would not have any effect on transit or transit financing and do not affect the ability of local agencies to require or encourage infill development or encourage smart growth.

Municipal water providers in California are required to prepare urban water management plans (UWMPs) (Wat. Code, §§ 10610–10656.) California's urban water suppliers prepare UWMPs to support their long-term resource planning and to ensure adequate water supplies are available to meet existing and future water demands. These plans require that suppliers provide details of future water needs based on anticipated growth 20 years into the future and assured supplies from a portfolio of sources. Communities that face impending shortages or without an assured water supply in the future would already be in planning stages of pursuing options to close the shortages. These options may include conservation measures, water recycling, new wells, lease agreements with other entities holding excess water, or even purchasing water rights. As a result, communities are continually in the process of removing water-based barriers to housing development, and would do so whether or not the plan amendments are implemented. These examples serve to identify that it is more than simply water supply that influences the need for developing housing.

When housing is developed in California, it must go through the CEQA process and follow the requirements of Senate Bill 610 and Senate Bill 221. These bills were passed in 2001 to coordinate local water supply and land use decisions to help provide California's cities, farms, and rural communities with adequate water supplies (DWR 2003). These bills require the preparation of a water supply assessment (WSA), depending on the specific nature of a development project and if it meets certain criteria (DWR 2003). The preparation of WSAs and the coordination between water suppliers and cities planning for development that is required would continue under the plan amendments and would continue to facilitate housing development in the region, while considering water supply and demand.

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