

Final Draft Regional Water Infrastructure Resiliency Plan

for the

San Luis Obispo County Flood Control & Water Conservation District



Prepared Under the Responsible Charge of:

Daniel Heimel, PE

California R.C.E. No. 80762, Expires 3/31/2023



7/30/2021



Thank you for your interest in County-wide water resiliency planning. Please note:

The Draft Regional Water Infrastructure Resiliency Plan began in 2018 in response to the drought in the 2010s. It provides a point-in-time overview of the available water supply, current and future water demand, and a qualitative evaluation of resiliency for 40 water systems in SLO County. This “qualitative evaluation of resiliency” considered the potential effects of droughts, climate change, critical failure/disaster, and more.

This report includes a point-in-time “compilation of readily available” water supply and demand information needed to develop a relative ranking of resiliency, and is not intended to be the authority on specific agency water production and demand data. For example, this analysis was developed prior to the release of the 2020 Urban Water Management Plan (UWMPs) for the larger purveyors. The footnote in Appendix E contains information regarding the sources of data in the various report tables. Please coordinate with the specific water agency regarding their water related data.

The evaluation serves as a starting point for vetting long-term solutions (e.g. connection to a second source of supply via an intertie and mutually beneficial agreement) for those agencies estimated to have the least relative resiliency and no known mitigation measure(s). Also, District staff intends to include the methodology of this draft report in the forthcoming update to the County-wide Master Water Report, which will allow the County to track resiliency as UWMPs and similar plans are updated over time.

Acknowledgements

The Regional Water Infrastructure Resiliency Plan was prepared through the collaborative efforts of the San Luis Obispo County Flood Control & Water Conservation District, the Countywide Water Action Team and Water Systems Consulting, Inc.

TABLE OF CONTENTS

Table of Contents	ii
List of Tables	iii
List of Figures	iv
1 Executive Summary.....	1-1
1.1 Purpose , Objectives, Process and Outcomes.....	1-1
2 Introduction	1
2.1 Purpose and Objectives	1
2.2 Background	1
2.3 RWIRP Overview	4
2.4 Program Charter	5
2.5 Related Initiatives	5
2.5.1 County Regional Infrastructure and Housing Plan.....	6
2.5.2 Small Water Suppliers Drought and Vulnerability Analysis, Recommendations and Guidance 6	
3 Supply & Demand Assessment	7
3.1 Existing & Future Conditions.....	7
4 Resiliency Risk Evaluation	13
4.1 Drought Resiliency Risk.....	13
4.2 Supply Source Risk Assessment	18
4.3 Resiliency Risk Scoring	21
4.4 Resiliency Risk Prioritization Refinement	27
5 Resiliency Risk Mitigation Opportunities	30
5.1 Mitigation Opportunities	30
5.2 Mitigation Opportunities Scoring Criteria.....	30
5.3 Mitigation Opportunities Evaluation	32
6 Conclusions and Recommendations	34
6.1 Conclusions	34
6.2 Recommendations	36
7 References	38
Appendix A. Initial Regional Water Resiliency Concepts	A
Appendix B. Salinas Dam and Desalination Water Supply & Resiliency Options.....	B

Appendix C. RWIRP Charter C
Appendix D. Comparison of State Draft Drought and Water Shortage Risk Scoring and Countywide Water Action Team (CWAT) Draft Vulnerability AssessmentD
Appendix E. Supply and Demand Inventory E
Appendix F. Identified Mitigation Opportunities By Region..... F

LIST OF TABLES

Table 1. Existing and Projected Future Supply and Demand Summary..... 8
Table 2. Existing Water Supply Agreements 10
Table 3. Multiple Dry Years Supply and Demand Summary (%) 13
Table 4. Multiple Dry Years Supply and Demand Summary (AFY)..... 15
Table 5. Supply Source Risk Assessment Scoring and Criteria 19
Table 6. Risk Assessment by Supply Source..... 20
Table 7. Individual Agency Risk Scores 22
Table 8. Resiliency Risk Bracket Designations..... 27
Table 9. Mitigation Opportunity Scoring Criteria Matrix 31
Table 10. Mitigation Opportunities Evaluation..... 33

LIST OF FIGURES

Figure 1. RWIRP Methodology	1-2
Figure 2. Risk Assessment and Methodology	5
Figure 3. Existing Agreements Schematic	11
Figure 4. Existing Water Supply Surplus/Deficits to Meet 20% Demand Buffer.....	12
Figure 5. Multiple Dry Years Existing Water Supply Surplus/Deficits to Meet 20% Demand Buffer.....	17
Figure 6. Risk Scores by Supply Source	21
Figure 7. Individual Agency Risk Scores	26

1 EXECUTIVE SUMMARY

1.1 PURPOSE, OBJECTIVES, PROCESS AND OUTCOMES

What is the purpose of the Regional Water Infrastructure Resiliency Plan (RWIRP)?

The purpose of the RWIRP is to develop:

- A structured analysis of San Luis Obispo County’s regional water supply vulnerabilities and opportunities to improve resiliency.
- A framework for supply reliability and resilience information that facilitates collaboration amongst San Luis Obispo County water purveyors to further resiliency initiatives.

What are the objectives of the RWIRP?

The objectives of the RWIRP include the following:

1. Fulfill 2012 San Luis Obispo County Master Water Report (2012 Master Water Report) recommendations.
2. Address one of the critical Countywide Water Action Team (CWAT) priority focus areas.
3. Aid in meeting State-mandated drought planning requirements per Assembly Bill 1668
4. Integrate local and regional water planning efforts.
5. Provide a launching pad for a “living document” for project planning & collaboration, funding opportunities, and implementation.
6. Support preparedness for the inevitability of future droughts and water shortages due to climate change, natural disasters, infrastructure maintenance and failures, regulatory/environmental considerations, and water rights factors.
7. Utilize “green light” thinking to identify how regional resources could be connected based on an engineering perspective, with the understanding that regulatory, political and economic factors would need to be considered to determine the ultimate feasibility of the concepts.

What was the RWIRP’s process used to fulfill the purpose and objectives?

The steps the CWAT utilized to develop the RWIRP are described below and shown in Figure 1 below.

Supply/Demand Assessment – The Supply/Demand Assessment includes a compilation of readily available information on each water purveyor’s water supply availability, anticipated demands and existing exchange/transfer agreements.

Drought Risk Assessment – The Drought Risk Assessment evaluates and quantifies each purveyor’s water supply portfolio’s ability to reliably provide water during extended drought conditions.

Supply Source Risk Assessment – The Supply Source Risk Assessment evaluates the vulnerability of each of the major water supply sources to Climate Change, Natural Disaster, Maintenance Shutdowns and Failures, and Regulatory, Environmental and Water Rights challenges. An aggregate Supply Source Risk

Score is evaluated for each purveyor based on the percentage that each supply source makes up of its water supply portfolio.

Resiliency Risk Score – The Resiliency Risk Score combines the Drought Risk and Supply Source Risk Assessments scores, along with additional scoring criteria, to develop a combined Resiliency Risk Score for each purveyor and a prioritized list of agencies in need of enhanced resiliency.

Resiliency Risk Mitigation Opportunities Evaluation – Resiliency Risk Mitigation Opportunities Evaluation identifies and evaluates mitigation opportunities to improve water supply reliability for the most vulnerable purveyors.

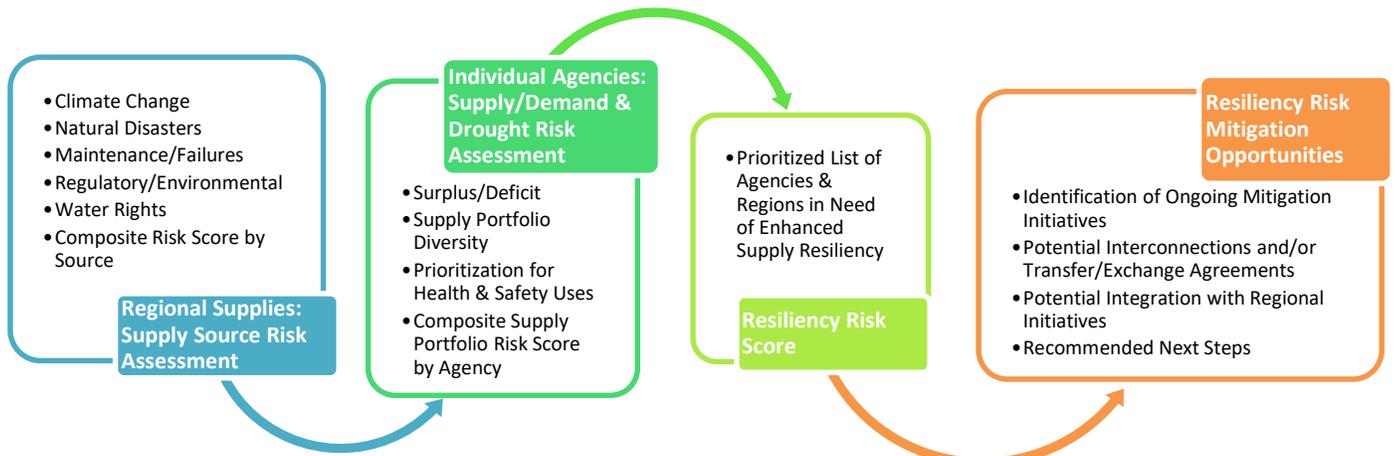


Figure 1. RWIRP Methodology

What are the conclusions of the RWIRP?

The Resiliency Risk Evaluation identified a number of agencies that have elevated resiliency risk scores and are Potentially Vulnerable to extended drought or infrastructure failure conditions. The majority of these agencies are already working on Resiliency Risk Mitigation Opportunities (i.e. resiliency improvement projects, interconnections and/or transfer/exchange agreements to improve water supply resiliency). However, there were five agencies in four regions (San Miguel, Edna, Los Osos & Chorro Valley) that the CWAT identified as potentially vulnerable and that could benefit from improved water supply resiliency.

Of the agencies and regions identified as Potentially Vulnerable and without identified Resiliency Risk Mitigation Opportunities, one was determined to be isolated from the regional water conveyance infrastructure and neighboring agencies and thus not able to improve resiliency through readily achievable interconnections and/or transfer/exchange agreements. Though the CWAT did not identify Resiliency Risk Mitigation Opportunities for this agency, potential vulnerabilities warrant further investigation to determine potential projects or other opportunities to improve water supply resiliency.

The remaining four regions were determined by the CWAT to be located within sufficient proximity to the regional infrastructure or neighboring agencies to warrant investigation of potential interconnection and/or transfer/exchange opportunities to improve resiliency. For these agencies, the CWAT identified potential Resiliency Risk Mitigation Opportunities and performed a high-level scoring and ranking evaluation to assist the San Luis Obispo County Flood Control & Water Conservation District (District) and the Potentially Vulnerable agencies in identifying preferred resiliency improvement opportunities and taking the next steps toward implementation.

The majority of the Resiliency Risk Mitigation Opportunities identified by the CWAT included connecting the Potentially Vulnerable agencies with regional conveyance infrastructure or developing an interconnection and/or transfer/exchange agreement with a neighboring agency with a more resilient water supply portfolio. Connections to the State Water Project (SWP) and the Nacimiento Water Project (NWP) were identified as potential opportunities to improve resiliency for the majority of the Potentially Vulnerable agencies. Specific outcomes for each region with Potentially Vulnerable agencies are described as follows:

San Miguel – The highest ranking Resiliency Risk Mitigation Opportunity identified for San Miguel included purchasing Salinas River water rights from an upstream water rights holder and pumping underflow from new gallery wells. Alternatively, NWP water could potentially be percolated, but that would require use of recharge facilities, which was not included in this analysis. Agencies in the region see this project and other interconnections as an engineering opportunity but anticipate that cost would make them infeasible unless integrated into a larger regional project with Camp Roberts or another agency to make them more economically feasible. Furthermore, San Miguel CSD is pursuing optimized use of their well field or other potential well sites and developing recycled water to offset potable use.

Edna – The highest ranking Resiliency Risk Mitigation Opportunity identified for Edna included connecting to the SWP pipeline and purchasing SWP Water. An alternative that was not analyzed is the potential for San Luis Obispo to connect to SWP and wheel SWP water to Golden State Water Company (GSWC), which could provide additional potential exchange opportunities between SWP, NWP, Salinas and Whale Rock agencies. Some other potential opportunities that were brainstormed during this

process included potential use of the SWP Management Tools¹ for more flexibility to provide water, or potentially the opportunity to partner with other agencies in the County to share cost of SWP buy-in and contracting. Another opportunity that was additionally considered was a potential emergency intertie with the City of San Luis Obispo. For this alternative to be feasible, the City San Luis Obispo would need to change existing ordinances prohibiting the sale of potable water outside of the City limits and alter its place of use within water rights permits for its surface water supplies. GSWC, the District and San Luis Obispo intend to continue exploring potential opportunities.

Los Osos – The highest ranking Resiliency Risk Mitigation Opportunity identified for Los Osos included constructing an interconnection with the City of Morro Bay. The interconnection would allow for the delivery of municipal blend water from Morro Bay’s distribution system to Los Osos. An alternative that was not analyzed is the potential for water to be transferred from Los Osos to Morro Bay in the event of an infrastructure failure for SWP or Chorro Valley pipelines or to enhance conjunctive use opportunities. The Los Osos water purveyors intend to further investigate this and other potential opportunities in conjunction with the additional programs identified in the Los Osos Basin Plan to improve water supply sustainability.

Chorro Valley – The highest ranking Resiliency Risk Mitigation Opportunity identified for the Chorro Valley included construction of a Salinas/NWP intertie. An extension of the NWP pipeline to an old Salinas pipeline to Chorro Valley Reservoir and WTP at the California Men’s Colony could provide multiple opportunities for additional water and in-lieu exchanges in the Chorro Valley, including the potential to purchase water from the NWP Sales Program². The District intends to seek funding to inspect old Salinas line infrastructure, continue previous work the County started in 2014 to interconnect to Chorro, investigate a potential bypass option, and look further into capacity and treatment constraints.

In addition to the specific Resiliency Risk Mitigation Opportunities and related findings, the process of developing the RWIRP was determined to provide the additional regional water resource planning benefits described below:

¹ For more information on the State Water Project Water Management Tools Study, visit:
<https://www.slocounty.ca.gov/Departments/Public-Works/Current-Public-Works-Projects/State-Water-Project-Water-Management-Tools-Study.aspx>

² The Nacimiento Water Project Water Sales Program is being developed in coordination with the Nacimiento Project Commission: <https://www.slocounty.ca.gov/Departments/Public-Works/Committees-Programs/Nacimiento-Project-Commission.aspx>

Enhanced Relationships – The workshop format of the RWIRP provided the opportunity for key staff from water agencies in the County to improve and enhance relationships through engaging in an open dialog, working together collaboratively, and developing a common understanding of water supply challenges and opportunities for their agency and/or their neighboring agencies.

Systematic Evaluation – The comprehensive and systematic evaluation of resiliency risk provided the District and the participating agencies with an improved understanding of potential water supply vulnerabilities, will aid in determining where to focus staff and budget resources, and provides justification for implementation of projects/initiatives to improve water supply resiliency in San Luis Obispo County moving forward.

What are the recommendations from the RWIRP?

The District, CWAT and other relevant agencies should continue evaluation and collaboration to advance short-term initiatives to improve resiliency, such as the ongoing Countywide Emergency Planning priorities (Appendix D) and the RWIRP Resiliency Risk Mitigation Opportunities as well as long-term Initial Regional Water Resiliency Concepts (Appendix A) and Salinas Dam and Desalination CWAT priorities (Appendix B).

Based on the conclusions and identified benefits of the RWIRP, the following recommendations were developed for improving water supply resiliency in San Luis Obispo County.

Dynamic Document – The framework developed for assessing resiliency risk and evaluating mitigation opportunities should be updated as new information is made available on the supply availability, future demands, mitigation projects or other parameters. The completion of the 2020 Urban Water Management Plans (UWMPs) and subsequent monthly and annual reporting requirements will provide opportunities to update the supply/demand component of the Resiliency Risk Assessment. Other State data sources could be used as well, such as electronic annual report (eAR) data from the State Water Resources Control Board- Division of Drinking Water. Updating the Resiliency Risk Assessment with new supply/demand estimates will likely impact the resiliency rankings as the 2020 UWMP updates will be the first formal supply/demand evaluation for most agencies following the recent unprecedented drought from 2012 – 2017 that identified new vulnerabilities in agencies' water supply portfolios.

Planning Integration – The RWIRP and the Resiliency Risk Assessment findings should be integrated with other local and regional water supply resiliency initiatives. DWR recently completed a vulnerability analysis of small water suppliers and rural communities and recently published final recommendations for county-wide drought planning (<https://water.ca.gov/Programs/Water-Use-And-Efficiency/2018-Water-Conservation-Legislation/County-Drought-Planning>). The results of the DWR analysis are also provided in an interactive map format (<https://dwr.maps.arcgis.com/apps/MapSeries/index.html?appid=3353b370f7844f468ca16b8316fa3c7b>). The RWIRP could be updated with more focus on rural and small water agencies from the DWR analysis. As more formal requirements for resiliency planning are developed, the RWIRP can be updated or used as a functional equivalent for meeting future drought planning and resiliency evaluation regulations.

As described in Section 2.5, the RWIRP is intended to be a platform for a “living document” resource and tool that can be integrated with and/or inform the following:

- Master Water Report
- Integrated Regional Water Management (IRWM) Plan
- UWMPs and Forthcoming Monthly and Annual State Reporting
- Sustainable Groundwater Management Act (SGMA) compliance documents and initiatives
- Individual Agency Supply Initiatives
- Regional Agency Supply Initiatives (e.g., SWP Management Tools, NWP Sales Program, etc.)

Enhanced Supply Risk Evaluation – The Supply Source Risk Assessment that was completed for the RWIRP could be improved through incorporation of Decision Support Software that would allow for evaluation of multiple variables to determine system vulnerabilities and development of probabilistic or probability-based assessments of vulnerability for the different water supply sources to extended droughts, natural disasters and infrastructure failures. Additionally, water agencies are required to report on resiliency vulnerabilities and mitigations for their Resiliency Risk Assessments (RRA) and Emergency Response Plans (ERP) to meet America’s Water Infrastructure Act (AWIA) requirements.

Regional Interconnections – The RWIRP focused on evaluation of the vulnerabilities and interconnection mitigation opportunities to improve resiliency for the most vulnerable agencies and those without identified mitigation opportunities. The RWIRP and Countywide Emergency Planning CWAT priorities represent opportunities to get “quick wins” through lower effort interconnections and agreements from agency to agency and provide a launching pad for larger regional projects. There is significant potential to improve resiliency for other agencies through larger regional projects identified in the Initial Regional Water Resiliency Concepts (Appendix A) and Salinas Dam and Desalination CWAT priorities. These larger initiatives could allow the transfer of water between different supply sources (e.g. North County/South County Water Supply interconnection, Salinas/Lopez Reservoir interlake tunnel, etc.). Analysis of these additional opportunities should be included in future phases of the RWIRP and other District/CWAT initiatives (Appendix B).

2 INTRODUCTION

2.1 PURPOSE AND OBJECTIVES

The purpose of the Regional Water Infrastructure Resiliency Plan (RWIRP) is to perform a structured analysis of regional water supply vulnerabilities & opportunities to improve resiliency and develop a framework for facilitating collaboration amongst San Luis Obispo County water purveyors to further resiliency initiatives.

The objectives of the RWIRP are to achieve the following:

1. Fulfill 2012 San Luis Obispo County Master Water Report (2012 Master Water Report) recommendations
2. Address one of the critical Countywide Water Action Team (CWAT) priority focus areas
3. Aid in meeting State-mandated drought planning requirements
4. Integrate local and regional water planning efforts
5. Provide a launching pad for a “living document” for project planning & collaboration, funding opportunities, and implementation
6. Support preparedness for the inevitability of future droughts and water shortages due to climate change, natural disasters, maintenance and failures, regulatory/environmental, and water rights factors.

2.2 BACKGROUND

Since establishment in 1945, the San Luis Obispo County Flood Control and Water Conservation District (District) has been an active participant and leader in developing integrated regional water solutions for San Luis Obispo County. From its construction of the Lopez Dam and Water Treatment System in the 1960's, to the development of the State Water Project (SWP) in the 1990's, and the development of the Nacimiento Water Project, the District has actively worked with local stakeholders to develop planning and implementation solutions to pressing water problems.

The District's 2012 San Luis Obispo County Master Water Report (2012 Master Water Report), included a number of recommendations to improve regional water supply reliability and resilience in San Luis Obispo County. The highest priority for the District identified in the 2012 Master Water Report was to "lead the effort to optimize the use of unsubscribed water from the State Water Project (SWP) and the Nacimiento Water Project (NWP), in conjunction with other facilities, to promote enhanced use of existing available resources that support local agency use and exchanges" (1). The District has since initiated studies³, in coordination with the State Water Subcontractors Advisory Committee and Nacimiento Water Commission respectively, to follow through on those recommendations.

Additionally, the 2012 Master Water Report recommended a range of other solutions to improve regional water supply reliability, including:

- Suggest that each community in the county consider developing a contingency plan and provide technical expertise or administrative support to County Service Areas (*Contingency Plan or Reliability Supply*, Sec. 4.8.1)
- Establish the District's role in developing "boiler plate" agreements, streamlined processes for local interagency collaboration and governance structures for future projects and programs (*Streamline Institutional Agreements*, Sec. 4.8.6)

After the completion of the 2012 Master Water Report, during the peak of the recent, unprecedented drought that occurred from 2012 to 2017, it became clear that coordination between staff of the municipal water purveyors that are connected to San Luis Obispo County's regional water supply infrastructure projects (e.g. Salinas, Whale Rock Lopez, Lopez, State Water and Nacimiento) would be necessary for exploring resiliency strategies. Key staff, commonly referred to as the Countywide Water Action Team (CWAT), began to meet as needed to develop an approach for moving forward on recommendations in the 2012 Master Water Report and potential new regional resiliency concepts in light of the 2012-2017 drought.

The CWAT brainstormed potential opportunities to improve resiliency, such as reservoir interconnection and exchange opportunities and new north - south county pipeline interties. The intent of the CWAT for these Initial Regional Water Resiliency Concepts was to brainstorm with "green light" thinking of how regional resources could be connected based on an engineering perspective, and with the understanding that regulatory, political and economic factors would need to be considered to determine the ultimate feasibility of the concepts. A schematic and description of the initial ideas developed by the

³ For more information on the State Water Project Water Management Tools Study, visit:

<https://www.slocounty.ca.gov/Departments/Public-Works/Current-Public-Works-Projects/State-Water-Project-Water-Management-Tools-Study.aspx>

The Nacimiento Water Project Water Sales Program is being developed in coordination with the Nacimiento Project Commission: <https://www.slocounty.ca.gov/Departments/Public-Works/Committees-Programs/Nacimiento-Project-Commission.aspx>

CWAT is included in Appendix A to this report and more information on development of these Initial Regional Water Resiliency Concepts is provided in Section 6.

Building on the 2012 Master Water Report recommendations and potential new regional resiliency concepts, the CWAT identified four priority areas to focus on that related to use of regional infrastructure that were not being led by another entity or group:

1. **Infrastructure Interties and Agreements:** Develop this Regional Water Infrastructure Resiliency Plan (RWIRP) to identify opportunities to move water through existing or new interconnected water systems to address critical water supply vulnerabilities.
2. **Countywide Water Emergency Planning:** Document drought response actions and opportunities in the recently completed Countywide Local Hazard Mitigation Plan (LHMP), Integrated Regional Water Management (IRWM) Plan and other plans as appropriate and as it relates to potential State requirements (see Section 2.3 and Appendix D).
3. **Salinas Dam:** Evaluate the feasibility and potential benefits associated with transferring the facilities to District ownership and installing gates to increase the storage volume. The U.S. Army Corps of Engineers is currently conducting a Disposition Study and the District recently approved a letter of interest in owning the Dam. For more information see Appendix B.
4. **Desalination:** Begin discussing the conditions under which a regional project may be feasible. Recent efforts have focused on the Diablo Canyon facility, and next steps include ranking the potential locations identified in the 2015 Desalination Opportunities Summary Report. For more information see Appendix B.

The RWIRP and Countywide Emergency Planning priorities are ongoing and provide a launching pad for larger regional projects identified in the new north - south county pipeline interties concepts in Appendix A as well as Salinas Dam and Desalination priorities development summarized in Appendix B. Priorities 1 and 2 represent opportunities to get “quick wins” through lower effort interconnections and agreements from agency to agency, whereas priorities 3 and 4 are intended to be “next steps” for broader regional opportunities over a longer time period.

The District’s historical key roles in water resources planning and implementation will continue to evolve with these priority area initiatives. For the RWIRP, the District intends to take on the role of developing the RWIRP with CWAT agencies’ collaboration and facilitating further investigations of potential resiliency opportunities if the District has a stake in the infrastructure and/or agreements identified. For resiliency opportunities identified in the RWIRP that do not involve the District through infrastructure and/or agreements, it is assumed that agencies will work amongst each other to further study or implement these resiliency opportunities. Furthermore, the County will facilitate incorporation of opportunities in Countywide water planning documents for agencies to justify these projects and seek funding for them.

The progress and outcomes from all of these efforts will be memorialized via individual technical memorandums or reports and periodic updates to the Countywide IRWM Plan. In addition to improving the understanding of potential vulnerabilities, analysis and documentation of water supply resiliency strategies is also important for grant applications that are pursued for implementation. The following sections describe the RWIRP's analysis, conclusions and recommendations to support preparedness for the inevitability of future droughts and water shortages due to climate change, natural disasters, maintenance and failures, regulatory/environmental, and water rights factors.

2.3 RWIRP OVERVIEW

The concept of the RWIRP was developed as a logical progression of the CWAT's initial water supply planning/drought response efforts. The RWIRP includes a structured analysis of regional water supply vulnerabilities, identification of projects and/or transfer/exchange/water sales opportunities to improve water supply resiliency, and development of a framework to facilitate inter-agency collaboration amongst San Luis Obispo County water purveyors. It is important to note that the RWIRP does not assess all water agencies in the County, rather it only assesses municipal water purveyors that are connected or are in close proximity to San Luis Obispo County's regional water supply infrastructure projects (e.g. Salinas, Whale Rock Lopez, Lopez, State Water and Nacimiento) and agencies included in the 2012 Master Water Report. The State assessed vulnerability of small water suppliers and rural communities as described in Section 2.5.2, Section 6 and Appendix D. The steps the CWAT utilized to develop the RWIRP are described below and shown in Figure 2 below.

Supply/Demand Assessment – The Supply/Demand Assessment includes a compilation of readily available information on each water purveyor's water supply availability, anticipated demands and existing exchange/transfer agreements.

Drought Risk Assessment – The Drought Risk Assessment evaluates and quantifies each purveyor's water supply portfolio's ability to reliably provide water during extended drought conditions.

Supply Source Risk Assessment – The Supply Source Risk Assessment evaluates the vulnerability of each of the major water supply sources to Climate Change, Natural Disaster, Maintenance Shutdowns and Failures, and Regulatory, Environmental and Water Rights challenges. An aggregate Supply Source Risk Score is evaluated for each purveyor based on the percentage that each supply source makes up of its water supply portfolio.

Resiliency Risk Score – The Resiliency Risk Score combines the Drought Risk and Supply Source Risk Assessments scores, along with additional scoring criteria, to develop a combined Resiliency Risk Score for each purveyor and a prioritized list of agencies in need of enhanced resiliency.

Resiliency Risk Mitigation Opportunities Evaluation – Resiliency Risk Mitigation Opportunities Evaluation identifies and evaluates mitigation opportunities to improve water supply reliability for the most vulnerable purveyors.

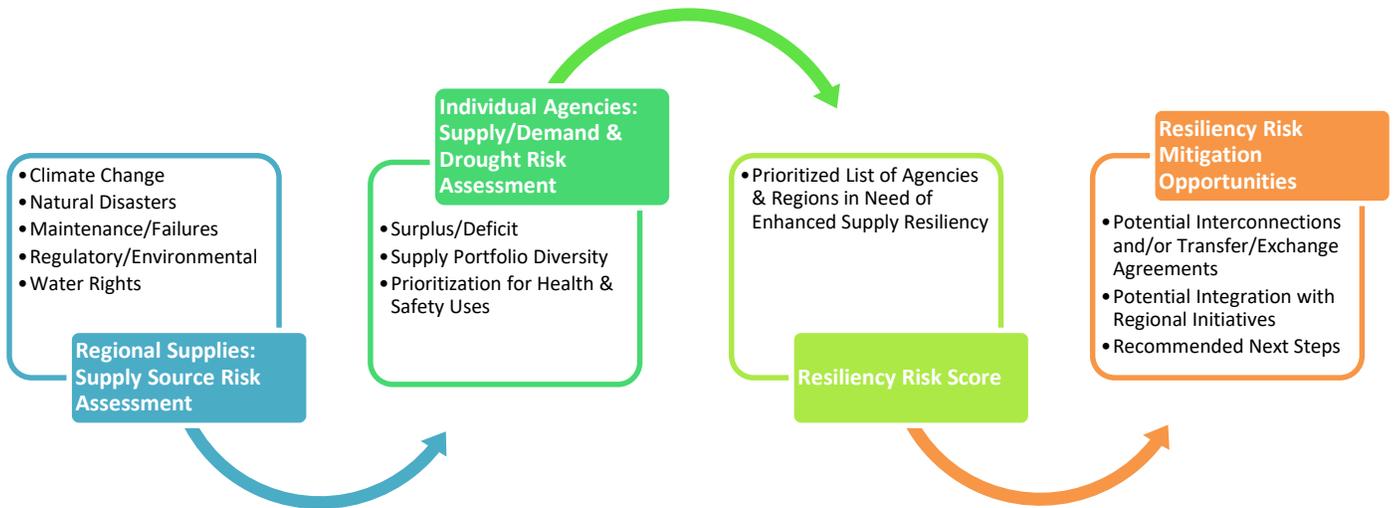


Figure 2. Risk Assessment and Methodology

2.4 PROGRAM CHARTER

Before embarking on the development of the RWIRP, the CWAT created a Program Charter to establish a common understanding of the mission, vision, objectives and performance measures and guiding principles for the RWIRP. The charter was developed collaboratively by the members of the CWAT and used as a guidance document as the group worked through the different steps of the RWIRP. The RWIRP Charter Mission statement is provided below and the entire RWIRP charter is included as Appendix B to this report.

Mission

Identify and prioritize initiatives to mitigate vulnerabilities and enhance reliability, resilience, and optimum utilization of existing and future regional water infrastructure

2.5 RELATED INITIATIVES

Two new initiatives have subsequently reinforced the need to develop this RWIRP – the County’s Regional Infrastructure and Housing Planning effort and Assembly Bill (AB) 1668, which requires the California Department of Water Resources (DWR), in consultation with other agencies and the County Drought Advisory Group (CDAG), to 1) report on Small Water Suppliers and Rural Communities at Risk of Drought and Water Shortage Vulnerability and 2) provide Recommendations and Guidance to Address the Planning Needs of these Communities.

2.5.1 County Regional Infrastructure and Housing Plan

The County is coordinating a broader regional effort to examine infrastructure and housing needs countywide and to integrate efforts to address the region’s critical housing and infrastructure shortage. Local non-profit affordable housing developers and other community stakeholders have identified a lack of critical water-related infrastructure as one of the key obstacles to building more affordable housing in the County and meeting future State-driven regional housing allocation mandates. A cornerstone of this effort is the collaborative efforts between the County, seven cities, San Luis Obispo Council of Governments (SLOCOG), community stakeholders, and neighboring counties. The results of this collaborative effort will be laid out in the County’s first Regional Infrastructure and Housing Strategic Action Plan (RIHP). Therefore, this RWIRP considers how potential strategies to improve water supply resiliency Countywide can also support housing objectives, and its findings can be incorporated into the RIHP.

2.5.2 Small Water Suppliers Drought and Vulnerability Analysis, Recommendations and Guidance

In accordance with Assembly Bill (AB) 1668 (May 31, 2018), the California Department of Water Resources (DWR), in consultation with other agencies and the State’s County Drought Advisory Group (CDAG), has conducted its own vulnerability analysis of small water suppliers and rural communities in the County. This report included a numeric risk score for each supplier and community examined, which is derived from a set of indicators developed from a stakeholder process. County of San Luis Obispo staff analyzed this report and compared it with the RWIRP analysis and process as described in Appendix D. DWR also recently published draft recommendations regarding county-wide drought planning⁴, and this RWIRP and other local planning documents can serve to meet the recommendations should they become State mandates.

⁴ <https://water.ca.gov/Programs/Water-Use-And-Efficiency/Making-Conservation-a-California-Way-of-Life/County-Drought-Planning>

3 SUPPLY & DEMAND ASSESSMENT

Agencies throughout the County have a history of planning for water supply resiliency. Regional surface water sources including the SWP, NWP, Lopez Reservoir, Salinas Reservoir (Santa Margarita Lake), and Whale Rock Reservoir were developed to promote long-term water supply security in the County. However, it is anticipated that the existing use of these resources could be enhanced to be more resilient by establishing physical and/or contractual connections. The current status and anticipated use of these resources' infrastructure and agreements was inventoried as one of the first steps of the RWIRP to provide the basis of the Drought and Supply Source Risk Assessments.

3.1 EXISTING & FUTURE CONDITIONS

Supply and demand estimates were inventoried based on various planning documents, infrastructure contracts and agreements, applicable emergency authorizations, and water purveyor authorities to understand each agency's supply and demand status as well as their agreements to provide each other water supply when water demands can't be met with normal supplies. Identifying agencies' supply surpluses and deficits is one of the metrics used to determine resiliency risk for agencies throughout the County.

In addition to the compiled supplies and demands, a "supply buffer" was applied. Actual demands can fluctuate from estimated demands due to a myriad of conditions, so it is prudent to have a supply buffer beyond estimated demands. As recommended in the 2012 Master Water Report's Reliability Supply Goal, this evaluation considers if agencies have an additional 20% of supply above their demand as a reliability reserve (1). Table 1 summarizes, and Appendix E details, existing supply and demand estimates and agencies' supply surplus or deficit considering a 20% supply buffer. As shown in this summary, some agencies are vulnerable to supply deficits under normal existing and future conditions. There are existing and historical agreements, summarized in Table 2, that allow agencies to provide each other water under certain conditions outside of the normal contracts for each supply source. Figure 3 schematically shows each agencies' supply status as well as physical and contractual connections between agencies to provide supplies when normal supplies aren't available. Figure 4 shows the surplus and deficits from Table 1 on maps along with the regional surface water infrastructure pipelines for context.

Table 1. Existing and Projected Future Supply and Demand Summary

Agencies	SWP	NWP	Lopez	Salinas	Whale Rock	Other Supply	Agency Supply Total	Existing Demand Total	Surplus/Deficit	Buffer %	20% Supply Buffer Target for Existing Demand*	Supply Needed for Target with Existing Demand	Map #
Arroyo Grande			2,290			1,523	3,813	2,867	946	33%	3,440	373	1
Atascadero MWC		3,244				5,811	9,055	5,069	3,986	79%	6,083	2,972	2
Avila Beach CSD	100		68				168	74	94	127%	89	79	3
Avila Valley MWC	20		12				32	31	1	3%	37	-5	4
Bella Vista MHP (Cayucos)					10		10	10	0	0%	12	-2	5
Cal Poly					959		959	911	48	5%	1,093	-134	6
California Men's Colony	735				420	25	1,180	700	480	69%	840	340	7
Cayucos Cemetery District					18		18	16	2	13%	19	-1	8
County Operations Center	150				25	3	178	94	84	89%	113	65	9
CSA 10A- Cayucos					230		230	132	98	74%	158	72	10
CSA 12- Avila Beach	7		61				68	30	38	128%	36	32	11
CSA 16- Shandon	66					147	213	147	66	45%	176	37	12
Cuesta College	140						140	125	15	12%	150	-10	13
Grover Beach			800			1,407	2,207	1,579	628	40%	1,895	312	14
Morro Bay	1,313					3,019	4,332	1,298	3,034	234%	1,558	2,774	15
Morro Rock MWC					170	56	226	121	105	87%	145	81	16
Nipomo CSD	3,000 ^{1,2}					1,244	4,244	3,187	1,057	33%	3,824	420	17
Oceano CSD	750		303			900	1,953	855	1,098	128%	1,026	927	18
Paso Robles		6,488				6,758	13,246	7,089	6,157	87%	8,507	4,739	19
Paso Robles Beach Water Association					222		222	163	59	36%	196	26	20
Pismo Beach	1,240		896			700	2,836	1,888	948	50%	2,266	570	21
Port San Luis			100				100	12	88	735%	14	86	22
San Luis Obispo		5,482		4,910		-500	9,892	5,225	4,667	89%	6,270	3,622	23
San Miguelito MWC	275					118	393	263	130	49%	316	77	24
Santa Margarita Ranch MWC		80				1,621	1,701	1,621	80	5%	1,945	-244	25
Templeton Community Services District		398				2,414	2,812	1,440	1,372	95%	1,728	1,084	26
San Simeon CSD						140	140	86	54	63%	103	37	27
Cambria CSD						1,017	1,017	747	270	36%	896	121	28
Los Osos CSD/S&T MWC/GSWC						2,100	2,100	1,018	1,082	106%	1,222	878	29
Camp San Luis Obispo						340	340	138	202	146%	166	174	30
GSWC Edna Valley						410	410	410	0	0%	492	-82	31
GSWC Nipomo	208 ¹					852	1,060	1,060	0	0%	1,272	-212	32
GSWC Cypress	208 ¹					462	670	720	-50	-7%	864	-194	33
Woodlands MWC	417 ¹					405	822	850	-28	-3%	1,020	-198	34
Conoco-Phillips						1,400	1,400	1,200	200	17%	1,440	-40	35

Agencies	SWP	NWP	Lopez	Salinas	Whale Rock	Other Supply	Agency Supply Total	Existing Demand Total	Surplus/Deficit	Buffer %	20% Supply Buffer Target for Existing Demand*	Supply Needed for Target with Existing Demand	Map #
CSA 23- Santa Margarita						164	164	164	0	0%	197	-33	36
Garden Farms CWD						93	93	48	45	94%	58	35	37
San Miguel CSD						235	235	235	0	0%	282	-47	38
Camp Roberts						190	190	190	0	0%	228	-38	39
Nacimiento Water Co.						600	600	600	0	0%	720	-120	40
Heritage Ranch CSD						1,100	1,100	619	481	78%	743	357	41
Supply Source Total	8,629	15,692	4,530	4,910	2,054	34,754	70,569	43,032	27,537		51,638	18,931	

¹SWP supply totals for Nipomo CSD, GSCW Nipomo, GSWC Cypress Ridge and Woodlands MWC represents municipal blend from the City of Santa Maria/Nipomo Supplemental Water Project and represents a mix of SWP water and groundwater.

²Nipomo CSD's actual conveyance capacity for the Nipomo Supplemental Water Projects is 2,186 AFY, after subtracting the allocations of the other Nipomo Mesa agencies.

Table 2. Existing Water Supply Agreements

Item	Agreement Type	Agencies Involved	Source	Description	Volume	Capacity	Notes	References
1	Mutual aid agreement	Whale Rock Commission and the City of Morro Bay	Whale Rock, SWP, Other	A mutual aid agreement between the Whale Rock Commission and the City of Morro Bay, 2000, relative to water resources in the event of an emergency. Because the water from Whale Rock is raw water requiring surface water treatment, and the connection to the Whale Rock system is with a potable pipeline, this was an emergency only agreement. The Whale Rock Reservoir agreement is not currently active.	Undefined	Undefined		2012 Master Water Report pg. 4-64 (1); Morro Bay UWMP (2)
2	Mutual aid agreement	CMC, Whale Rock Commission	Whale Rock, NWP, SWP, Salinas, Other	Mutual aid agreements with the California Men’s Colony and the Whale Rock Commission for emergency supply.	Undefined	Undefined		2012 Master Water Report pg. 4-105 (1)
3	Mutual aid agreement	California Men’s Colony (CMC) and Morro Bay		By operating the plant on a 24-hour basis, the CMC plant could provide up to 1.7 MGD to Morro Bay. In the past, Morro Bay and CMC have signed a mutual aid agreement that allows the two water purveyors to provide water to each other during water shortages. The mutual aid agreement calls for each purveyor to repay the borrowed water at a later, mutually agreeable time. Morro Bay has received water from this agreement in the past during SWP system shutdowns. Morro Bay is currently working with the California Department of Corrections and Rehabilitation to update and formalize the exchange agreement with CMC.	Undefined	Undefined	Used in 2008 and other times	Morro Bay UWMP (2)
4	Exchange agreement	City of San Luis Obispo and CSA 10A (Morro Rock MWC, Paso Robles Beach Water Association)	Whale Rock for NWP	An exchange agreement, 2005, between CSA 10A and the City of San Luis Obispo allowing the delivery of up to 90 AFY of the City’s Whale Rock water allocation to CSA 10A in exchange for CSA 10A’s purchase of an equivalent amount of Nacimiento Water for delivery to the City. The anticipated need for CSA 10A is 25 AFY at buildout. Nacimiento water could be delivered to Morro Rock MWC or Paso Robles Beach Water Association, as part of this arrangement.	25-90 AFY			2012 Master Water Report pg. 4-65 (1)
5	Emergency agreement	AMWC, CSA 23 and Garden Farms CSD	NWP, other	Emergency Water Supply Agreement with the County of San Luis Obispo to provide water from the AMWC system to County Service Area 23 and the Garden Farms Community Water District during emergency water shortage conditions.	Undefined	Undefined	As of 2016, the County of San Luis Obispo has completed construction of an emergency intertie pipe between AMWC and Garden Farms Community Water District.	AMWC UWMP (3)
6	Temporary agreement	OCSA, Arroyo Grande		The City of Arroyo Grande and Oceano CSD have entered into an interim water supply agreement, for delivery of up to 100 AFY of Oceano CSD water to the City.	100 AFY		Expired in 2014	2012 Master Water Report TM No. 3, p. 38 (1)

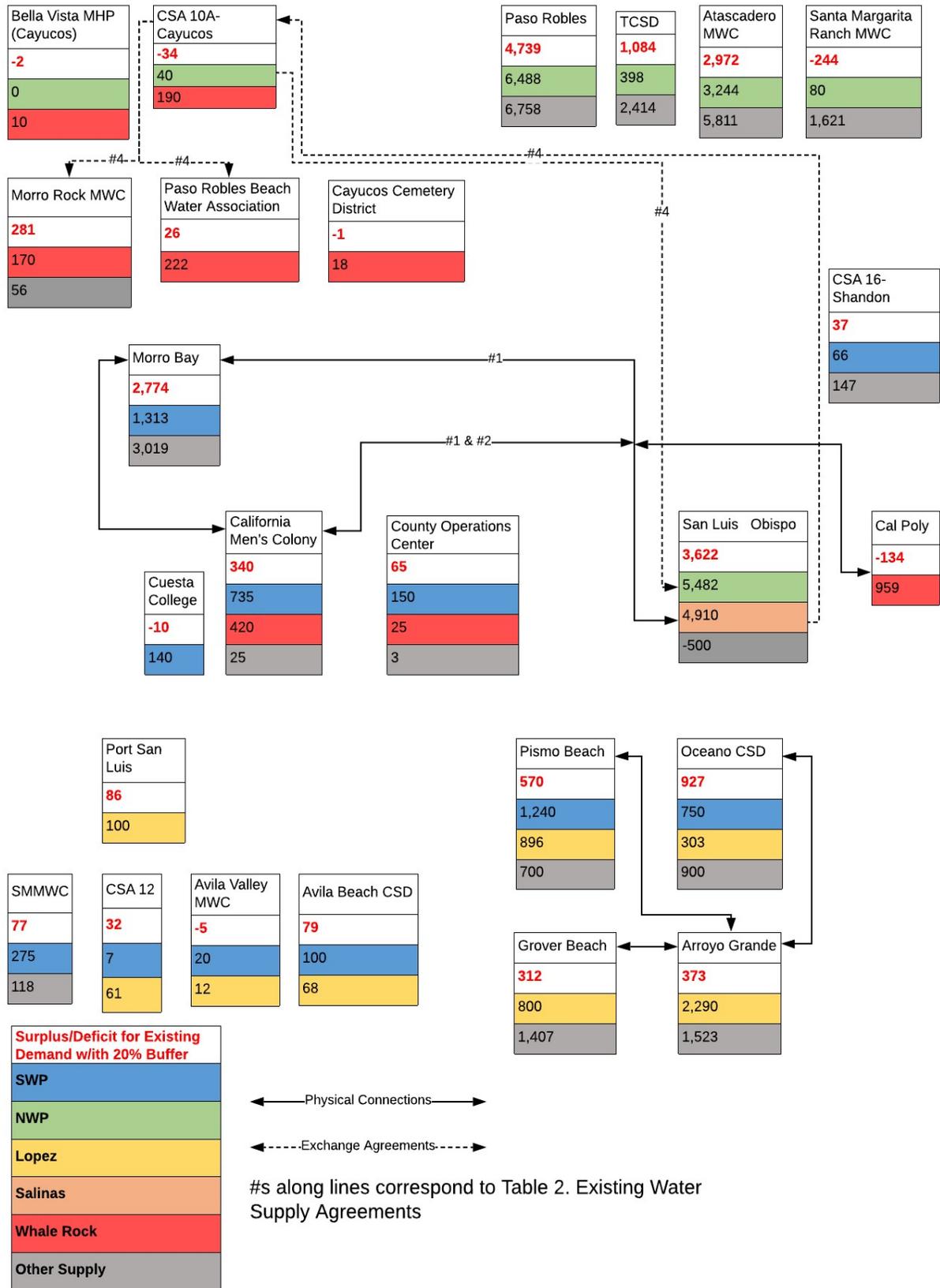


Figure 3. Existing Agreements Schematic

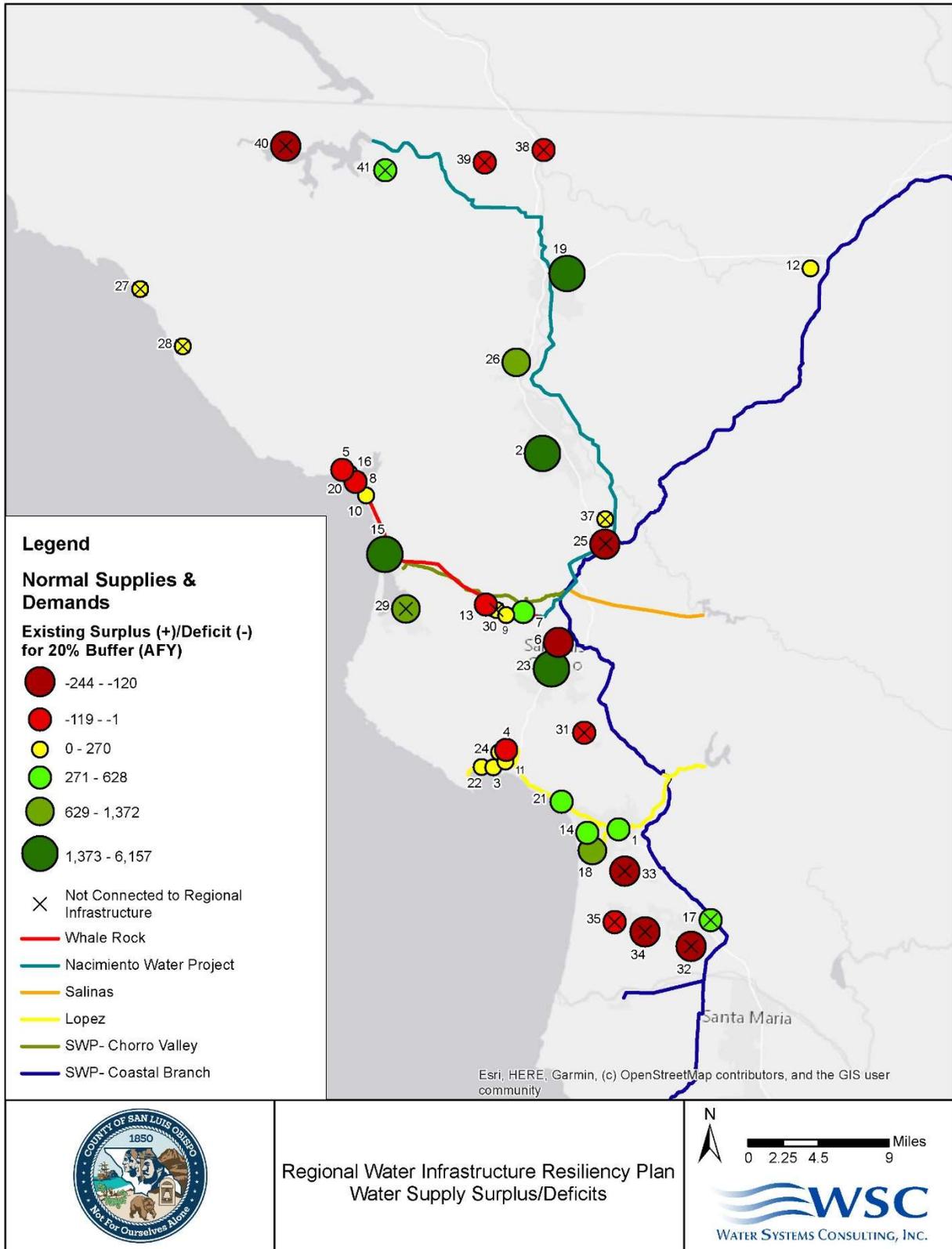


Figure 4. Existing Water Supply Surplus/Deficits to Meet 20% Demand Buffer

4 RESILIENCY RISK EVALUATION

4.1 DROUGHT RESILIENCY RISK

As discussed in Section 3, some agencies are vulnerable to supply deficits under normal existing and future demand scenarios. It is prudent to plan for drought conditions to identify vulnerabilities. Recent unprecedented drought conditions inform what can be expected in multiple dry years conditions. Drought is a high risk vulnerability for many agencies Countywide. Multiple dry years conditions estimates were extracted from various planning documents, converted to a percentage of normal conditions for each agency and regional supply source, and circulated to CWAT agencies for confirmation as summarized in Table 3. These percentages of normal were applied to values from Table 1 to yield Table 4 and Figure 5.

Table 3. Multiple Dry Years Supply and Demand Summary (%)

Agency	SWP	NWP	Lopez	Salinas	Whale Rock	Other Supply	Existing Agency Demand Total	Map #
Arroyo Grande			80%			100%	100%	1
Atascadero MWC		100%				100%	100%	2
Avila Beach CSD	48%		80%				100%	3
Avila Valley MWC	96%		80%				100%	4
Bella Vista MHP (Cayucos)					100%		100%	5
Cal Poly					100%	100%	100%	6
California Men’s Colony	48%				100%	100%	100%	7
Cayucos Cemetery District					100%		100%	8
County Operations Center	48%				100%	100%	100%	9
CSA 10A- Cayucos					100%		100%	10
CSA 12- Avila Beach	48%		80%				100%	11
CSA 16- Shandon	24%					100%	100%	12
Cuesta College	48%						100%	13
Grover Beach			80%			100%	100%	14
Morro Bay	66%					76%	100%	15
Morro Rock MWC					100%		100%	16
Nipomo CSD*	100%					100%	100%	17
Oceano CSD	48%		80%			100%	100%	18
Paso Robles		100%				100%	100%	19
Paso Robles Beach Water Association					100%		100%	20
Pismo Beach	48%		80%			100%	100%	21
Port San Luis			80%				100%	22
San Luis Obispo		100%		100%	100%	100%	96%	23

Agency	SWP	NWP	Lopez	Salinas	Whale Rock	Other Supply	Existing Agency Demand Total	Map #
San Miguelito MWC	48%					100%	100%	24
Santa Margarita Ranch MWC		100%				100%	100%	25
Templeton Community Services District		100%				100%	100%	26
San Simeon CSD						100%	100%	27
Cambria CSD						85%	85%	28
Los Osos CSD/S&T MWC/GSWC						100%	100%	29
Camp San Luis Obispo						100%	100%	30
GSWC Edna Valley						100%	100%	31
GSWC Nipomo*	100%					100%	100%	32
GSWC Cypress*	100%					100%	100%	33
Woodlands MWC*	100%					100%	100%	34
Conoco-Phillips						100%	100%	35
CSA 23- Santa Margarita						100%	100%	36
Garden Farms CWD						100%	100%	37
San Miguel CSD						100%	100%	38
Camp Roberts						100%	100%	39
Nacimiento Water Company						100%	100%	40
Heritage Ranch CSD						100%	100%	41

Table 4. Multiple Dry Years Supply and Demand Summary (AFY)

Agency	SWP	NWP	Lopez	Salinas	Whale Rock	Other Supply	Agency Supply Total	Existing Agency Demand Total	Surplus/Deficit	Buffer %	20% Supply Buffer Target for Existing Demand*	Supply Needed for Target with Existing Demand	Map #
Arroyo Grande			1,832			1,523	3,355	2,867	488	17%	3,440	-85	1
Atascadero MWC		3,244				5,811	9,055	5,069	3,986	79%	6,083	2,972	2
Avila Beach CSD	48		54				102	74	28	38%	89	14	3
Avila Valley MWC	19		10				29	31	-2	-8%	37	-9	4
Bella Vista MHP (Cayucos)					10		10	10	0	0%	12	-2	5
Cal Poly					959		959	911	48	5%	1,093	-134	6
California Men's Colony	353				420	25	798	700	98	14%	840	-42	7
Cayucos Cemetery District					18		18	16	2	13%	19	-1	8
County Operations Center	72				25	3	100	94	6	6%	113	-13	9
CSA 10A- Cayucos					230		230	132	98	74%	158	72	10
CSA 12- Avila Beach	3		49				52	30	22	75%	36	16	11
CSA 16- Shandon	16					147	163	147	16	11%	176	-14	12
Cuesta College	67						67	125	-58	-46%	150	-83	13
Grover Beach			640			1,407	2,047	1,579	468	30%	1,895	152	14
Morro Bay	865					2,284	3,149	1,298	1,851	143%	1,558	1,591	15
Morro Rock MWC					170		170	121	49	40%	145	25	16
Nipomo CSD	3,000					1,244	4,244	3,187	1,057	33%	3,824	420	17
Oceano CSD	360		242			900	1,502	855	647	76%	1,026	476	18
Paso Robles		6,488				6,758	13,246	7,089	6,157	87%	8,507	4,739	19
Paso Robles Beach Water Association					222		222	163	59	36%	196	26	20
Pismo Beach	595		717			700	2,012	1,888	124	7%	2,266	-254	21
Port San Luis			80				80	12	68	568%	14	66	22
San Luis Obispo		5,482		4,910		-500	9,892	4,999	4,893	98%	5,999	3,893	23
San Miguelito MWC	132					118	250	263	-13	-5%	316	-66	24
Santa Margarita Ranch MWC		80				1,621	1,701	1,621	80	5%	1,945	-244	25
Templeton Community Services District		398				2,414	2,812	1,440	1,372	95%	1,728	1,084	26
San Simeon CSD						140	140	86	54	63%	103	37	27
Cambria CSD						864	864	635	230	36%	762	103	28
Los Osos CSD/S&T MWC/GSWC						2,100	2,100	1,018	1,082	106%	1,222	878	29
Camp San Luis Obispo						340	340	138	202	146%	166	174	30
GSWC Edna Valley						410	410	410	0	0%	492	-82	31

Agency	SWP	NWP	Lopez	Salinas	Whale Rock	Other Supply	Agency Supply Total	Existing Agency Demand Total	Surplus/Deficit	Buffer %	20% Supply Buffer Target for Existing Demand*	Supply Needed for Target with Existing Demand	Map #
GSWC Nipomo	208					852	1,060	1,060	0	0%	1,272	-212	32
GSWC Cypress	208					462	670	720	-50	-7%	864	-194	33
Woodlands MWC	417					405	822	850	-28	-3%	1,020	-198	34
Conoco-Phillips						1,400	1,400	1,200	200	17%	1,440	-40	35
CSA 23- Santa Margarita						164	164	164	0	0%	197	-33	36
Garden Farms CWD						93	93	48	45	94%	58	35	37
San Miguel CSD						235	235	235	0	0%	282	-47	38
Camp Roberts						190	190	190	0	0%	228	-38	39
Nacimiento Water Company						600	600	600	0	0%	720	-120	40
Heritage Ranch CSD						1,100	1,100	619	481	78%	743	357	41
Total	5,530	15,692	3,624	4,910	2,054	24,455	56,265	33,301	22,964		49,529	16,925	

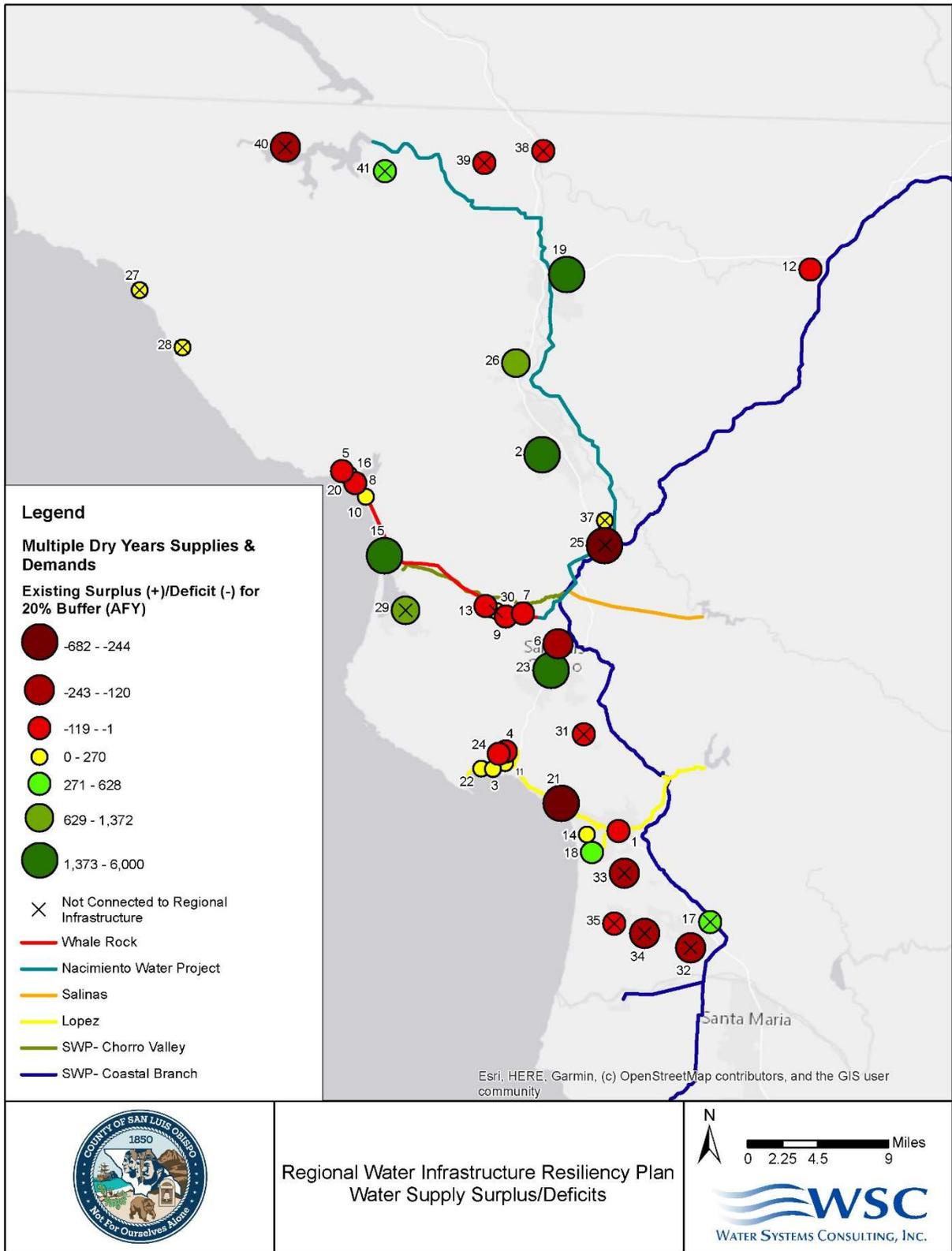


Figure 5. Multiple Dry Years Existing Water Supply Surplus/Deficits to Meet 20% Demand Buffer

4.2 SUPPLY SOURCE RISK ASSESSMENT

As discussed previously, some agencies are vulnerable to supply deficits under normal and drought conditions when considering existing and future supply and demand scenarios. In addition to planning for normal and drought conditions, it is prudent to plan for potential abnormal conditions that impact water supplies. Therefore, additional potential factors that could impact water supply availability were discussed and evaluated with the CWAT. The factors evaluated include the following resiliency risk categories:

- Climate Change
 - o Exacerbated supply reliability conditions due to sea level rise, shifting precipitation patterns, temperature increases, etc.
 - o Increased frequency and intensity of drought and flooding
- Natural Disasters
 - o Earthquake
 - o Flood/landslide
 - o Debris from fires in reservoir conveyance infrastructure
- Maintenance and Failures
 - o Extended infrastructure failure
 - o Increased service intervals and durations
- Regulatory/Environmental
 - o Habitat Conservation Plan (HCP) mandated downstream releases
 - o Sustainable Groundwater Management Act (SGMA) requirements and initiatives
- Water Rights
 - o Adjudications
 - o Coastal stream flow requirements

Each supply source has its own risks associated with each of these resiliency risk categories. The Supply Source Risk Assessment analyzed each supply source's vulnerability to each of the resiliency risk categories. The Supply Source Risk Assessment incorporates both the likelihood that an event could impact the supply source and the impact of that occurrence could have on the supply source. A matrix and scoring criteria were developed with the CWAT to identify and evaluate high and low likelihood versus impact associated with supply reliability resiliency risk. Generally, resiliency risks were assigned a score from 1-5 for likelihood of occurrence and 1-5 for impact. Then, a risk score was calculated by multiplying the likelihood and impact scores. Table 5 shows the risk scoring and criteria for each resiliency risk category and Table 6 and Figure 6 show their risk score by supply source as determined by the CWAT in a workshop format. The scores provided for Supply Source Risk Assessment were developed through discussion and consensus agreement by the CWAT members in attendance at the Supply Source Risk Assessment Workshop.

Table 5. Supply Source Risk Assessment Scoring and Criteria

Resiliency Risk Category	Likelihood Scoring Criteria	Impact Scoring Criteria
Climate Change	1-Climate will not change 2- 3- Historical average drought, flooding, and temperature 4- 5- Extended/more frequent drought/flooding and higher temperature	1-Supplies will not change 2- 3- Supplies/demands will fluctuate by 10% between dry and wet periods 4- 5- Supplies/demands will fluctuate by >50% between dry and wet periods
Natural Disasters	1-Event occurs every 50 years 2- 3- Event occurs every 25 years 4- 5- Event occurs every year	1-Supplies will not change 2- 3- Supplies will reduce by 10% 4- 5- Supplies will reduce by >50%
Maintenance and Failures	1-Event occurs every 50 years 2- 3- Event occurs every 25 years 4- 5- Event occurs every year	1-Supplies will not change 2- 3- Supplies will reduce by 10% 4- 5- Supplies will reduce by >50%
Regulatory/ Environmental	1-Event occurs every 50 years 2- 3- Event occurs every 25 years 4- 5- Event occurs every year	1-Supplies will not change 2- 3- Supplies will reduce by 10% 4- 5- Supplies will reduce by >50%
Water Rights	1-Event occurs every 50 years 2- 3- Event occurs every 25 years 4- 5- Event occurs every year	1-Supplies will not change 2- 3- Supplies will reduce by 10% 4- 5- Supplies will reduce by >50%

Table 6. Risk Assessment by Supply Source

Resiliency Risk Category	SWP				NWP				Lopez				Salinas				Whale Rock				Groundwater/Other									
	Likely		Impact	=	Risk Score	Likely		Impact	=	Risk Score	Likely		Impact	=	Risk Score	Likely		Impact	=	Risk Score	Likely		Impact	=	Risk Score					
Climate Change	5	*	5	=	25	4	*	2	=	8	4	*	5	=	20	4	*	5	=	20	4	*	2	=	8	4	*	4	=	16
Natural Disasters	3	*	5	=	15	3	*	2.5	=	7.5	2	*	4	=	8	2	*	4	=	8	2	*	4	=	8	1	*	3	=	3
Maintenance and Failures	5	*	1	=	5	4	*	5	=	20	3	*	3	=	9	4	*	2	=	8	4	*	2	=	8	5	*	2	=	10
Regulatory/ Environmental	4	*	3	=	12	1	*	2	=	2	5	*	3	=	15	2	*	3	=	6	1	*	1	=	1	5	*	4	=	20
Water Rights	1	*	2	=	2	3	*	2	=	6	2	*	2	=	4	1	*	1	=	1	1	*	1	=	1	3	*	4	=	12
Total					59					43.5					56					43					26				61	
Average Risk Score					11.8					8.7					11.2					8.6					5.2				12.2	

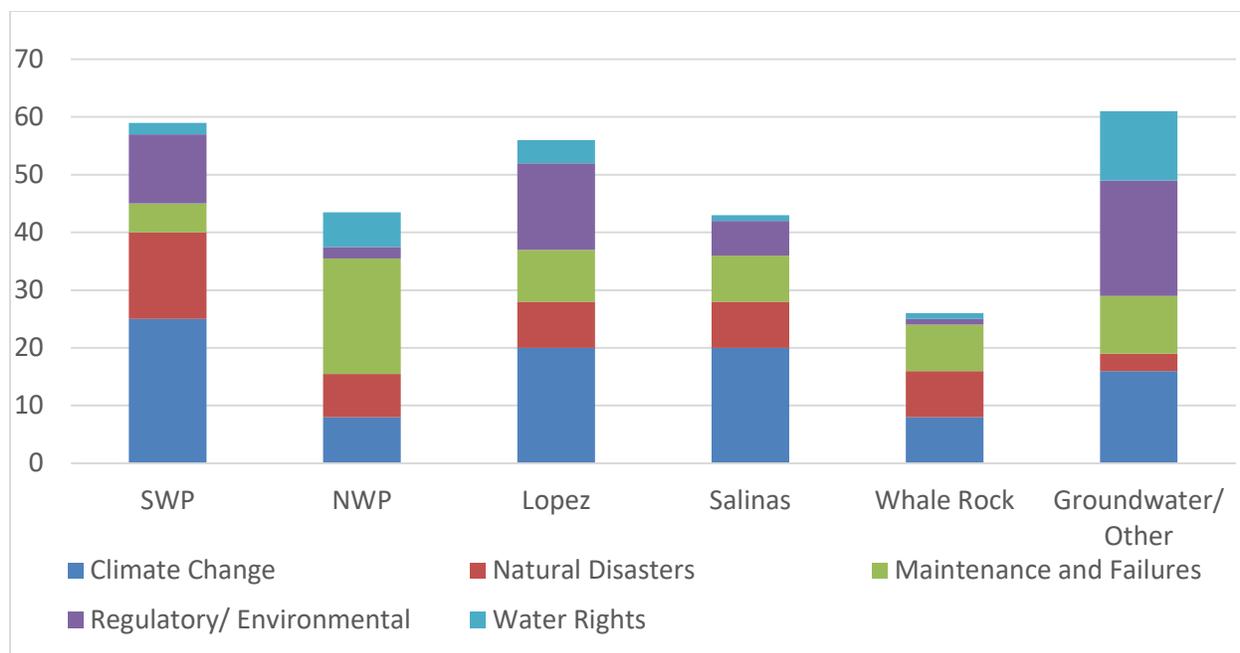


Figure 6. Risk Scores by Supply Source

Risk scores shown in Table 6 and Figure 6 illustrate the varying risks for each resiliency risk category and the overall risk of each supply source compared to others. An agency may have one or multiple supply sources with varying risks per source. Therefore, it is prudent to assess an agency’s overall resiliency risk score based on its supply portfolio.

4.3 RESILIENCY RISK SCORING

Risk scores were applied to each agency’s supply portfolio to weight how risky their water supply portfolio might be. Risk scores for each agency were calculated by source resiliency risk category. Then, the risk scores by source were weighted based on the volume of supply each agency has. Next, an average of the different supply source risk scores weighted by supply volume was calculated to yield each agency’s relative risk score. Individual agency risk scores are summarized in the Supply Resiliency Risk Factor column of Table 7.

While the Supply Resiliency Risk Factor can be used to prioritize resiliency risk, there are other factors that can influence prioritization, such as considering the volume of surplus or deficit an agency has, the relative percentage of the surplus or deficit to the overall demand of the agency, how many supplies the agency has, and if the agency’s water use is for health and safety. Health and Safety scoring criteria ranged from 1 point for critical use, 2 for intermittent use, and 3 for no health and safety use, which favors critical uses when normalized. These factors are shown in Table 7 as the Existing Multi Dry Surplus/Deficit w/20% Buffer (AFY), Existing Multi Dry Surplus/Deficit w/20% Buffer (% of demand), # of supplies, and Health & Safety Use Priority columns. Scores were normalized for each factor and were totaled to yield an ultimate Normalized Risk Score column, which was used to develop a list of agencies ranked by their resiliency risk score. The resiliency risk scores are also shown geographically in Figure 7.

Table 7. Individual Agency Risk Scores

Agency	Supply Resiliency Risk Factor ¹	Normalized Supply Resiliency Risk Score	Existing Multi Dry Surplus/Deficit w/20% Buffer (AFY)	Normalized Surplus/Deficit Magnitude Score	Existing Multi Dry Surplus/Deficit w/20% Buffer (% of demand)	Normalized Surplus/Deficit Percentage Score	# of supplies	Normalized Water Supply Portfolio Diversity	Health & Safety Use Priority	Normalized Health & Safety Use Priority	Normalized Resiliency Risk Score	Resiliency Risk Rank	Other Sources	Map #
Nacimiento Water Company	12.20	1.00	(120)	0.97	-17%	0.92	1	1.00	1	1.00	4.90	1	Lake Nacimiento	40
GSWC Edna Valley	12.20	1.00	(82)	0.97	-17%	0.92	1	1.00	1	1.00	4.89	2	Edna Valley Sub-basin	31
San Miguel CSD	12.20	1.00	(47)	0.96	-17%	0.92	1	1.00	1	1.00	4.88	3	Paso Robles Basin	38
Camp Roberts	12.20	1.00	(38)	0.96	-17%	0.92	1	1.00	1	1.00	4.88	4	Paso Robles Basin	39
CSA 23- Santa Margarita	12.20	1.00	(33)	0.96	-17%	0.92	1	1.00	1	1.00	4.88	5	Santa Margarita Valley Basin	36
San Simeon CSD	12.20	1.00	37	0.94	36%	0.82	1	1.00	1	1.00	4.76	6	Pico Creek Valley Basin	27
Garden Farms CWD	12.20	1.00	35	0.94	61%	0.77	1	1.00	1	1.00	4.71	7	Atascadero Basin	37
Heritage Ranch CSD	12.20	1.00	357	0.88	48%	0.80	1	1.00	1	1.00	4.68	8	Lake Nacimiento	41
Los Osos CSD/S&T MWC/GSWC	12.20	1.00	878	0.77	72%	0.75	1	1.00	1	1.00	4.52	9	Los Osos Groundwater Basin	29
Cambria CSD	12.20	1.00	103	0.93	13%	0.87	2	0.67	1	1.00	4.46	10	San Simeon Creek Basin; Santa Rosa Creek Basin	28
Cuesta College	11.80	0.96	(83)	0.97	-55%	1.00	1	1.00	2	0.50	4.42	11	NA	13
Camp San Luis Obispo	12.20	1.00	174	0.91	105%	0.69	2	0.67	1	1.00	4.27	12	Chorro Reservoir (140); Chorro Valley Basin (200)	30
Avila Valley MWC	5.79	0.33	(9)	0.95	-23%	0.94	1	1.00	1	1.00	4.22	13	Actually two sources from SWP and Lopez, but considered one source because it is delivered through the same infrastructure.	4
Cal Poly	5.20	0.27	(134)	0.98	-12%	0.92	1	1.00	1	1.00	4.16	14	SWRCB Water Diversions/San Luis Valley Sub-basin	6
Bella Vista MHP (Cayucos)	5.20	0.27	(2)	0.95	-17%	0.92	1	1.00	1	1.00	4.14	15	NA	5
Avila Beach CSD	5.78	0.33	14	0.95	15%	0.86	1	1.00	1	1.00	4.14	16	Actually two sources from SWP and Lopez,	3

Agency	Supply Resiliency Risk Factor ¹	Normalized Supply Resiliency Risk Score	Existing Multi Dry Surplus/Deficit w/20% Buffer (AFY)	Normalized Surplus/Deficit Magnitude Score	Existing Multi Dry Surplus/Deficit w/20% Buffer (% of demand)	Normalized Surplus/Deficit Percentage Score	# of supplies	Normalized Water Supply Portfolio Diversity	Health & Safety Use Priority	Normalized Health & Safety Use Priority	Normalized Resiliency Risk Score	Resiliency Risk Rank	Other Sources	Map #
													but considered one source because it is delivered through the same infrastructure.	
Paso Robles Beach Water Association	5.20	0.27	26	0.94	13%	0.87	1	1.00	1	1.00	4.08	17	NA	20
CSA 12- Avila Beach	5.63	0.31	16	0.95	46%	0.80	1	1.00	1	1.00	4.06	18	Actually two sources from SWP and Lopez, but considered one source because it is delivered through the same infrastructure.	11
CSA 10A- Cayucos	5.20	0.27	72	0.93	45%	0.80	1	1.00	1	1.00	4.01	19	NA	10
GSWC CypressG	6.04	0.36	(194)	0.99	-22%	0.94	2	0.67	1	1.00	3.95	20	Santa Maria Valley Groundwater Basin; SWP from the City of Santa Maria	33
GSWC Nipomo	6.06	0.36	(212)	0.99	-17%	0.92	2	0.67	1	1.00	3.94	21	Santa Maria Valley Groundwater Basin; SWP from the City of Santa Maria	32
Woodlands MWC	6.00	0.35	(198)	0.99	-19%	0.93	2	0.67	1	1.00	3.94	22	Santa Maria Valley Groundwater Basin; SWP from the City of Santa Maria	34
Santa Margarita Ranch MWC	6.02	0.35	(244)	1.00	-13%	0.92	2	0.67	1	1.00	3.94	23	Santa Margarita Valley Basin	25
San Miguelito MWC	5.96	0.35	(66)	0.96	-21%	0.93	2	0.67	1	1.00	3.91	24	Avila Valley Sub-basin	24
CSA 16- Shandon	6.04	0.36	(14)	0.95	-8%	0.91	2	0.67	1	1.00	3.88	25	Paso Robles Basin	12
Port San Luis	11.20	0.90	66	0.94	456%	-	1	1.00	1	1.00	3.83	26	NA	22
Grover Beach	5.92	0.34	152	0.92	8%	0.88	2	0.67	1	1.00	3.81	27	Santa Maria Valley Groundwater Basin	14
Nipomo CSD	5.96	0.35	420	0.87	11%	0.87	2	0.67	1	1.00	3.75	28	Santa Maria Valley Groundwater Basin; SWP from the City of Santa Maria	17
Pismo Beach	3.90	0.13	(254)	1.00	-11%	0.91	2	0.67	1	1.00	3.71	29	Santa Maria Valley Groundwater Basin.	21

Agency	Supply Resiliency Risk Factor ¹	Normalized Supply Resiliency Risk Score	Existing Multi Dry Surplus/Deficit w/20% Buffer (AFY)	Normalized Surplus/Deficit Magnitude Score	Existing Multi Dry Surplus/Deficit w/20% Buffer (% of demand)	Normalized Surplus/Deficit Percentage Score	# of supplies	Normalized Water Supply Portfolio Diversity	Health & Safety Use Priority	Normalized Health & Safety Use Priority	Normalized Resiliency Risk Score	Resiliency Risk Rank	Other Sources	Map #
													Actually two sources from SWP and Lopez, but considered one source because it is delivered through the same infrastructure.	
Morro Rock MWC	3.47	0.09	25	0.94	17%	0.86	2	0.67	1	1.00	3.56	30	Cayucos Valley Basin	16
Arroyo Grande	5.80	0.33	(85)	0.97	-2%	0.90	3	0.33	1	1.00	3.53	31	Santa Maria Valley Groundwater Basin; Pismo Formation	1
Conoco-Phillips	12.20	1.00	(40)	0.96	-3%	0.90	2	0.67	3	-	3.52	32	Santa Maria Valley Groundwater Basin	35
Oceano CSD	3.96	0.14	476	0.85	46%	0.80	2	0.67	1	1.00	3.46	33	Santa Maria Valley Groundwater Basin. Actually two sources from SWP and Lopez, but considered one source because it is delivered through the same infrastructure.	18
County Operations Center	3.63	0.10	(13)	0.95	-11%	0.91	3	0.33	1	1.00	3.30	34	GW- SWRCB Water Diversions	9
California Men's Colony	3.15	0.05	(42)	0.96	-5%	0.90	3	0.33	1	1.00	3.25	35	Chorro Reservoir	7
Cayucos Cemetery District	5.20	0.27	(1)	0.95	-6%	0.90	1	1.00	3	-	3.12	36	NA	8
Morro Bay	6.04	0.36	1,591	0.63	102%	0.69	3	0.33	1	1.00	3.01	37	Desal (645); Morro Valley Basin (1,724 + 650 RW recharge)	15
Templeton Community Services District	5.85	0.34	1,084	0.73	63%	0.77	4	-	1	1.00	2.84	38	Atascadero Basin; Salinas River Underflow	26
Atascadero MWC	5.47	0.30	2,972	0.35	49%	0.80	3	0.33	1	1.00	2.78	39	Atascadero Sub-basin of the Paso Robles Groundwater Basin; Salinas River Underflow	2
Paso Robles	5.24	0.27	4,739	-	56%	0.78	3	0.33	1	1.00	2.39	40	Salinas River Underflow River Wells; Atascadero Basin	19

Agency	Supply Resiliency Risk Factor ¹	Normalized Supply Resiliency Risk Score	Existing Multi Dry Surplus/Deficit w/20% Buffer (AFY)	Normalized Surplus/Deficit Magnitude Score	Existing Multi Dry Surplus/Deficit w/20% Buffer (% of demand)	Normalized Surplus/Deficit Percentage Score	# of supplies	Normalized Water Supply Portfolio Diversity	Health & Safety Use Priority	Normalized Health & Safety Use Priority	Normalized Resiliency Risk Score	Resiliency Risk Rank	Other Sources	Map #
San Luis Obispo	2.63	-	5,597	0.17	65%	0.77	4 ²	-	1	1.00	1.93	41	Groundwater; sedimentation of reservoirs	23
Agencies without direct connection to regional water infrastructure														
¹ Regional water source risk scores were applied to the supply portfolios of each agency to weight the agency's risk for their overall supply.														
² City of San Luis Obispo additionally has a recycled water source, but that was not counted as an additional supply for this analysis as the focus is on potable water supplies.														



Figure 7. Individual Agency Risk Scores

4.4 RESILIENCY RISK PRIORITIZATION REFINEMENT

The agency resiliency risk scores were reviewed by the CWAT and grouped to assist in prioritizing future efforts for improving resiliency in the County through potential interconnections and/or exchange/transfer agreements. Agencies were grouped into the following brackets, according to the criteria described below.

Potentially Vulnerable – Agencies that received the highest resiliency risk scores and did not have an identified water supply project, intertie or transfer/exchange agreement to improve water supply resiliency.

Potentially vulnerable but isolated from regional infrastructure – Agencies that received medium to high resiliency risk scores and could potentially benefit from improved resiliency, but that are geographically isolated from regional water conveyance infrastructure or other neighboring agencies with surplus water supplies

Potentially vulnerable but has mitigation initiative(s) – Agencies that received medium to high resiliency risk scores but are already in the process of developing water supply projects, interconnections or transfer/exchange agreements to improve water supply resiliency

Limited Vulnerability – Agencies that do not provide water for health and safety (e.g. cemeteries, refinery) or received lowest resiliency risk scores.

Table 8 shows the resiliency risk category bracket designations identify by the CWAT.

Table 8. Resiliency Risk Bracket Designations

Agency	Resiliency Risk Rank	Bracket	Mitigation
GSWC Edna Valley	2	Potentially Vulnerable	
San Miguel CSD	3	Potentially Vulnerable	
Los Osos CSD/S&T MWC/GSWC	9	Potentially Vulnerable	
Cuesta College	11	Potentially Vulnerable	
Camp San Luis Obispo	12	Potentially Vulnerable	
Nacimiento Water Company	1	Potentially vulnerable but isolated from regional infrastructure	
San Simeon CSD	6	Potentially vulnerable but has mitigation initiative(s)	Wellhead RO System
Cambria CSD	10	Potentially vulnerable but has mitigation initiative(s)	Sustainable Water Facility
Camp Roberts	4	Potentially vulnerable but has mitigation initiative(s)	To be confirmed

Agency	Resiliency Risk Rank	Bracket	Mitigation
CSA 23- Santa Margarita	5	Potentially vulnerable but has mitigation initiative(s)	Atascadero Mutual Water Company Interconnection
Garden Farms CWD	7	Potentially vulnerable but has mitigation initiative(s)	Atascadero Mutual Water Company Interconnection
Heritage Ranch CSD	8	Potentially vulnerable but has mitigation initiative(s)	Nacimiento Intake Improvements
Avila Valley MWC	13	Potentially vulnerable but has mitigation initiative(s)	Lopez Lake Storage
Cal Poly	14	Potentially vulnerable but has mitigation initiative(s)	Recycled water and City of SLO potential initiatives
Bella Vista MHP (Cayucos)	15	Potentially vulnerable but has mitigation initiative(s)	Cayucos Sustainable Water Project could provide resiliency through reservoir augmentation at Whale Rock Reservoir. Exchanges through Bella Vista and CSA 10A with NWP, which requires City of San Luis Obispo coordination.
Avila Beach CSD	16	Potentially vulnerable but has mitigation initiative(s)	Lopez Lake Storage. Intertie connecting SMMWC and the Lopez line being rebuilt.
Paso Robles Beach Water Association	17	Potentially vulnerable but has mitigation initiative(s)	Cayucos Sustainable Water Project could provide resiliency through reservoir augmentation at Whale Rock Reservoir. Exchanges through Bella Vista and CSA 10A with NWP, which requires City of San Luis Obispo coordination.
CSA 12- Avila Beach	18	Potentially vulnerable but has mitigation initiative(s)	Lopez Lake Storage
CSA 10A- Cayucos	19	Potentially vulnerable but has mitigation initiative(s)	Cayucos Sustainable Water Project could provide resiliency through reservoir augmentation at Whale Rock Reservoir. Exchanges through Bella Vista and CSA 10A with NWP, which requires City of San Luis Obispo coordination.
GSWC Cypress	20	Potentially vulnerable but has mitigation initiative(s)	NCSD Supplemental Water Project
GSWC Nipomo	21	Potentially vulnerable but has mitigation initiative(s)	NCSD Supplemental Water Project
Woodlands MWC	22	Potentially vulnerable but has mitigation initiative(s)	NCSD Supplemental Water Project
Santa Margarita Ranch MWC	23	Potentially vulnerable but has mitigation initiative(s)	NWP Sales Program

Agency	Resiliency Risk Rank	Bracket	Mitigation
San Miguelito MWC	24	Potentially vulnerable but has mitigation initiative(s)	SWP Water Management Tools. Intertie connecting SMMWC and the Lopez line being rebuilt.
CSA 16- Shandon	25	Potentially vulnerable but has mitigation initiative(s)	SWP Water Management Tools
Port San Luis	26	Potentially vulnerable but has mitigation initiative(s)	Lopez Lake Storage. Intertie connecting SMMWC and the Lopez line being rebuilt.
Grover Beach	27	Potentially vulnerable but has mitigation initiative(s)	Central Coast Blue. Lopez Lake Storage.
Nipomo CSD	28	Potentially vulnerable but has mitigation initiative(s)	NCSO Supplemental Water Project
Pismo Beach	29	Potentially vulnerable but has mitigation initiative(s)	Central Coast Blue. Lopez Lake Storage. SWP Water Management Tools.
Morro Rock MWC	30	Potentially vulnerable but has mitigation initiative(s)	Cayucos Sustainable Water Project could provide resiliency through reservoir augmentation at Whale Rock Reservoir. Exchanges through Bella Vista and CSA 10A with NWP, which requires City of San Luis Obispo coordination.
Arroyo Grande	31	Potentially vulnerable but has mitigation initiative(s)	Central Coast Blue. Lopez Lake Storage.
Oceano CSD	33	Potentially vulnerable but has mitigation initiative(s)	Central Coast Blue. Lopez Lake Storage. SWP Water Management Tools.
County Operations Center	34	Potentially vulnerable but has mitigation initiative(s)	Chorro Valley exchange agreements. SWP Water Management Tools.
California Men's Colony	35	Potentially vulnerable but has mitigation initiative(s)	Chorro Valley exchange agreements. SWP Water Management Tools.
Conoco-Phillips	32	Limited Vulnerability	
Cayucos Cemetery District	36	Limited Vulnerability	
Morro Bay	37	Limited Vulnerability	
Templeton Community Services District	38	Limited Vulnerability	
Atascadero MWC	39	Limited Vulnerability	
Paso Robles	40	Limited Vulnerability	
San Luis Obispo	41	Limited Vulnerability	

5 RESILIENCY RISK MITIGATION OPPORTUNITIES

Resiliency Risk Mitigation Opportunities represent projects, interconnections, and/or transfer/exchange agreements identified to improve water supply resiliency for agencies in San Luis Obispo County.

5.1 MITIGATION OPPORTUNITIES

Leveraging the collective knowledge of the participating agency staff of the CWAT, Resiliency Risk Mitigation Opportunities were identified for each of the agencies identified in the Potentially Vulnerable and Potentially Vulnerable but has mitigation initiative(s) brackets. The potential Mitigation Opportunities were identified in a workshop format where Potentially Vulnerable and Potentially vulnerable but has mitigation initiatives agencies were grouped by geographic region and the CWAT collectively identified potential projects, interconnections, and/or transfer/exchange agreements that would help improve resiliency for the identified agencies/regions and are outlined in Appendix F.

The potential Mitigation Opportunities provided in Appendix F are not intended to represent a comprehensive list of options that could improve resiliency for the identified agencies, but include projects, interconnections and/or transfer/exchange agreements based on the collective knowledge of the CWAT participants that are envisioned, in process and/or could be implemented through leveraging existing infrastructure.

After review of the different Mitigation Opportunities, the CWAT determined it should focus its efforts to evaluate Resiliency Risk Mitigation Opportunities for the agencies included in the Potentially Vulnerable category because it was determined this group of agencies could receive the largest resiliency benefit through interties and/or transfer/exchange agreements and that the Potentially Vulnerable but has mitigation initiative(s) agencies already have projects or initiatives in place or in process to improve resiliency.

5.2 MITIGATION OPPORTUNITIES SCORING CRITERIA

The Mitigation Opportunities for the Potentially Vulnerable agencies were evaluated using scoring criteria developed by the CWAT to help prioritize opportunities to improve resiliency. The Mitigation Opportunities Scoring Criteria is outlined in Table 9.

Table 9. Mitigation Opportunity Scoring Criteria Matrix

Opportunity Scoring Criteria	Scoring Matrix
Benefitted Agency Normalized Resiliency Risk Score Addressed	<p>Resiliency Risk Ranking</p> <ul style="list-style-type: none"> ● 0-2.61 ● 2.61-3.57 ● 3.57-4.28 ● 4.28-4.90
Normalized Population Served	0- 50,000 people/employees
Water Needed for Primary Benefitted Agency (AFY)	# AFY
Normalized Source Agency's Ability to Provide Water	Ratio of source agency's surplus: Water Available for Opportunity
Frequency of Use	Characterization: - Emergency (Once in Five Years) - Short-term/ Intermittent (Once a Year) - Long-term (Regularly Used)
Benefits Near 101 Corridor or Regional Housing Needs Assessment (RHNA) City	1- No RHNA allocation area benefit 2- Minimal RHNA allocation area benefit 3- Proximity to 101 Corridor 4- Proximity to Paso Robles 5- Proximity to SLO
Capital Cost (Estimated capital cost of additional infrastructure required to implement Mitigation Opportunity)	1->\$5M 2- \$3.75M - \$5M 3- \$2.5 - \$3.75M 4- \$1.25 - \$2.5M 5- \$0 - \$1.25M
Water Cost (Estimated cost to purchase the water at the point of delivery)	1- >\$4,000/AF 2- \$3,000 - \$4,000/AF 3- \$2,000 - \$3,000/AF 4- \$1,000 - \$2,000/AF 5- < \$1,000/AF
O&M Cost (Estimate cost to convey and/or treat water from point of delivery to the end use)	1- >\$2,000/AF 2- \$1,000 - \$2,000/AF 3- \$500 - \$1,000/AF 4- \$100 - \$500/AF 5- < \$100/AF
Timeline to Implementation	1- > 4 years 2- 3-4 years 3- 2-3 years 4- 1-2 years 5- 0-1 yr
Feasibility/Complexity	1-Significant regulatory, environmental, political, or social challenges 2- 3- Potential significant regulatory, environmental, political, or social challenges 4- 5- Limited regulatory, environmental, political, or social challenges

5.3 MITIGATION OPPORTUNITIES EVALUATION

The Mitigation Opportunities identified for the Potentially Vulnerable agencies were evaluated utilizing the Mitigation Opportunities Scoring Criteria and the individual scores were developed through collective discussion with members of the CWAT, review of existing interagency agreements and interties that could serve as successful models, and representatives from the Potentially Vulnerable agencies. For each of the Mitigation Opportunities, specific Benefiting and Source Agencies were identified to allow for better quantification of the ability of the Source agency to potentially provide water to the Benefiting Agency during drought conditions.

The scoring and ranking of the Mitigation Opportunities is intended to provide an initial assessment for the CWAT and Potentially Vulnerable agencies in evaluating potential opportunities to improve water supply resiliency. The Mitigation Opportunities are not intended to represent a comprehensive evaluation of all available options and are not a prescriptive ranking for which projects should be prioritized above others.

The Benefits Near 101 Corridor or Regional Housing Needs Assessment (RHNA) City scoring criteria takes into account potential impacts from Countywide infrastructure and housing needs as identified as part of the Regional Infrastructure and Housing Strategic Action Plan (RIHP) discussed in Section 2.5.1. This scoring criteria was included in order to account for communities that have additional pressure on their water supply portfolios because of substantial new development. Therefore, this RWIRP considers how potential strategies to improve water supply resiliency Countywide can also support housing objectives, and its findings can be incorporated into the RIHP.

The cost estimates included in the Mitigation Opportunities evaluation were based on the best available knowledge of the participants in the scoring evaluation, based on their understanding of costs for other similar projects, and represent generalized cost estimates for high-level planning purposes only. Specific components of these projects, including facility locations, pipeline sizing and routing, hydraulic requirements and other details have not been defined. More detailed analysis and evaluation is required before agencies consider implementation of the Mitigation Opportunities.

The Mitigation Opportunity scoring and ranking completed by CWAT and Potentially Vulnerable agencies is provided in Table 10.

Table 10. Mitigation Opportunities Evaluation

Opportunity Region	Primary Benefitted Agency	Opportunity	Primary Benefitted Agency Normalized Resiliency Risk Score Addressed	Population Served	Primary Benefitted Agency Surplus/Deficit (AFY)	Primary Source Agency	Water Needed for Primary Benefitted Agency (AFY)	Primary Source Agency Surplus/Deficit	Frequency of Use	Benefits Near 101 Corridor or RHNA City	Capital Cost	Water Cost	O&M Cost	Timeline to Implementation	Feasibility/Complexity	Normalized Opportunity Score
San Miguel	San Miguel CSD	Nacimiento Connection ¹	4.88	2,600	-47	Paso Robles	47	4,739	Long-term	4	1	3	3	1	2	7.09
San Miguel	San Miguel CSD	Paso Robles intertie ²	4.88	2,600	-47	Paso Robles	47	4,739	Long-term	4	1	1	5	1	2	7.42
San Miguel	San Miguel CSD	Salinas River water rights from existing agency & gallery wells ³	4.88	2,600	-47	Paso Robles	47	4,739	Long-term	4	3	3	3	1	2	7.75
Edna	GSWC Edna Valley	SLO City intertie ⁴	4.89	1,294	-82	San Luis Obispo	82	3,893	Emergency	5	4	1	5	2	3	9.27
Edna	GSWC Edna Valley	SWP intertie ⁵	4.89	1,294	-82	SLO County	82	14,000	Long-term	5	2	3	5	1	3	9.49
Los Osos	Los Osos CSD/S&T MWC/GSWC	Chorro Valley/SWP ⁶	4.52	13,177	878	Morro Bay	520	1,591	Long-term	3	2	3	5	1	2	8.04
Los Osos	Los Osos CSD/S&T MWC/GSWC	Whale Rock ⁷	4.52	13,177	878	San Luis Obispo	520	3,893	Long-term	3	1	4	4	1	2	7.57
Los Osos	Los Osos CSD/S&T MWC/GSWC	Morro Bay Interconnection ⁸	4.52	13,177	878	Morro Bay	520	1,591	Emergency	3	2	3	5	2	2	8.54
Chorro Valley	Cuesta College	Salinas/Nacimien to Intertie ⁹	4.42	13,000	-83	San Luis Obispo	83	3,893	Emergency	1	3	4	3	3	4	9.35

¹ Direct connection to NWP and purchase of NWP. Requires building a water treatment plant (WTP).

² Direct connection with pipeline. No WTP required. Does not require purchase of NWP. Require purchase of treated water from Paso Robles.

³ No new pipelines are assumed to be needed. New well(s) would be needed. Variable raw water supply has to be purchased from an upstream water rights holder. NWP water could potentially be percolated but that would require use of recharge facilities, which was not included in this analysis.

⁴ Direct connection with pipeline. No WTP required. Requires purchase of treated water from San Luis Obispo.

⁵ Direct connection with pipeline. No WTP required. Requires purchase of SWP. An alternative that was not analyzed is the potential for San Luis Obispo to connect to SWP and wheel SWP water to GSWC, which could provide additional potential exchange opportunities between SWP, NWP, Salinas and Whale Rock agencies.

⁶ Direct connection to Chorro Valley Pipeline. No WTP required. Conjunctive use with Los Osos taking SWP in wet years.

⁷ Direct connection to Whale Rock pipeline requiring a WTP. Conjunctive use with Los Osos taking Whale Rock in wet years.

⁸ Interconnection between Los Osos and Morro Bay to provide municipal blend water to Los Osos. No WTP required. An alternative that was not analyzed is the potential for water to be transferred from Los Osos to Morro Bay in the event of an infrastructure failure for SWP or Chorro Valley pipelines or to enhance conjunctive use opportunities.

⁹ Extension of NWP pipeline to old Salinas pipeline to Chorro Valley Reservoir and WTP at California Men's Colony. Requires purchase of NWP.

6 CONCLUSIONS AND RECOMMENDATIONS

6.1 CONCLUSIONS

The Resiliency Risk Evaluation identified a number of agencies that have elevated resiliency risk scores and are Potentially Vulnerable to extended drought or infrastructure failure conditions. The majority of these agencies are already working on Resiliency Risk Mitigation Opportunities (i.e. resiliency improvement projects, interconnections and/or transfer/exchange agreements to improve water supply resiliency). However, there were five agencies in four regions (San Miguel, Edna, Los Osos & Chorro Valley) that the CWAT identified as potentially vulnerable and that could benefit from improved water supply resiliency.

Of the agencies and regions identified as Potentially Vulnerable and without identified Resiliency Risk Mitigation Opportunities, one was determined to be isolated from the regional water conveyance infrastructure and neighboring agencies and thus not able to improve resiliency through readily achievable interconnections and/or transfer/exchange agreements. Though the CWAT did not identify Resiliency Risk Mitigation Opportunities for this agency, potential vulnerabilities warrant further investigation to determine potential projects or other opportunities to improve water supply resiliency.

The remaining four regions were determined by the CWAT to be located within sufficient proximity to the regional infrastructure or neighboring agencies to warrant investigation of potential interconnection and/or transfer/exchange opportunities to improve resiliency. For these agencies, the CWAT identified potential Resiliency Risk Mitigation Opportunities and performed a high-level scoring and ranking evaluation to assist the District and the Potentially Vulnerable agencies in identifying preferred resiliency improvement opportunities and taking the next steps toward implementation.

The majority of the Resiliency Risk Mitigation Opportunities identified by the CWAT included connecting the Potentially Vulnerable agencies with regional conveyance infrastructure or developing an interconnection and/or transfer/exchange agreement with a neighboring agency with a more resilient water supply portfolio. Connections to the SWP and the NWP were identified as potential opportunities to improve resiliency for the majority of the Potentially Vulnerable agencies. Specific outcomes for each region with Potentially Vulnerable agencies are described as follows:

San Miguel – The highest ranking Resiliency Risk Mitigation Opportunity identified for San Miguel included purchasing Salinas River water rights from an upstream water rights holder and pumping underflow from new gallery wells. Alternatively, NWP water could potentially be percolated, but that would require use of recharge facilities, which was not included in this analysis. Agencies in the region see this project and other interconnections as an engineering opportunity but anticipate that cost would make them infeasible unless integrated into a larger regional project with Camp Roberts or other agency to make them more economically feasible. Furthermore, San Miguel CSD is pursuing optimized use of their well field or other potential well sites and developing recycled water to offset potable use.

Edna – The highest ranking Resiliency Risk Mitigation Opportunity identified for Edna included connecting to the SWP pipeline and purchasing SWP Water. An alternative that was not analyzed is the potential for San Luis Obispo to connect to SWP and wheel SWP water to GSWC, which could provide additional potential exchange opportunities between SWP, NWP, Salinas and Whale Rock agencies. Some other potential opportunities that were brainstormed during this process included potential use of the SWP Management Tools for more flexibility to provide water, or potentially the opportunity to partner with other agencies in the County to share cost of SWP buy-in and contracting, etc. but not the physical connection. Another opportunity that was additionally considered was a potential emergency intertie with the City of San Luis Obispo. For this alternative to be feasible, the City San Luis Obispo would need to change existing ordinances prohibiting the sale of potable water outside of the City limits and alter its place of use within water rights permits for its existing surface water supplies. GSWC, the District and San Luis Obispo intend to continue exploring potential opportunities.

Los Osos – The highest ranking Resiliency Risk Mitigation Opportunity identified for Los Osos included constructing an interconnection with the City of Morro Bay. The interconnection would allow for the delivery of municipal blend water from Morro Bay’s distribution system to Los Osos. An alternative that was not analyzed is the potential for water to be transferred from Los Osos to Morro Bay in the event of an infrastructure failure for SWP or Chorro Valley pipelines or to enhance conjunctive use opportunities. The Los Osos water purveyors intend to further investigate this and other potential opportunities in conjunction with the additional programs identified in the Los Osos Basin Plan to improve water supply sustainability.

Chorro Valley – The highest ranking Resiliency Risk Mitigation Opportunity identified for the Chorro Valley included construction of a Salinas/NWP intertie. An extension of the NWP pipeline to an old Salinas pipeline to Chorro Valley Reservoir and WTP at the California Men’s Colony could provide multiple opportunities for additional water and in-lieu exchanges in the Chorro Valley, including the potential to purchase water from the NWP Sales Program on a short-term or emergency basis. The District intends to seek funding to inspect old Salinas line infrastructure, continue previous work from 2014 work the County did to interconnect to Chorro, investigate a potential bypass option, and look further into capacity and treatment constraints.

In addition to the specific Resiliency Risk Mitigation Opportunities and related findings, the process of developing the RWIRP was determined to provide the additional regional water resource planning benefits described below:

Enhanced Relationships – The workshop format of the RWIRP provided the opportunity for key staff from water agencies in the County to improve and enhance relationships through engaging in an open dialog, working together collaboratively, and developing a common understanding of water supply challenges and opportunities for their agency and/or their neighboring agencies.

Systematic Evaluation – The comprehensive and systematic evaluation of resiliency risk provided the District and the participating agencies with an improved understanding of potential water supply vulnerabilities, will aid in determining where to focus staff and budget resources, and provides justification for implementation of projects/initiatives to improve water supply resiliency in San Luis Obispo County moving forward.

6.2 RECOMMENDATIONS

The District, CWAT and other relevant agencies should continue evaluation and collaboration to advance short-term initiatives to improve resiliency, such as the ongoing Countywide Emergency Planning priorities (Appendix D) and the RWIRP Resiliency Risk Mitigation Opportunities as well as long-term Initial Regional Water Resiliency Concepts (Appendix A) and Salinas Dam and Desalination CWAT priorities (Appendix B).

Based on the conclusions and identified benefits of the RWIRP, the following recommendations were developed for improving water supply resiliency in San Luis Obispo County.

Dynamic Document – The framework developed for assessing resiliency risk and evaluating mitigation opportunities should be updated as new information is made available on the supply availability, future demands, mitigation projects or other parameters. The completion of the 2020 Urban Water Management Plans (UWMPs) and subsequent monthly and annual reporting requirements will provide opportunities to update the supply/demand component of the Resiliency Risk Assessment. Other State data sources could be used as well, such as electronic annual report (eAR) data from the State Water Resources Control Board- Division of Drinking Water. Updating the resiliency risk assessment with new supply/demand estimates will likely impact the resiliency rankings as the 2020 UWMP updates will be the first formal supply/demand evaluation for most agencies following the recent unprecedented drought from 2012 – 2017 that identified new vulnerabilities in agencies’ water supply portfolios.

Planning Integration – The RWIRP and the Resiliency Risk Assessment findings should be integrated with other local and regional water supply resiliency initiatives. As described in Section 2.5, DWR recently completed a vulnerability analysis of small water suppliers and rural communities and recently published final recommendations for county-wide drought planning (<https://water.ca.gov/Programs/Water-Use-And-Efficiency/2018-Water-Conservation-Legislation/County-Drought-Planning>). The results of the DWR analysis are also provided in an interactive map format (<https://dwr.maps.arcgis.com/apps/MapSeries/index.html?appid=3353b370f7844f468ca16b8316fa3c7b>). The RWIRP could be updated with more focus on rural and small water agencies from the DWR analysis. As more formal requirements for resiliency planning are developed, the RWIRP can be updated or used as a functional equivalent for meeting future drought planning and resiliency evaluation regulations.

As described in Section 2.5, the RWIRP is intended to be a platform for a “living document” resource and tool that can be integrated with and/or inform the following:

- Master Water Report
- IRWMP
- UWMPs and Forthcoming Monthly and Annual State Reporting

- SGMA
- Individual Agency Supply Initiatives
- Regional Agency Supply Initiatives (e.g., SWP Management Tools, NWP Sales Program, etc.)

Enhanced Supply Risk Evaluation – The Supply Source Risk Assessment that was completed for the RWIRP could be improved through incorporation of Decision Support Software that would allow for evaluation of multiple variables to determine system vulnerabilities and development of probabilistic or probability-based assessments of vulnerability for the different water supply sources to extended droughts, natural disasters and infrastructure failures. Additionally, water agencies are required to report on resiliency vulnerabilities and mitigations for their Resiliency Risk Assessments (RRA) and Emergency Response Plans (ERP) to meet America’s Water Infrastructure Act (AWIA) requirements.

Regional Interconnections – As described in Section 2.2, the RWIRP focused on evaluation of the vulnerabilities and interconnection mitigation opportunities to improve resiliency for the most vulnerable agencies and those without identified mitigation opportunities. The RWIRP and Countywide Emergency Planning CWAT priorities represent opportunities to get “quick wins” through lower effort interconnections and agreements from agency to agency and provide a launching pad for larger regional projects. There is significant potential to improve resiliency for other agencies through larger regional projects identified in the Initial Regional Water Resiliency Concepts (Appendix A) and Salinas Dam and Desalination CWAT priorities. These larger initiatives could allow the transfer of water between different supply sources (e.g. North County/South County Water Supply interconnection, Salinas/Lopez Reservoir interlake tunnel, etc.). Analysis of these additional opportunities should be included in future phases of the RWIRP and other District/CWAT initiatives.

Grant Opportunities - Continue to track and apply for grant funding to improve resiliency for water agencies throughout the County. There are numerous grant programs with the stated objective of improved resiliency and/or other water supply priorities. Funding from these programs could be leveraged to implement opportunities identified above and improve regional resiliency at a reduced cost to the existing rate payers. It should be noted, that many of these grant programs target projects that are ready for implementation or are “shovel ready” and therefore important that the agencies identified in this study for potential mitigation opportunities continue to pursue and advance the identified concepts through planning, design, environmental and permitting phases to better position for external funding opportunities. Information on some of these grant programs can be found at the following websites:

- <https://www.grants.ca.gov/>
- https://resources.ca.gov/-/media/CNRA_Website/Files/grants/CNRA_CurrentFundingOpportunities.pdf

7 REFERENCES

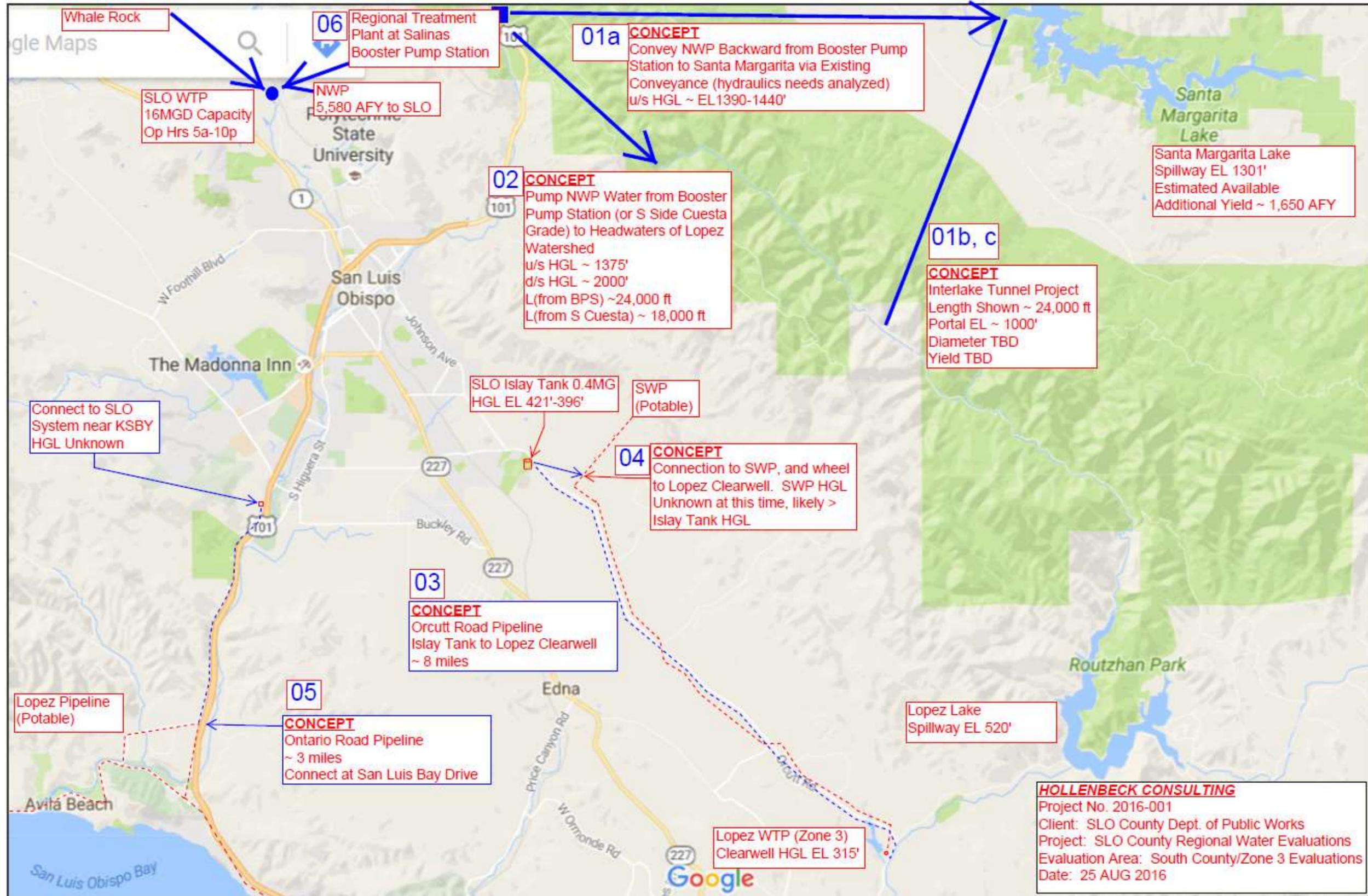
1. **Carollo Engineers.** *San Luis Obispo County Master Water Report.* May 2012.
2. **MNS Engineers.** *City of Morro Bay 2015 Urban Water Management Plan.* June 24, 2016.
3. **MKN & Associates.** *2015 Urban Water Management Plan for the Atascadero Mutual Water Company.* June 2016.
4. **Water Systems Consulting, Inc.** *Amended Final 2015 Urban Water Management Plan for the City of Arroyo Grande.* February 6, 2017.
5. **Water Systems Consulting.** *Admin Draft 2015 Urban Water Management Plan for the City of Grover Beach.* February 6, 2017.
6. **MKN & Associates.** *Nipomo Community Services District 2015 Urban Water Management Plan.* June 2016.
7. **TODD Groundwater.** *City of El Paso de Robles 2015 Urban Water Management Plan.* July 2016.
8. **Water Systems Consulting, Inc.** *2015 Urban Water Management Plan for the City of Pismo Beach.* June 29, 2016.
9. **City of San Luis Obispo.** *City of San Luis Obispo 2015 Urban Water Management Plan.* June 14, 2016.
10. **Maddaus Water Management, Inc.** *Cambria Community Services District Urban Water Management Plan.* December 15, 2016.
11. **City of San Luis Obispo.** *2018 Water Resources Status Report.*
12. **Phoenix Engineering .** *San Simeon CSD Master Plan- Potable Water, Wastewater, Recycled Water and Road Network Improvement Plan.* April 2018.
13. **Cleath-Harris Geologists .** *Los Osos Basin Plan 2018 Annual Monitoring Report.* June 2019 .
14. **San Luis Obispo County Flood Control and Water Conservation District Zone 3.** *San Luis Obispo County Flood Control and Water Conservation District Zone 3 - Lopez Project - Monthly Operations Report - CSA 12.* December 2018.
15. **Ascent Environmental, Inc.** *Draft Environmental Impact Report for the 2035 Master Plan California Polytechnic State University San Luis Obispo, California.* December 2019.
16. **Water Systems Consulting, Inc.** *2015 San Bernardino Valley Regional Urban Water Management Plan .* Amended June 2017.

17. **West Valley Water District.** *2012 Water Master Plan.* 2012.

18. —. Overview. *West Valley Water District.* [Online] 2018. [Cited: September 14, 2020.]
<https://agencyeta.com/WVWD/about/overview/>.

19. **California Department of Water Resources.** *The State Water Project Final Delivery Capability Report 2017.* March 2018.

APPENDIX A. INITIAL REGIONAL WATER RESILIENCY CONCEPTS



San Luis Obispo County				
County-wide Water Action Team				
Initial Concepts for Increased Resiliency				
			NWP = Nacimiento Water Project	
			SWP = State Water Project	
			Santa Margarita Lake = Salinas Reservoir	
			DCPP = Diablo Canyon Power Plant (Desalination Facility Concept)	
		Concept Alternative	Initial Resiliency Concept Descriptions	Other Potential Benefits
		01a, b, c	Santa Margarita / Lopez Lake Interconnection - Delivery of NWP raw water to Zone 3 by conveying water in reverse to Salinas Reservoir through existing pipeline, and then through new conveyance (pipeline and tunnel) from Salinas Reservoir to Lopez Creek approximately 5-miles upstream of Lopez Lake. Also could be water that would otherwise spill out of the lake beyond available capacity for stormwater capture in the North County.	- North County also benefits with added carry-over storage for NWP water to all NWP Participants within Santa Margarita Lake (i.e., "savings account" for water stored vs. losing it to Monterey County)
		02	NWP / Lopez Lake Interconnection - Delivery of NWP raw water to Zone 3 by conveying water from a new pump station at the Santa Margarita Booster Pump Station and conveying it to the headwaters of Lopez Creek near TV towers	- Use of NWP water that may otherwise be lost any given year
		03	Orcutt Road Pipeline - Delivery of NWP treated water to Zone 3 via treatment at City of SLO's Water Treatment Plant, and wheeled through the City's system to Islay Tank vicinity, and then convey treated water to Zone 3 via new potable water pipeline down Orcutt Road	- Improved resiliency of treated supply to City of SLO with bi-directional Orcutt pipeline
		04	SWP Interconnection - Delivery of NWP treated water to Zone 3 via treatment at City of SLO's Water Treatment Plant, and wheeled through the City's system to Islay Tank vicinity, and then convey (booster pump station and short pipeline) treated water into the State Water Project (SWP) pipeline to be wheeled to Zone 3.	- Improved resiliency of treated supply to City of SLO with bi-directional connection to SWP
		05	Ontario Road Pipeline - Delivery of NWP treated water to Zone 3 via treatment at City of SLO's Water Treatment Plant, and wheeled through the City's system to Edna Tank zone, and then convey treated water to Zone 3 via new potable water booster pump station and pipeline parallel to US 101 between KSBY to Lopez Pipeline at Ontario Road.	- Improved resiliency of treated supply to City of SLO with bi-directional connection to Ontario Road Pipeline. - Improved resiliency of treated supply from potential desalinated water supply from DCPP to City of SLO with bi-directional connection to Ontario Road Pipeline.
		06	Regional Treatment Plant at Salinas Booster Station - Delivery of NWP or Salinas water via the State Water pipeline by building a treatment plant at the Salinas Booster Station where the three existing pipelines are located. Also could be water that would otherwise spill out of the lake beyond available capacity for stormwater capture in the North County.	- Improved resiliency of supply to City of SLO if treatment plant is offline - Use of NWP or Salinas Reservoir water that may otherwise be lost any given year

APPENDIX B. SALINAS DAM AND DESALINATION WATER SUPPLY & RESILIENCY OPTIONS

WATER SUPPLY & RESILIENCY OPTION: SALINAS DAM TRANSFER AND SPILLWAY RAISE

1. The US Army Corps of Engineers (USACE) owns the Salinas Dam and Reservoir (“Santa Margarita Lake”) and is conducting a Disposition Study to evaluate various alternatives for disposing of the dam, including transferring ownership to a local agency such as the San Luis Obispo County Flood Control and Water Conservation District (District).
 - a. The District is interested in taking ownership of the Salinas Dam and installing the spillway gates that were part of the dam’s original design and have the potential to increase the Salinas Reservoir’s capacity from 23,843 acre-feet (AF) to 41,792 AF.
 - b. Installing the spillway gates to increase the Salinas Reservoir’s capacity was identified as an opportunity for securing additional water supplies to address needs in San Luis Obispo County 2012 Master Water Report, the County’s 2019 Legislative Platform, and the 2020 Paso Robles Subbasin Groundwater Sustainability Plan.
2. In September 2020, the District sent a letter to the USACE expressing interest in taking ownership of the dam and authorizing staff to proceed to coordinate with the USACE and the City of SLO, who holds the water rights to Salinas Reservoir’s storage, to evaluate dam ownership considerations.
3. Next steps include reviewing USACE’s draft Disposition Study in early 2021, starting discussions on ownership models, potential beneficiaries, maintenance, uses and long-term capital upkeep and returning to the Board with informed recommendations as appropriate.

FINANCIAL CONSIDERATIONS/EXAMPLE PROJECT COSTS

1. Preliminary cost estimates for engineering and constructing the dam’s retrofit and expansion are between \$30M and \$50M.
 - a. Estimates are based on comparison with other similar projects and do not include those costs associated with planning, environmental, regulatory/permitting, etc.
 - b. Funding opportunities and partnerships will be explored and pursued at the federal, state and local level, including identification of project beneficiaries to cost share.
2. The additional safe yield was estimated to be up to 1650 AFY (Final EIR for the Proposed Salinas Reservoir Expansion Project, pg. ES-1, May 1998) and would need to be reevaluated under current conditions.

SPECIFIC CONSIDERATIONS FOR IMPLEMENTATION

1. The USACE has indicated that the dam would need to be transferred “as-is” and federal funding to support retrofit is uncertain.
2. The State, as the California Department of Water Resources Division of Safety of Dams (DSOD), has indicated that seismic rehabilitation of Salinas Dam would be required if the dam were to transfer to fall under State regulation. Any retrofit or structural improvements, including expanding the dam’s capacity, will require coordination with and approval by the DSOD following the District’s acquisition of the dam.

3. Since the USACE has indicated they are unlikely to install the gates, ownership of the dam would need to be transferred from the federal government to a local agency to pursue the opportunity. This transfer would result in the Salinas Dam oversight responsibilities transferring from federal to state jurisdiction and require the dam retrofit and expansion to meet any additional requirements from the State.

WATER SUPPLY & RESILIENCY OPTION: DESALINATION

Desalination is the process of creating fresh, potable water by removing salinity from ocean water or highly saline groundwater. Similar projects and processes can also be called “desalter” or “brackish water” treatment, with or without direct ocean intakes and/or outfalls. Each of these types of projects are included here given the similarities in treatment process. As with many supply options, implementation costs and constraints vary highly with the location and purpose of the project. Past desalination actions in SLO County include:

- Morro Bay constructed a desalination plant in 1992 and expanded it to include a brackish water treatment plant in 2009. The City uses these facilities for potable supply in conjunction with its State Water deliveries.⁵
- In 2015, Public Works presented desalination opportunities, including the Santa Maria Refinery site (see Produced Water from Oil Extraction Operations summary of Attachment 2) to the Board of Supervisors and received direction to engage with regional partners on desalination opportunities and to specifically engage with PG&E regarding opportunities related to the Diablo Canyon Power Plant.⁶
- In 2016, the County and PG&E completed a Diablo Canyon Power Plant (DCPP) desalination pipeline feasibility study⁷. With the announced decommissioning of the plant, many assumptions have changed, but an example project is included below.

FINANCIAL CONSIDERATIONS/EXAMPLE PROJECT COSTS

Example projects below include local and regional projects.

Example Projects in SLO County	Supply (AF / year)	Capital Costs	O&M Costs (\$ / YR)	Water Costs (\$ / AF)	Notes
Morro Bay Desal & Brackish Water Treatment Plant	Up to 645	-	-	\$1,550 (desal) \$1,000 (brackish) ²	Costs not included since primary facility was built in 1992; desal wells recently decommissioned.

⁵ See City of Morro Bay 2015 UWMP: <https://www.morro-bay.ca.us/DocumentCenter/View/9696/2015-UWMP-FINAL?bidId=>

⁶ See Board of Supervisors item 16, 8/25/2015: <https://agenda.slocounty.ca.gov/IIP/sanluisobispo/agendaitem/details/5038>

⁷ See <https://www.slocounty.ca.gov/Departments/Administrative-Office/Forms-Documents/Diablo-Canyon-Closure/Desalination-Project-Documents/Diablo-Canyon-Desalination-Pipeline-Feasibility-St.pdf>

San Simeon Community Services District Wellhead treatment	Up to 35 AFY	~\$1Million	\$31,000	Very low (no debt-service) ⁸	Groundwater intake. Operates at high saline levels only; costs were offset by significant grant funding.
DCPP Desalination Connection to Zone 3	1,300 AFY	\$36.4M	\$556,000	\$2,100 (wholesale cost)	This is Scenario 2B from the report. ³
Example Regional Projects in California	Supply (AF / year)	Capital Costs	O&M Costs (\$ / YR)	Wholesale (\$ / AF)	Notes
City of Santa Barbara Desalination Plant	3,125 AFY	\$116 Million ⁹	\$1.4M (standby) to \$4.1M (full)	Varies based on production	Originally built in 1992, standby for years, re-equipped in 2017 (?)
Carlsbad Desal. - San Diego Co. Water Auth. ¹⁰	48,000 – 56,000 AFY	\$1 Billion	-	~\$2,600 (does not include local delivery)	Sold bonds to pay 75% of construction costs.

SPECIFIC CONSIDERATIONS FOR IMPLEMENTATION

1. CalAm (in Monterey) recently had a regional desal project denied by the Coastal Commission, in part, because they had not exhausted other local options (conservation, optimization, recycled water, etc.). This appears to be a precedent-setting decision by the Commission and would need to be addressed in any regional desal. project.
2. The 2015 Desalination Summary Report presented to the Board of Supervisors details the various implementation challenges, including: environmental, energy, demand risk, policy, regulatory, etc.³
3. Small scale, indirect intake desalination could be a water source for coastal communities with limited supplies.

⁸ As a Disadvantaged Community (defined by the State of California), SSCSD was eligible for zero cost match grants.

⁹ Includes Initial costs (1991), re-startup (2016), and pipeline costs (TBD). Additional info here [https://www.santabarbaraca.gov/...](https://www.santabarbaraca.gov/)

¹⁰ Information for table derived from <https://www.sdcwa.org/sites/default/files/desal-carlsbad-fs.pdf>

APPENDIX C. RWIRP CHARTER

Regional Water Infrastructure Resiliency Project Charter

Vision

Regional water infrastructure within San Luis Obispo County that addresses reliability and resiliency needs and is optimally utilized over the long-term

Mission

Identify and prioritize initiatives to mitigate vulnerabilities and enhance reliability, resilience, and optimum utilization of existing and future regional water infrastructure

Objectives and Performance Measures

OBJECTIVE #1: Complete an **EVALUATION** of water related vulnerabilities and risk

- Inventory of realistic existing and future supply and demand, supply agreements, infrastructure connections, and supply agreements
- Inventory of scenarios, vulnerabilities, and impacts related to drought, climate change, natural disasters, maintenance downtimes, catastrophic failures and future needs

OBJECTIVE #2: Develop a **BALANCED ACTION PLAN** that outlines next steps to implement prioritized strategies

- Mitigation strategies for regional infrastructure vulnerabilities
- Opportunities to better utilize existing infrastructure and supplies, including potential new points of connection and water transfers, in a mutually beneficial manner
- Identify opportunities and big ideas to mitigate regional infrastructure vulnerabilities
- Identify new opportunities to better utilize existing infrastructure and supplies, including potential new points of connection and water transfers
- Identify opportunities for individual agencies to participate in regional resiliency
- Implement a triple bottom line process to evaluate and prioritize specific strategies and initiatives

OBJECTIVE #3: Develop a **COMMUNICATION PLAN** that informs project stakeholders

- Provide an adaptable toolset to support future work
- Build on past efforts including recommendations from the Master Water Report, integrate with existing efforts and coordinate with appropriate stakeholder groups

Guiding Principles

- ✓ Participate in a forthcoming manner with honesty, transparency and civility
- ✓ Maintain trust and accountability through open idea sharing that promotes commitment to participation and engagement
- ✓ Encourage green light thinking and active collaboration to spur innovation
- ✓ Respect autonomy and authority of agencies and partnerships
- ✓ Share appropriate information with stakeholders not present and identify topics that require additional vetting outside of this process

APPENDIX D. COMPARISON OF STATE DRAFT DROUGHT AND WATER SHORTAGE RISK SCORING AND COUNTYWIDE WATER ACTION TEAM (CWAT) DRAFT VULNERABILITY ASSESSMENT

SUBJECT: Comparison of State Draft Drought and Water Shortage Risk Scoring and Countywide Water Action Team (CWAT) Draft Vulnerability Assessment

**Note that the Department of Water Resources' (DWR's) Final Report on Small Water Systems and Rural Communities Drought and Water Shortage Contingency Planning and Risk Assessment became available at the time this report was being finalized, so the analysis herein only reflects review of the Draft Report on Small Water Systems and Rural Communities Drought and Water Shortage Contingency Planning and Risk Assessment.*

INTRODUCTION

Water Code Division 6 Part 2.55 Section 8 Chapter 10 (Assembly Bill 1668) required the California Department of Water Resources, in consultation with other agencies and the County Drought Advisory Group (CDAG), to create a list of small water suppliers and self-supplied communities that are at risk of drought and water shortage. In December 2019, the State released its draft methodology and corresponding list of small water suppliers, which are publicly regulated systems with less than 3,000 service connections or using fewer than 3,000 AF of water, to members of the CDAG. The public draft was released in March 2020. Although not discussed in this memo, the public draft also includes the methodology used to score self-supplied communities.¹¹ DWR has not yet released its list of vulnerable self-supplied communities in the County of San Luis Obispo. A *final* report is forthcoming.

Locally, the San Luis Obispo County Flood Control and Water Conservation District and its consultant, Water Systems Consulting (WSC), are developing a Regional Infrastructure Water Resiliency Plan. As part of this effort, the CWAT engaged in a vulnerabilities prioritization workshop in October 2019, which resulted in a vulnerability ranking of water systems.

This document compares the methodology and ranking of the CWAT's vulnerability assessment as of January 2020 and DWR's risk scoring as of March 2020.

METHODOLOGY

In the CWAT vulnerability assessment, a water system's risk score was determined by adding four sub-scores:¹²

1. *Normalized Vulnerability Risk Score*

¹¹ Self-supplied communities defined as communities served by water suppliers with fewer than 15 service connections, which are either local small water systems (serving 2-4 connections), state small water systems (serving between 5-14 connections), or domestic wells (serving one connection).

¹² See Water Systems Consulting, "Existing Data Compilation and Analysis Memorandum," January 2020.

Risk scores for each source of water¹³ were determined qualitatively through a workshop with the CWAT. Each water source was scored by the likelihood and extent of impacts of certain vulnerabilities: climate change, natural disasters, maintenance and failures, regulatory/environmental, and water rights. The source risk score was weighted by each water system's portfolio and normalized for a *vulnerability risk score* for each water system.

2. *Normalized Surplus/Deficit Magnitude Score*

This score represents existing multi-year dry condition water surplus and deficit with a 20 percent buffer (AFY). Single and multiple dry drought year conditions estimates were extracted from various planning documents, converted to a percentage of normal conditions for each agency and regional supply source, and circulated to CWAT agencies for confirmation. These percentages of normal were applied to projected future supply and demand and normalized for a *surplus/deficit magnitude score*.

3. *Normalized Surplus/Deficit Percentage Score*

This score represents existing multi-year dry condition water surplus and deficit with a 20 percent buffer as a percent of demand. Single and multiple dry drought year conditions estimates were extracted from various planning documents, converted to a percentage of normal conditions for each agency and regional supply source, and circulated to CWAT agencies for confirmation. These percentages of normal were applied to projected future supply and demand and normalized for a *surplus/deficit percentage score*.

4. *Normalized Water Supply Portfolio Diversity*

The number of water sources for each system were counted and then normalized for a water supply portfolio diversity score.

The vulnerability risk score, water supply portfolio diversity score, surplus deficit magnitude score, and surplus/deficit percentage score were added to find the water system's risk score. Systems were then ranked according to their risk score (1-40).

The State, to create its draft list of small water suppliers at risk of drought and water shortage, developed 29 indicators of risk of water shortage and drought for small suppliers.¹⁴ The indicators can be grouped into three components: Exposure, Vulnerability, and Observed Shortage (See **Table 1**). Each metric is normalized and/or rescaled to add multiple variables together for a composite risk score (see **Figure 1**).

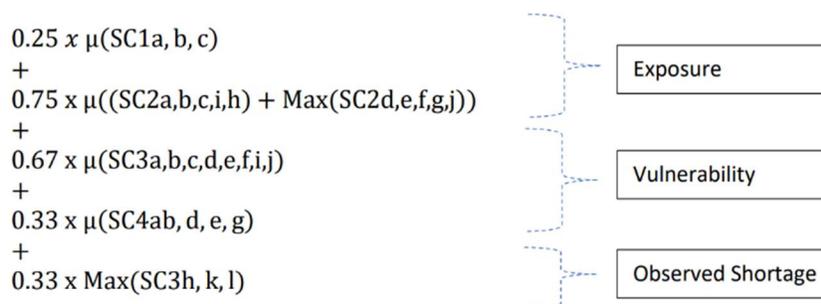
¹³ Water Sources: State Water Project; Nacimiento Water Project; Lopez, Salinas, and Whale Rock Reservoirs; and Other (e.g. groundwater, recycled water).

¹⁴ See Department of Water Resources, "Appendix 2 – Drought and Water Shortage Risk Scoring: California's Small Water Supplier and Self-Supplied Communities," March 2020.

Table 1. Indicators of Risk of Water Shortage and Drought (Small Suppliers)

Component	# of Indicators	Variable Names
Exposure	13 indicators	
Exposure – Climate Change	3 indicators	SC1a, b, c
Exposure – Recent Conditions	10 indicators	SC2a - j
Vulnerability	13 indicators	
Vulnerability – Infrastructure	9 indicators	SC3a - i, j
Vulnerability – Organizational	4 indicators	SC4a, b, d, e, g
Observed Shortage	3 indicators	SC3h, k, l

Figure 1. State Scoring Overview



The WSC and draft State methodologies are two distinct approaches to identifying vulnerable water systems. The WSC methodology places greater emphasis on supply, demand, and water portfolio diversity than the State and incorporates more local knowledge through the CWAT’s role in the vulnerability scoring. The State includes supply, demand, and number of water sources as well, along with many other indicators in its draft methodology. Since its methodology must be applied to all the small water systems in California, there are no qualitative aspects in the State’s initial scoring.

RANKINGS

Twenty-five systems were identified for analysis, scored, and ranked by both WSC and the State. See **Table 1** for a list of the common systems and their respective scores and rankings. There are some similarities among the rankings; however, overall, the WSC and the draft State rankings are not consistent with each other.

Both WSC and the State ranked San Simeon CSD and Heritage Ranch CSD among the most vulnerable water systems. GSWC Nipomo and GSWC Cypress were also considered more vulnerable by both the State and WSC. Los Osos-area systems were considered vulnerable to some extent by both parties: WSC ranked the Los Osos-area systems (GSWC Los Osos, Los Osos CSD, and S&T MWC) tenth, and the State ranked GSWC Los Osos the fifth most vulnerable. However, Los Osos CSD and S&T MWC were not considered very vulnerable in the State’s assessment. The State’s ranking found the Avila-area water systems to be vulnerable, whereas they did not elevate in WSC’s assessment. Oceano CSD also scored on the lower side, meaning more vulnerable, in the State’s assessment. Both WSC and the State ranked Templeton CSD among the least vulnerable. Less vulnerable systems according to both methodologies also included CSA 10A and Morro Rock MWC.

Beyond these similarities, the WSC and the State rankings are not consistent with each other, as seen in **Figure 2**, which shows no concentration of water systems as considered more vulnerable or less vulnerable according to both WSC and State rankings. The rankings remain inconsistent when the common systems—those on both lists—are re-ranked 1-25.

Additionally, many of the water systems ranked most vulnerable by the State in its draft report were not scored or ranked by WSC. These systems include water systems serving residential communities. Two of the water systems ranked most vulnerable by WSC originally, Camp Roberts and Cuesta College, were not considered by the State.¹⁵

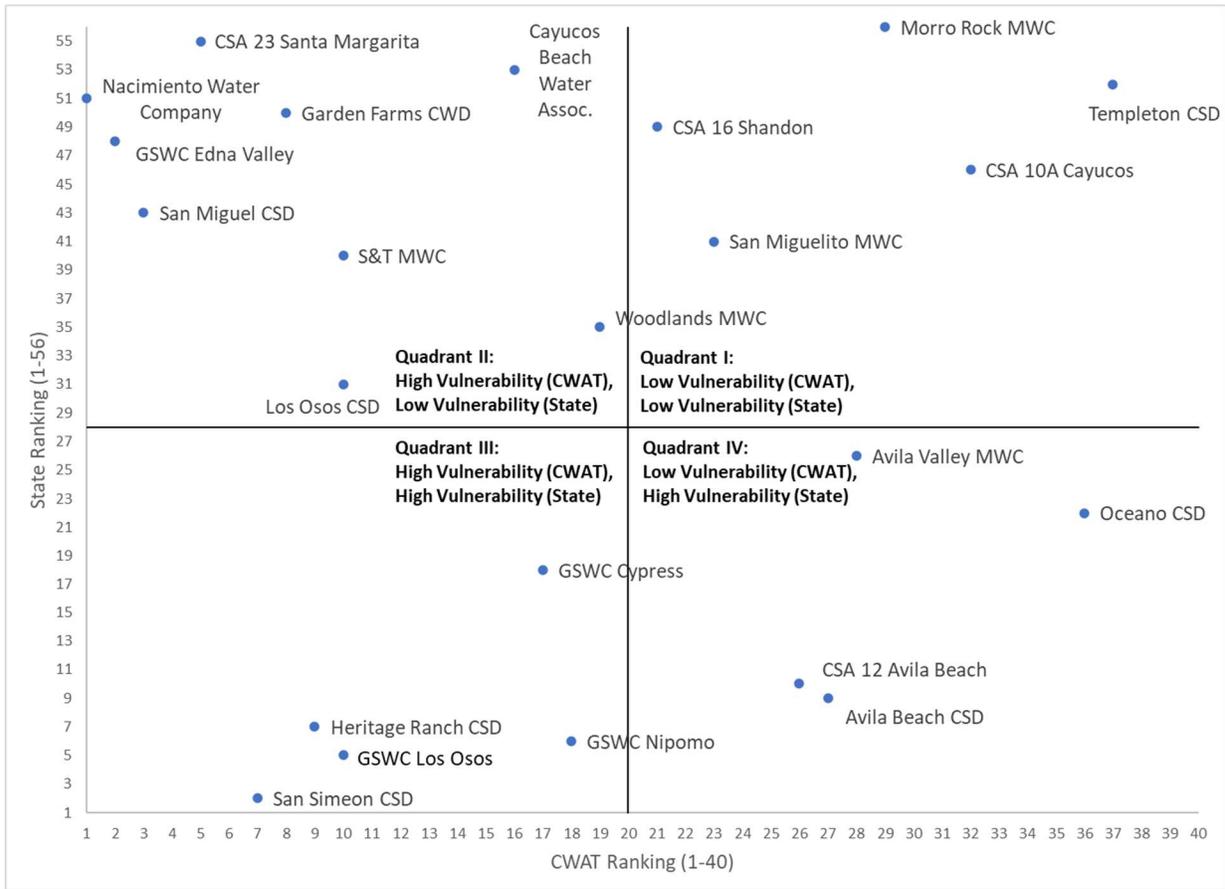
Table 2. Comparison of CWAT and Draft State Vulnerability Rankings

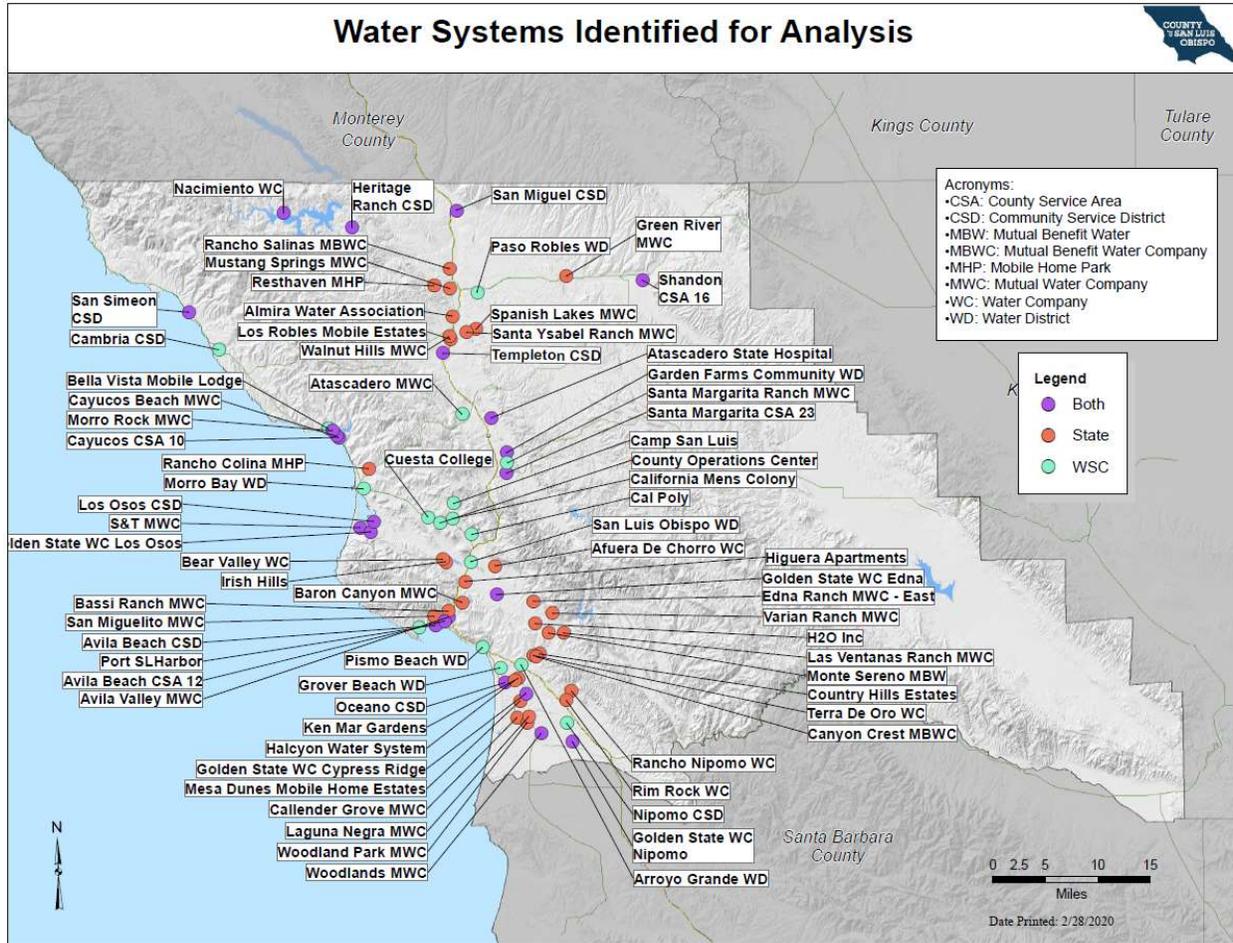
Water System	CWAT Vulnerability Ranking (Total = 40)	CWAT Risk Score	State Ranking (Total = 56)	State Risk Score (as of 03/2020)
Nacimiento Water Company	1	3.97	51	5.8
GSWC Edna Valley	2	3.96	48	16.49
San Miguel CSD	3	3.95	43	20.1
CSA 23 Santa Margarita	5	3.95	55	2.64
San Simeon CSD	7	3.83	2	85.65
Garden Farms CWD	8	3.78	50	10.55
Heritage Ranch CSD	9	3.75	7	73.16
Los Osos CSD/S&T MWC/GSWC	10	3.61	<i>Separated in State Scoring</i>	
Los Osos CSD	<i>Combined in CWAT Vulnerability Scoring</i>		31	31.64
S&T MWC			40	23.35
GSWC Los Osos			5	81.09

¹⁵ At the January 26th CWAT meeting, re-ranking these two systems was discussed to reflect Cuesta College’s non-residential population and Camp Roberts funding capacity.

Water System	CWAT Vulnerability Ranking (Total = 40)	CWAT Risk Score	State Ranking (Total = 56)	State Risk Score (as of 03/2020)
Cayucos Beach Water Assoc.	16	3.15	53	3.06
GSWC Cypress (Rural Water Co.)	17	3.01	18	43.67
GSWC Nipomo	18	3.01	6	76.36
Woodlands MWC	19	3.00	35	27.59
CSA 16 Shandon	21	2.94	49	13.09
San Miguelito MWC	23	2.87	41	22.89
CSA 12 Avila Beach	26	2.77	10	69.76
Avila Beach CSD	27	2.75	9	71.56
Avila Valley MWC	28	2.63	26	33.97
Morro Rock MWC	29	2.63	56	0.1
CSA 10A Cayucos	32	2.50	46	19.11
Oceano CSD	36	2.07	22	40.49
Templeton CSD	37	1.93	52	5.75
Atascadero State Hospital	<i>Not yet scored</i>		15	52.35

Figure 2. Comparison of CWAT and State Vulnerability Rankings





APPENDIX E. SUPPLY AND DEMAND INVENTORY

Table 11. Existing and Projected Future Supply and Demand Summary

Agencies	SWP	NWP	Lopez	Salinas	Whale Rock	Other Supply	Future Agency Supply Total	Existing Demand Total	Surplus/Deficit	Buffer %	Future High Agency Demand Total	Surplus/Deficit	Buffer %	Future Low Agency Demand Total	Surplus/Deficit	Buffer %	20% Supply Buffer Target for Existing Demand*	Supply Needed for Target with Existing Demand	20% Supply Buffer Target for High Demand*	Supply Needed for Target with High Demand	20% Supply Buffer Target for Low Demand*	Supply Needed for Target with Low Demand	Map #
Arroyo Grande			2,290			1,523	3,813	2,867	946	33%	4,150	-337	-8%	3,096	717	23%	3,440	373	4,980	-1,167	3,715	98	1
Atascadero MWC		3,244				5,811	9,055	5,069	3,986	79%	7,485	1,570	21%	7,463	1,592	21%	6,083	2,972	8,982	73	8,956	99	2
Avila Beach CSD	100		68				168	74	94	127%	170	-2	-1%	162	6	4%	89	79	204	-36	194	-26	3
Avila Valley MWC	20		12				32	31	1	3%	32	0	0%	30	2	7%	37	-5	38	-6	36	-4	4
Bella Vista MHP (Cayucos)					10		10	10	0	0%	10	0	0%	10	0	0%	12	-2	12	-2	12	-2	5
Cal Poly					959		959	911	48	5%	806	153	19%	806	153	19%	1,093	-134	967	-8	967	-8	6
California Men's Colony	735				420	25	1,180	700	480	69%	1,135	45	4%	700	480	69%	840	340	1,362	-182	840	340	7
Cayucos Cemetery District					18		18	16	2	13%	18	0	0%	17	1	6%	19	-1	22	-4	20	-2	8
County Operations Center	150				25	3	178	94	84	89%	94	84	89%	94	84	89%	113	65	113	65	113	65	9
CSA 10A- Cayucos					230		230	132	98	74%	232	-2	-1%	220	10	5%	158	72	278	-48	264	-34	10
CSA 12- Avila Beach	7		61				68	30	38	128%	68	0	0%	65	3	5%	36	32	82	-14	78	-10	11
CSA 16- Shandon	66					147	213	147	66	45%	1,100	-887	-81%	271	-58	-21%	176	37	1,320	-1,107	325	-112	12
Cuesta College	140						140	125	15	12%	125	15	12%	125	15	12%	150	-10	150	-10	150	-10	13
Grover Beach			800			1,407	2,207	1,579	628	40%	2,500	-293	-12%	1,708	499	29%	1,895	312	3,000	-793	2,050	157	14
Morro Bay	1,313					3,019	4,332	1,298	3,034	234%	2,040	2,292	112%	1,437	2,895	201%	1,558	2,774	2,448	1,884	1,724	2,608	15
Morro Rock MWC					170	56	226	121	105	87%	173	53	31%	164	62	38%	145	81	208	18	197	29	16
Nipomo CSD	3,000					1,244	4,244	3,187	1,057	33%	4,194	50	1%	3,817	427	11%	3,824	420	5,033	-789	4,580	-336	17
Oceano CSD	750		303			900	1,953	855	1,098	128%	1,419	534	38%	680	1,273	187%	1,026	927	1,703	250	816	1,137	18
Paso Robles		6,488				6,758	13,246	7,089	6,157	87%	13,500	-254	-2%	9,519	3,727	39%	8,507	4,739	16,200	-2,954	11,423	1,823	19
Paso Robles Beach Water Association					222		222	163	59	36%	218	4	2%	207	15	7%	196	26	262	-40	248	-26	20
Pismo Beach	1,240		896			700	2,836	1,888	948	50%	2,977	-141	-5%	1,833	1,003	55%	2,266	570	3,572	-736	2,200	636	21
Port San Luis			100				100	12	88	735%	35	65	186%	33	67	203%	14	86	42	58	40	60	22
San Luis Obispo		5,482		4,910		-500	9,892	5,225	4,667	89%	7,894	1,998	25%	7,779	2,113	27%	6,270	3,622	9,473	419	9,335	557	23
San Miguelito MWC	275					118	393	263	130	49%	393	0	0%	373	20	5%	316	77	472	-79	448	-55	24
Santa Margarita Ranch MWC		80				1,621	1,701	1,621	80	5%	5,890	-4,189	-71%	5,301	-3,600	-68%	1,945	-244	7,068	-5,367	6,361	-4,660	25
Templeton Community Services District		398				2,414	2,812	1,440	1,372	95%	2,512	300	12%	2,010	802	40%	1,728	1,084	3,014	-202	2,412	400	26
San Simeon CSD						140	140	86	54	63%	137	3	2%	137	3	2%	103	37	165	-25	165	-25	27

Agencies	SWP	NWP	Lopez	Salinas	Whale Rock	Other Supply	Future Agency Supply Total	Existing Demand Total	Surplus/Deficit	Buffer %	Future High Agency Demand Total	Surplus/Deficit	Buffer %	Future Low Agency Demand Total	Surplus/Deficit	Buffer %	20% Supply Buffer Target for Existing Demand*	Supply Needed for Target with Existing Demand	20% Supply Buffer Target for High Demand*	Supply Needed for Target with High Demand	20% Supply Buffer Target for Low Demand*	Supply Needed for Target with Low Demand	Map #
Cambria CSD						1,017	1,017	747	270	36%	789	228	29%	789	228	29%	896	121	947	70	947	70	28
Los Osos CSD/S&T MWC/GSWC						2,100	2,100	1,018	1,082	106%	2,870	-770	-27%	2,296	-196	-9%	1,222	878	3,444	-1,344	2,755	-655	29
Camp San Luis Obispo						340	340	138	202	146%	138	202	146%	138	202	146%	166	174	166	174	166	174	30
GSWC Edna Valley						410	410	410	0	0%	482	-72	-15%	434	-24	-6%	492	-82	578	-168	521	-111	31
GSWC Nipomo	208					852	1,060	1,060	0	0%	1,944	-884	-45%	1,750	-690	-39%	1,272	-212	2,333	-1,273	2,100	-1,040	32
GSWC Cypress	208					462	670	720	-50	-7%	720	-50	-7%	720	-50	-7%	864	-194	864	-194	864	-194	33
Woodlands MWC	417					405	822	850	-28	-3%	1,600	-778	-49%	1,440	-618	-43%	1,020	-198	1,920	-1,098	1,728	-906	34
Conoco-Phillips						1,400	1,400	1,200	200	17%	1,400	0	0%	1,260	140	11%	1,440	-40	1,680	-280	1,512	-112	35
CSA 23- Santa Margarita						164	164	164	0	0%	192	-28	-15%	173	-9	-5%	197	-33	230	-66	208	-44	36
Garden Farms CWD						93	93	48	45	94%	93	0	0%	48	45	94%	58	35	112	-19	58	35	37
San Miguel CSD						235	235	235	0	0%	582	-347	-60%	466	-231	-50%	282	-47	698	-463	559	-324	38
Camp Roberts						190	190	190	0	0%	190	0	0%	190	0	0%	228	-38	228	-38	228	-38	39
Nacimiento Water Co.						600	600	600	0	0%	600	0	0%	600	0	0%	720	-120	720	-120	720	-120	40
Heritage Ranch CSD						1,100	1,100	619	481	78%	1,039	61	6%	935	165	18%	743	357	1,247	-147	1,122	-22	41
Supply Source Total	8,629	15,692	4,530	4,910	2,054	34,754	70,569	43,032	27,537		71,946	-1,377		58,610	11,959		51,638	18,931	86,335	-15,766	70,332	237	

Cells with data from 2012 Master Water Report in AFY. (1)

Cells updated with 2015 Urban Water Management Plan (UWMP) data in AFY. (4) (3) (5) (2) (6) (7) (8) (9) (10)

Cells with unknown actual source, but from Mladen Bandov's summary spreadsheet provided at the 9/18 CWAT meeting in AFY.

Data from City of San Luis Obispo 2018 Water Resources Status Report in AFY. (11)

Summary of District Water Demand and Water Supply Sources 2019.pdf provided by Bettina Mayer in 10/8/2019 email.

Calculated Cells

San Simeon CSD Master Plan- Potable Water, Wastewater, Recycled Water and Road Network Improvement Plan, April 2018, Phoenix Engineering (12)

Los Osos Basin Plan 2018 Annual Monitoring Report, June 2019, Cleath-Harris Geologists (13)

San Luis Obispo County Flood Control and Water Conservation District Zone 3 - Lopez Project - Monthly Operations Report - CSA 12, December 2018 (14)

Data from AMWC's Demand Study and Urban Water Master Plan provided by John Neil in an email on 11/25/2019

*Supply buffer percentage from 4.8.2 Regional Water Supply Strategies (Vol II, Pdf p. 269, p. 4-256 in 2012 Master Water Report) (1)

**While Nipomo CSD does get SWP water from the City of Santa Maria, it is not directly connected to the SWP and Nipomo CSD is not a SWP subcontractor with abilities to exchange its SWP allocation.

Draft Environmental Impact Report for the 2035 Master Plan California Polytechnic State University San Luis Obispo, California, Table 3.14-7, Prepared by Ascent Environmental, Inc., December 2019 (15)

Data from Chief Plant Operator of California Men's Colony Water Treatment Plant, Michael Schwartz, via email on March 3, 2020.

CSA 10A- Cayucos and Bella Vista MHP (Cayucos) exchanges their NWP allocation with the City of San Luis Obispo for Whale Rock delivery. For the purposes of assessing vulnerability, the physical delivery of water from Whale Rock is assessed.

Agency is not connected to regional infrastructure.

SWP supply totals for Nipomo CSD, GSCW Nipomo, GSWC Cypress Ridge and Woodlands MWC represents municipal blend from the City of Santa Maria/Nipomo Supplemental Water Project and represents a mix of SWP water and groundwater. Nipomo CSD's actual conveyance capacity for the Nipomo Supplemental Water Projects is 2,186 AFY, after subtracting the allocations of the other Nipomo Mesa agencies.

Table 12. Multiple Dry Years Supply and Demand Summary (AFY)

Agency	SWP	NWP	Lopez	Salinas	Whale Rock	Other Supply	Agency Supply Total	Existing Agency Demand Total	Surplus/Deficit	Buffer %	Future Low Agency Demand Total	Surplus/Deficit	Buffer %	20% Supply Buffer Target for Existing Demand*	Supply Needed for Target with Existing Demand	20% Supply Buffer Target for Low Demand*	Supply Needed for Target with Low Demand	Map #
Arroyo Grande			1,832			1,523	3,355	2,867	488	17%	3,096	259	8%	3,440	-85	3,715	-360	1
Atascadero MWC		3,244				5,811	9,055	5,069	3,986	79%	7,463	1,592	21%	6,083	2,972	8,956	99	2
Avila Beach CSD	48		54				102	74	28	38%	162	-60	-37%	89	14	194	-92	3
Avila Valley MWC	19		10				29	31	-2	-8%	30	-1	-4%	37	-9	36	-7	4
Bella Vista MHP (Cayucos)					10		10	10	0	0%	10	0	0%	12	-2	12	-2	5
Cal Poly					959		959	911	48	5%	806	153	19%	1,093	-134	967	-8	6
California Men's Colony	353				420	25	798	700	98	14%	700	98	14%	840	-42	840	-42	7
Cayucos Cemetery District					18		18	16	2	13%	17	1	6%	19	-1	20	-2	8
County Operations Center	72				25	3	100	94	6	6%	94	6	6%	113	-13	113	-13	9
CSA 10A- Cayucos					230		230	132	98	74%	220	10	5%	158	72	264	-34	10
CSA 12- Avila Beach	3		49				52	30	22	75%	65	-13	-20%	36	16	78	-26	11
CSA 16- Shandon	16					147	163	147	16	11%	271	-108	-40%	176	-14	325	-162	12
Cuesta College	67						67	125	-58	-46%	125	-58	-46%	150	-83	150	-83	13
Grover Beach			640			1,407	2,047	1,579	468	30%	1,708	339	20%	1,895	152	2,050	-3	14
Morro Bay	865					2,284	3,149	1,298	1,851	143%	1,437	1,712	119%	1,558	1,591	1,724	1,424	15
Morro Rock MWC					170		170	121	49	40%	164	6	4%	145	25	197	-27	16
Nipomo CSD	3,000					1,244	4,244	3,187	1,057	33%	3,817	427	11%	3,824	420	4,580	-336	17
Oceano CSD	360		242			900	1,502	855	647	76%	680	822	121%	1,026	476	816	686	18
Paso Robles		6,488				6,758	13,246	7,089	6,157	87%	9,519	3,727	39%	8,507	4,739	11,423	1,823	19
Paso Robles Beach Water Association					222		222	163	59	36%	207	15	7%	196	26	248	-26	20
Pismo Beach	595		717			700	2,012	1,888	124	7%	1,833	179	10%	2,266	-254	2,200	-188	21
Port San Luis			80				80	12	68	568%	33	47	142%	14	66	40	40	22
San Luis Obispo		5,482		4,910		-500	9,892	4,999	4,893	98%	5,329	4,563	86%	5,999	3,893	6,395	3,497	23
San Miguelito MWC	132					118	250	263	-13	-5%	373	-123	-33%	316	-66	448	-198	24
Santa Margarita Ranch MWC		80				1,621	1,701	1,621	80	5%	5,301	-3,600	-68%	1,945	-244	6,361	-4,660	25
Templeton Community Services District		398				2,414	2,812	1,440	1,372	95%	2,010	802	40%	1,728	1,084	2,412	400	26
San Simeon CSD						140	140	86	54	63%	137	3	2%	103	37	165	-25	27
Cambria CSD						864	864	635	230	36%	671	194	29%	762	103	805	60	28
Los Osos CSD/S&T MWC/GSWC						2,100	2,100	1,018	1,082	106%	2,296	-196	-9%	1,222	878	2,755	-655	29
Camp San Luis Obispo						340	340	138	202	146%	138	202	146%	166	174	166	174	30

Agency	SWP	NWP	Lopez	Salinas	Whale Rock	Other Supply	Agency Supply Total	Existing Agency Demand Total	Surplus/Deficit	Buffer %	Future Low Agency Demand Total	Surplus/Deficit	Buffer %	20% Supply Buffer Target for Existing Demand*	Supply Needed for Target with Existing Demand	20% Supply Buffer Target for Low Demand*	Supply Needed for Target with Low Demand	Map #
GSWC Edna Valley						410	410	410	0	0%	434	-24	-6%	492	-82	521	-111	31
GSWC Nipomo	208					852	1,060	1,060	0	0%	1,750	-690	-39%	1,272	-212	2,100	-1,040	32
GSWC Cypress	208					462	670	720	-50	-7%	720	-50	-7%	864	-194	864	-194	33
Woodlands MWC	417					405	822	850	-28	-3%	1,440	-618	-43%	1,020	-198	1,728	-906	34
Conoco-Phillips						1,400	1,400	1,200	200	17%	1,260	140	11%	1,440	-40	1,512	-112	35
CSA 23- Santa Margarita						164	164	164	0	0%	173	-9	-5%	197	-33	208	-44	36
Garden Farms CWD						93	93	48	45	94%	48	45	94%	58	35	58	35	37
San Miguel CSD						235	235	235	0	0%	466	-231	-50%	282	-47	559	-324	38
Camp Roberts						190	190	190	0	0%	190	0	0%	228	-38	228	-38	39
Nacimiento Water Company						600	600	600	0	0%	600	0	0%	720	-120	720	-120	40
Heritage Ranch CSD						1,100	1,100	619	481	78%	935	165	18%	743	357	1,122	-22	41
Total	5,530	15,692	3,624	4,910	2,054	24,455	56,265	33,301	22,964		56,258	10,196		49,529	16,925	67,510	-1,056	
Cells linked and calculated.																		
Calculated Cells																		
Agency is not connected to regional infrastructure.																		

APPENDIX F. IDENTIFIED MITIGATION OPPORTUNITIES BY REGION

Table 13. Regional Mitigation Opportunities

Regional Opportunity Area	Agency/Agencies	Bracket	Regional Opportunities
Chorro Valley	County Operations Center, California Men's Colony, Camp San Luis Obispo, Cuesta College	Potentially Vulnerable (Cuesta College)	- Salinas/Nacimiento Intertie - SWP optimization
Edna	GSWC Edna Valley	Potentially Vulnerable	- SLO City intertie (emergency/permanent) - sentinel peak produced water - SWP intertie (emergency/permanent) - SLO City to Zone 3 to pick up small systems - SLO RW
Los Osos	Los Osos CSD/S&T MWC/GSWC	Potentially Vulnerable	- Chorro Valley/ SWP - Whale Rock - Partnership with Morro Bay (conjunctive use) - Funding basin plan program/projects - Consolidation
San Miguel	San Miguel CSD	Potentially Vulnerable	- Nacimiento connection - Paso Robles intertie - Salinas River water rights? - Salinas Dam increased storage water rights
Cayucos	Bella Vista MHP, CSA 10A, Morro Rock MWC, Paso Robles Beach Water Association,	Potentially vulnerable but has mitigation initiative(s)	- Reservoir Augmentation (Whale Rock/RW)
CSA 23/Santa Margarita	CSA 23- Santa Margarita, Garden Farms CWD, Santa Margarita Ranch MWC	Potentially vulnerable but has mitigation initiative(s)	- Permanent Nacimiento - AMWC intertie (permanent) - Salinas - SWP - Salinas/Nacimiento Intertie
Nipomo	Conocco Phillips, GSWC Cypress, GSWC Nipomo, Nipomo CSD, Woodlands MWC	Potentially vulnerable but has mitigation initiative(s)	- Optimize Santa Maria Intertie - SWP - AG/GSWC Intertie
Camp Roberts	Camp Roberts	Potentially vulnerable but has mitigation initiative(s)	TBD
Heritage Ranch CSD	Heritage Ranch CSD	Potentially vulnerable but has mitigation initiative(s)	- Nacimiento connection
Zone 3	Avila Valley MWC, Avila Beach CSD, CSA 12- Avila Beach, San Miguelito MWC, Port San Luis, Arroyo Grande, Grover Beach, Pismo Beach, Oceano CSD	Potentially vulnerable but has mitigation initiative(s)	- SWP - Salinas/Lopez Intertie - Lopez storage - CCB - AG/GSWC Intertie - SLO Connection
Cal Poly	Cal Poly	Potentially vulnerable but has mitigation initiative(s)	TBD
Shandon	CSA 16- Shandon	Potentially vulnerable but has mitigation initiative(s)	- SWP