



CITY OF MORRO BAY CITY COUNCIL Agenda

The City of Morro Bay provides essential public services and infrastructure to maintain a safe, clean and healthy place for residents and visitors to live, work and play.

NOTICE OF SPECIAL JOINT MEETING OF THE CITY COUNCIL AND PUBLIC WORKS ADVISORY BOARD

Tuesday, November 14, 2023 @ 3:00 PM
Veterans Memorial Building - 209 Surf Street, Morro Bay, CA

Public Participation:

Public participation is allowed in the following ways:

- Community members may attend the meeting in person at the Morro Bay Community Center.
- Alternatively, members of the public may watch the meeting and speak during general Public Comment or on a specific agenda item by logging in to the Zoom webinar using the information provided below. Please use the "raise hand" feature to indicate your desire to provide public comment.

Please click the link below to join the webinar:

- <https://us02web.zoom.us/j/82722747698?pwd=aWZpTzcwTHlRTk9xaTlmWVNWRFUQT09>

Password: 135692

- Or Telephone Attendee: 1 (408) 638-0968 or 1 (669) 900 6833 or 1 (346) 248 7799; Webinar ID: 827 2274 7698; Password: 135692; Press *9 to "Raise Hand" for Public Comment

- Members of the public may watch the meeting either on cable Channel 20 or as streamed on the City [website](#).
- Community members are encouraged to submit agenda correspondence in advance of the meeting via email to the City Council at council@morrobayca.gov prior to the meeting. Agenda Correspondence received at council@morrobayca.gov by 10 a.m. on the meeting day will be posted on the City website.

ESTABLISH QUORUM AND CALL TO ORDER

PUBLIC COMMENT FOR ITEMS ON THE AGENDA

SPECIAL MEETING AGENDA:

- I. PHASE 1 IMPLEMENTATION STRATEGY RECOMMENDATION FOR THE WRF RECYCLED WATER PROGRAM AND ASSOCIATED CONTRACT AMENDMENTS; (PUBLIC WORKS DEPARTMENT)

RECOMMENDATION: Staff recommends the City Council, after consultation with the Public Works Advisory Board:

1. Direct staff to implement a phased approach to the Recycled Water Program and move forward with environmental, permitting and design for an initial phase of the program.
2. Approve Amendment No. 4 to the agreement with Kevin Merk Associates (KMA) for biological services for implementation of the Recycled Water Project for a total amount of \$39,730.00, resulting in a not to exceed amount of \$111,040.00.
3. Approve Amendment No. 8 to the agreement with Far Western Anthropological Research Group (Far Western) for archeological services for implementation of the Recycled Water Project for a total amount of \$184,568.00, resulting in a not to exceed amount of \$647,654.00.
4. Approve Amendment No. 1 to the agreement with Rincon Consultants (Rincon) for environmental services for implementation of the Recycled Water Project for a total amount of \$186,999.55, resulting in a not to exceed amount of \$230,531.55.
5. Approve Amendment No. 3 to the agreement with GSI Water Solutions (GSI) for hydrogeological services for implementation of the Recycled Water Project for a total amount of \$230,900.00, resulting in a not to exceed amount of \$1,311,763.00.

ADJOURNMENT

DATED: November 9, 2023


Carla Wixom (Nov 9, 2023 16:59 PST)

Carla Wixom, Mayor

IN COMPLIANCE WITH THE AMERICANS WITH DISABILITIES ACT, IF YOU NEED SPECIAL ASSISTANCE TO PARTICIPATE IN A CITY MEETING, PLEASE CONTACT THE CITY CLERK'S OFFICE AT LEAST 24 HOURS PRIOR TO THE MEETING TO INSURE THAT REASONABLE ARRANGEMENTS CAN BE MADE TO PROVIDE ACCESSIBILITY TO THE MEETING.



AGENDA NO: I

MEETING DATE: November 14, 2023

Staff Report

TO: Honorable Mayor and City Council Members **DATE:** November 6, 2023
Public Works Advisory Board

FROM: Gregory Kwolek, Public Works Director
Damaris Hanson, Utilities Division Manager
Dan Heimel, Confluence Engineering Solutions

SUBJECT: Phase 1 Implementation Strategy Recommendation for the WRF Recycled Water Program and Associated Contract Amendments

RECOMMENDATION

Staff recommends the City Council, after consultation with the Public Works Advisory Board:

1. Direct staff to implement a phased approach to the Recycled Water Program and move forward with environmental, permitting and design for an initial phase of the program.
2. Approve Amendment No. 4 to the agreement with Kevin Merk Associates (KMA) for biological services for implementation of the Recycled Water Project for a total amount of \$39,730.00, resulting in a not to exceed amount of \$111,040.00.
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5. Approve Amendment No. 3 to the agreement with GSI Water Solutions (GSI) for hydrogeological services for implementation of the Recycled Water Project for a total amount of \$230,900.00, resulting in a not to exceed amount of \$1,311,763.00.

FISCAL IMPACT

Funding for the implementation of the Recycled Water Project, including the four recommended contract amendments, is included in the Water Reclamation Facility (WRF) Program Recycled Water Project budget of \$9,424,174. Currently, the City expects to cover these costs through a mixture of funding sources, including the WIFIA loan, SRF loan, IRWM grant, and Title XVI grant.

BACKGROUND

The City's current water supply portfolio consists of two primary sources: imported water from the State Water Project (SWP) and groundwater pumped from the Lower Morro Valley Groundwater Basin (Morro Basin). Due to vulnerabilities in the City's water supply portfolio, the City Council provided direction to incorporate recycled water as a component of the WRF Program. Consistent with City Council direction, the City is in the process of implementing a Recycled Water Program that will include injection of advanced purified recycled water into the Morro Basin to enhance recharge, prevent seawater intrusion and improve groundwater quality. The recycled water will then be pumped from the City's existing extraction wells after complying with Indirect Potable

Prepared By: GK, DH, DH Dept Review: GK

City Manager: _____ City Attorney: CFN

Reuse (IPR) Groundwater Replenishment Reuse Project (GRRP) requirements to improve the reliability and resiliency of the City's water supply portfolio.

Implementation of the Recycled Water Program is necessary for the following two reasons:

1. **Water Supply:** To address vulnerabilities in the City's water supply portfolio and reduce reliance on imported water from the SWP.
2. **Compliance:** To comply with the implementation requirements of the funding/financing agreements for the WRF Program.

WATER SUPPLY

Revised Draft Basis of Design Report

The Basis of Design (BOD) Report (Attachment 1) outlines the full-scale implementation strategy for the City's WRF IPR Program and is based on an extensive amount of reference document review, aquifer characterization, hydrogeologic field investigations, and groundwater modeling. The BOD Report includes recommendations for how the City can design and construct a network of injection wells to inject advanced purified recycled water from the newly constructed Water Resources Center into the Morro Basin and extract that water through existing production wells to provide a local, reliable, resilient water supply for the City. The number and locations of the injection wells presented in the BOD Report represents an IPR recycled water program capable of treating and injecting the maximum amount of water the City anticipates producing at full build-out under the City's existing General/Local Coastal Plan, which is not anticipated to occur until 2040 or later. The BOD Report focuses on the full build-out potential of the IPR Program because the Permitting/Regulatory agencies that will be reviewing and approving the IPR Program have indicated that this is their preferred approach. It is more efficient for them and the applicant to permit the largest scale version of the program that an agency envisions, even if there isn't sufficient wastewater currently available to support a program of that scale, and then implement the program in phases, than permitting a smaller version of the program and having to re-apply to expand the program in the future.

Included in the BOD Report are descriptions of the hydrogeologic setting and groundwater conditions in the Morro Basin, results of pump/injection testing, analysis of current and anticipated future water quality and findings from groundwater modeling scenarios developed to simulate injection and extraction of advanced purified water for the IPR Program.

The key findings from the BOD Report are outlined below.

- Utilizing eight (8) injection wells the IPR Program could be capable of injecting 887 Acre-feet per year (AFY) of advanced purified recycled water into the Morro Basin.
- Injection of 887 AFY would provide the City with the ability to extract up to a total of 1,000 AFY of groundwater from the Morro Basin without inducing seawater intrusion or violating other constraints established for the modeling scenarios.
- The injection wells are recommended to be located along the south side of Morro Creek and on Embarcadero Road north of Morro Creek.
- The IPR Program would improve the reliability and resiliency of the City's water supply portfolio by providing a drought proof local water supply that it can rely upon during extended droughts and State Water Project shutdowns.

The BOD Report is based on findings from numerous hydrogeologic studies completed by GSI and was peer reviewed by Cleath-Harris Geologists. A link to GSI's Revised Draft of the BOD Report is included as Attachment 1 to this staff report.

Water Supply Evaluation Technical Memorandum

To assist the City in evaluating how to integrate its new recycled water supply and changes in availability of SWP water into its water supply portfolio, Confluence Engineering Solutions, Inc.

(ConfluenceES) developed a Water Supply Operations Model (Supply Model) that was utilized to evaluate water management strategies under current and potential future hydrologic and demand conditions. The findings from the water supply scenario analysis, which include evaluation of different options for how the City can utilize its new recycled water supply, are intended to help inform the City on potential strategies to leverage its current and/or future water supply portfolio to maximize the benefit of these critical resources for its residents.

The findings from the Water Supply Evaluation are that the City's current water supply portfolio is vulnerable to extended drought conditions (e.g., drought from 2020 to 2022). However, implementation of an initial phase of a Recycled Water Program, including IPR and Non-Potable Reuse (NPR) recycled water use is anticipated to address water supply deficiencies under current and potential future demands. By utilizing NPR recycled water for landscape irrigation purposes to reduce potable water demands and IPR recycled water injection and extraction during low SWP allocation years (e.g., less than 25%) to preserve its SWP and Stored SWP water supplies for potential extended drought years, it is predicted that the City can reliably meet its water supply needs under current and future build-out demand conditions. As the City's demands increase with future development and/or additional cost recovery strategies are identified, it may be beneficial to increase the capacity of the IPR program to increase the volume of drought proof water available and/or provide additional cost recovery through sale of surplus water.

Review of the Water Supply Evaluation scenario results estimate that the recycled water scenarios will have higher water production costs due to the increased variable cost associated with recycled water production compared to the variable cost for SWP water. However, with cost recovery opportunities through the sale of excess SWP supplies in these scenarios, there is the potential that the City could have lower net variable costs. Additional detail regarding the Supply Model and the Water Supply Evaluation Scenario Analysis is provided in the Water Supply Evaluation Technical Memorandum, included as Attachment 2 to this staff report.

Recycled Water Program Implementation Recommendations

As described above, the BOD Report outlines the full build-out potential for the City's IPR Program. However, the results of the Water Supply Evaluation Scenarios indicate that implementation of an initial phase of the Recycled Water Program (i.e., 3 IPR injection wells and NPR recycled water landscape irrigation) would be sufficient to meet the City's near-term water supply reliability needs. Based on these findings and with the intent to limit the Recycled Water Program costs while still meeting the recycled water implementation requirements of the City's WRF Funding/Financing agreements, City Staff and the IPR Program Team developed the following recommendations for the initial phase Recycled Water Program implementation.

- Drill two additional injection wells for a total of three injection wells (one injection well has already been drilled)
- Equip the three injection wells to allow for IPR recycled water injection, backflushing, and other IPR Program operations
- Construct/extend recycled water pipelines to deliver recycled water to the injection wells and for NPR recycled water landscape irrigation use at Lila Kaiser Park and Morro Bay High School to offset demand for potable water
 - Evaluate opportunities to utilize existing, abandoned pipelines (i.e., Seawater Desal Feedline) to limit program costs and reduce construction and environmental impacts
- Incorporate water system operational strategies (e.g., blending Morro Basin groundwater with SWP water to avoid the need to utilize the Brackish Water Reverse Osmosis (BWRO) treatment system) to reduce production costs for the City's water system.

These recommendations are shown conceptually in Figure 1 below.



Figure 1. Initial Phase Recycled Water Program Implementation Recommendations

Next Steps

To meet the funding/financing deadlines for the implementation of the initial phase and to plan for implementation of future phases of the Recycled Water Program, the City must complete the following design, permitting, environmental review and funding/financing activities prior to initiating construction of the recycled water facilities. These activities are outlined below and shown in Figure 2.

- Prepare an updated Recycled Water Management Plan (Coastal Development Permit - Special Condition 6 Report) that includes description of the initial and future phases of the Recycled Water Program and submit to Coastal Commission Staff for approval consideration.
- Complete biological and archeological surveys for the Recycled Water Program construction area and prepare required reports and/or consultations with the Resource Agencies (e.g., United States Fish and Wildlife, State Historical Preservation Society, etc.).
- Complete Preliminary Design for the full build-out Recycled Water Program, as outlined in the Basis of Design Report, to enable the City to obtain the necessary environmental and permitting approvals for implementation of the Recycled Water Program.
- Develop an implementation plan with criteria for when to implement future phases of the Recycled Water Program.
- Procure a hydrogeologic consultant to complete the design and a drilling contractor to construct the 2 additional injection wells.
- Procure an engineering consultant to complete preliminary and final design of the recycled water pipelines, injection well equipping and NPR recycled water connections.

- Prepare WRF CDP Special Condition 1, 2, & 13 Reports for the Recycled Water Facilities construction and submit to Coastal Commission Staff for approval consideration.
- Prepare and submit the Title 22 Engineering Report for the Recycled Water Program to the Division of Drinking Water for approval consideration.
- Prepare and submit the Report of Waste Discharge (RWOD) application for the Groundwater Replenishment Reuse Project (GRRP) to the Regional Water Quality Control Board and obtain a Waste Discharge Requirements (WDR) permit for the Recycled Water Program.
- Procure a contractor to construct the recycled water pipelines, injection well equipping and NPR recycled water connections.

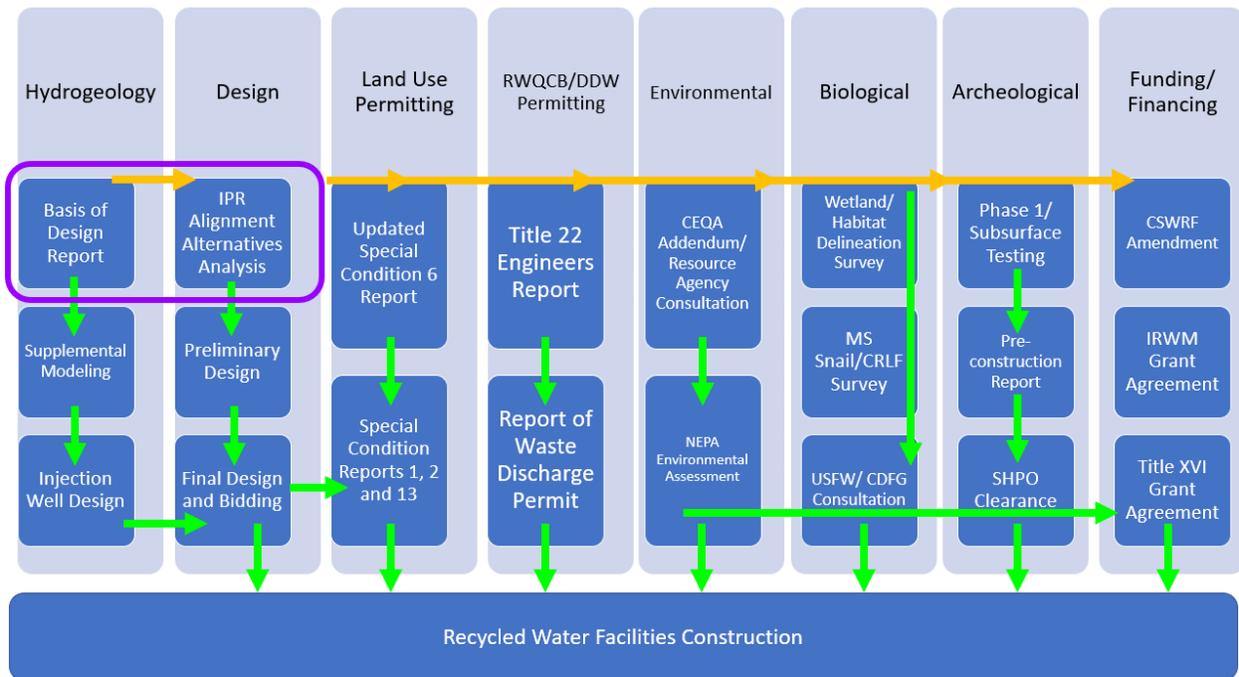


Figure 2. Recycled Water Program Implementation Requirements

To complete these initiatives and the Recycled Water Program within the deadlines of the WRF Program Funding/Finance agreements, the City needs additional support from the Recycled Water Program Consultant Team.

The specific contract amendments and scopes of services for the near-term consultant services are included in Attachments 3, 4, 5 and 6 for the City Council’s approval consideration and are summarized below:

- **Biological Resource Support Services** (KMA Contract Amendment #4, \$39,730.00) – To support the design and final permitting for the injection wells and recycled water pipelines, additional biological surveys (for areas not previously surveyed) and support services are needed for the implementation of the recycled water component of the WRF Program. These surveys are critical for identifying injection well locations and pipeline alignments that do not have significant impacts on biological resources and that can be permitted and constructed within the WRF Program funding/financing agreement deadlines.
- **Archeological Resource Support Services** (Far Western Contract Amendment #8, \$184,568.00) – To support the design and final permitting for the injection wells and

recycled water pipelines, additional archeological testing (for areas not previously surveyed) and support services are needed for the implementation of the recycled water component of the WRF Program. This testing is critical for identifying injection well locations and pipeline alignments that do not have significant impacts on archeological resources and that can be permitted and constructed within the WRF Program funding/financing agreement deadlines.

- **Environmental Consulting Support Services** (Rincon Contract Amendment #1, \$186,999.55) – To support the environmental review and permitting for the injection wells and recycled water pipelines additional environmental support services are needed for the implementation of the recycled water component of the WRF Program. The WRF Program 2018 Environmental Impact Report and 2019 Addendum did not identify specific locations for the injection wells and recycled water pipelines and thus additional environmental review support services are required. Rincon’s proposal included in Contract Amendment #2 is based on preparation of a full Supplemental Environmental Impact Report (EIR) as a conservative approach, however, if pipeline alignments and injection well locations can be identified that do not result in new significant environmental impacts or substantially more severe environmental impacts than those identified in the previous EIR documents the scope of work can be reduced to an addendum, which will save significant time and money.
- **Hydrogeologic Support Services** (GSI Water Solutions Amendment #3, \$230,900) - To support the implementation and permitting of the recycled water program, additional hydrogeologic support services are required, which include: 1) injection testing at Injection Well #1 to mitigate travel time risks; 2) siting and modeling support for locating the two additional injection wells; 3) prepare an updated Basis of Design Report to address potential comments from the Regional Water Quality Control Board and Division of Drinking Water; 4) support the development of the Title 22 Engineering Report and Report of Waste Discharge permitting documents; 5) obtain a revised Aquifer Storage and Recovery (ASR) permit; and 6) provide additional Recycled Water Program Team support.
- **Engineering Design** – Due to the specialized nature of injection well design, it is recommended that the City release an RFP to procure an Engineering Design consultant for the injection wells and recycled water pipelines. If so directed, City Staff will prepare and release an Engineering Design RFP and bring back an award recommendation for the City Council's consideration.

COMPLIANCE

To meet the requirements of the City’s low-interest financing and grant funding sources for the WRF Program, the City must implement a recycled water program that includes the elements outlined in Table 1 and that is completed by the timelines outlined in Table 2 below. In multiple recent meetings between City Staff and the Recycled Water Program team, the WRF Program Funding/Financing agency representatives have indicated that the current timelines associated with each of the funding programs are firm and that the funding agencies are anxious to have the City complete the scope of work included in the funding/financing agreements (i.e., Water Resources Center, Conveyance, Indirect Potable Reuse recycled water in the Morro Basin, Wastewater Treatment Plant Decommissioning). Additionally, the funding/financing agencies have indicated that the WRF Program was selected for funding through competitive processes based on the merits of the proposed project and that significant changes to the project could jeopardize the WRF Program’s funding eligibility.

Table 1. WRF Program Funding/Finance Agreement Recycled Water Implementation Requirements

Funding/Financing Source	Recycled Water Implementation Requirement	Notes
EPA WIFIA Loan	Multiple Injection Wells	
SWRCB CSWRF Loan	412.5 AFY of recycled water use in near term	825 AFY of recycled water use at build-out
USBR Title XVI Grant	TBD	Grant agreement still under development
DWR IRWM Grant	2 or more injection wells	Draft grant agreement under development

Table 2. WRF Program Funding/Finance Agreement Implementation Schedule Requirements

Funding/Financing Source	Implementation Schedule Requirement	Notes
EPA WIFIA Loan	1/1/2025	Discussions w/ EPA confirm that deadline can be extended if making significant progress
SWRCB CSWRF Loan	8/31/2023	Pending change to 9/30/2026 with CWSRF Amendment
USBR Title XVI Grant	9/30/2025	Tentative deadline (Funding agreement still under development)
DWR IRWM Grant	9/30/2026	

CONCLUSION

Staff recommends the City Council and Public Works Advisory Board:

1. Receive information and recommendations from City Staff and the Recycled Water Program Team for the Recycled Water Program implementation recommendations and Council, after consultation with the Public Works Advisory Board, approve associated consultant support services contract amendments.

ATTACHMENTS

1. [Public Draft Basis of Design \(BOD\) Report, GSI Water Solutions \(2023\)](#)
2. Water Supply Evaluation Technical Memorandum, Confluence Engineering Solutions (2023)
3. Contract Amendment #4 Kevin Merk Associates – to be published Mon., 11/13/23
4. Contract Amendment #8 Far Western – to be published Mon., 11/13/23
5. Contract Amendment #1 Rincon Consultants – to be published Mon., 11/13/23
6. Contract Amendment #3 GSI Water Solutions – to be published Mon., 11/13/23

Draft Water Supply Evaluation Technical Memorandum



City of Morro Bay

October 12, 2023



CONFLUENCE
ENGINEERING SOLUTIONS

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Introduction

The City of Morro Bay (City) currently possesses a water supply portfolio that consists of two primary sources of water for its water system customers. These sources include imported water from the State Water Project (SWP) and groundwater pumped from the Lower Morro Valley Groundwater Basin (Morro Basin). The City is in the process of implementing a Recycled Water Program that will include injection of advanced purified recycled water into the Morro Basin to enhance recharge, prevent seawater intrusion and improve groundwater quality. The advanced purified recycled water will then be pumped from the City's existing extraction wells after complying with Indirect Potable Reuse (IPR) Groundwater Replenishment Reuse Project (GRRP) requirements to improve the reliability and resiliency of its water supply portfolio.

Recent changes to the SWP water supply contracts (i.e. the Water Management Tools Amendment) that the San Luis Obispo County Flood Control and Water Conservation District (SLOFCWCD) has with the California Department of Water Resources (DWR), and which the City is a subcontractor to for SWP water, provide new opportunities for how SLOFCWCD and its subcontractors can manage their water supplies to provide additional water supply reliability, resiliency against infrastructure failures and cost recovery opportunities. Additionally, the SLOFCWCD recently issued a letter (January 2023) to SWP subcontractors indicating that it was moving toward a "final call" for interest in purchasing additional "Drought Buffer" SWP water from its "Unsubscribed Allocation" before it evaluates other potential uses for that water. The associated potential loss of reliability that the SLOFCWCD's "Unsubscribed Allocation" provides warrants an updated evaluation of the City's current and future water management strategies.

To assist the City in evaluating how to integrate its new recycled water supply and changes in availability of SWP water into its water supply portfolio, Confluence Engineering Solutions, Inc. (ConfluenceES) developed a Water Supply Operations Model (Supply Model) that was utilized to evaluate water management strategies under current and potential future hydrologic and demand conditions. The findings from the water supply scenario analysis, which include evaluation of different options for how the City can utilize its new recycled water supply are intended to help inform the City on potential strategies to leverage its current and/or future water supply portfolio to maximize the benefit of these critical resources for its residents.

Background

The City is located on the Central Coast of California in San Luis Obispo County. The City limits span approximately 5 square miles across a diverse coastal landscape and encompass the intersection of Highway 1 and Highway 41 (Figure 1). Incorporated in 1964, the City provides its roughly 11,000 residents with essential water, sewer, storm drainage and other essential services. Water services are available to all residential, commercial, and industrial customers, including fire protection services.

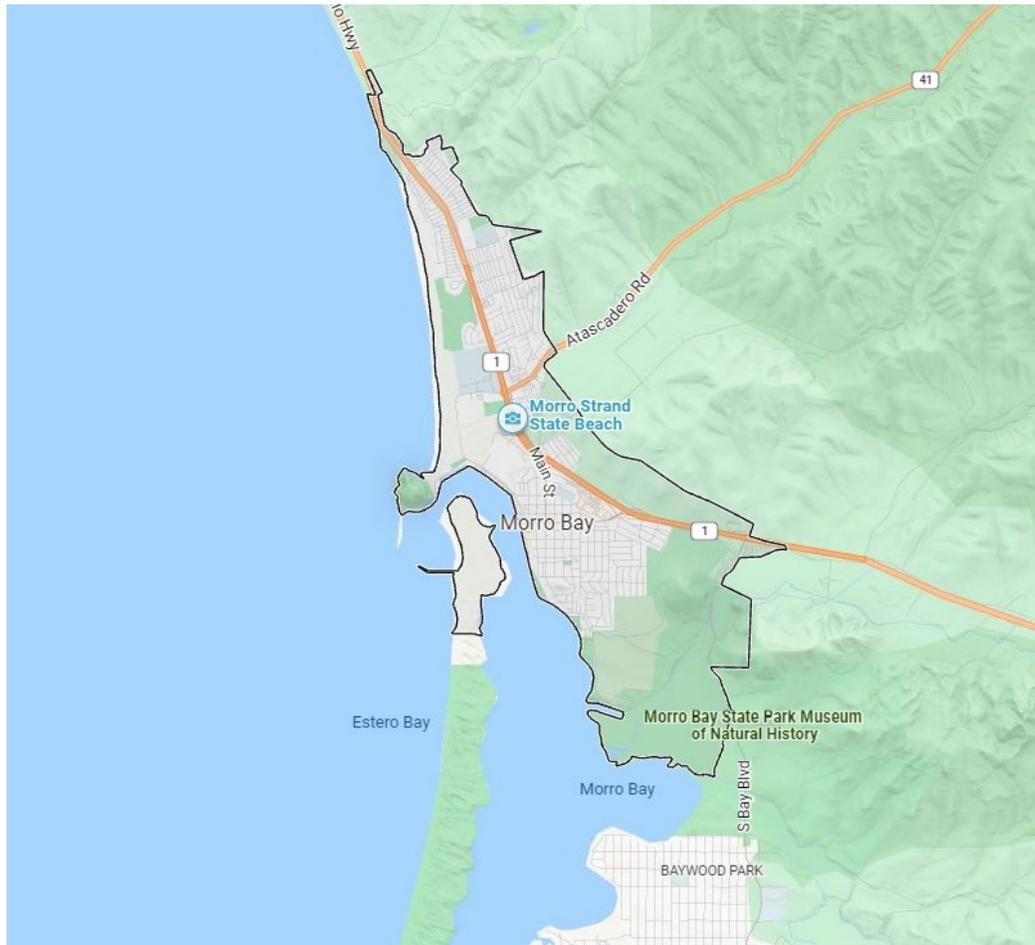


Figure 1: Morro Bay's City Limits [2]

Water Supply Portfolio

The City's current and future water supply portfolio will consist of two different water supplies: imported water from the SWP; and groundwater from the Morro Basin. The IPR Program will provide the City the ability to enhance recharge, prevent seawater intrusion, improve water quality, and increase extractions from the Morro Basin, but does not by itself provide a new separate drinking water supply source as the City will access its advanced purified recycled water through extraction from its Morro Basin production wells. However, having access to a recycled water source that can be utilized to offset use of potable water for landscape irrigation does provide the City with a new non-potable source of recycled water that can be utilized to reduce its potable water demand. Information on each of these water supplies is provided in the following sections.

State Water Project

In 1963, the SLOCFCWCD entered into a long-term water supply contract with the California Department of Water Resources for a Table A Allocation of 25,000 AFY of water from the SWP. In the 1990s, the City and 10 other water utilities (SWP subcontractors) entered contracts with the SLOCFCWCD to take delivery of up to a total of 4,830 AFY of treated SWP water, referred to as their Water Service Amount (WSA). The SLOCFCWCD then entered into agreements with DWR and the Central Coast Water Authority for the construction and operation of a water treatment plant, pumping plants, and pipelines to bring potable SWP water to their points of delivery in San Luis Obispo County. The SWP subcontractors additionally entered into agreements with the SLOCFCWCD for an additional 6,157 AFY of SWP Table A Allocation water, referred to as “Drought Buffer” to provide additional water supply reliability for years when SWP allocations are less than 100%. The remaining 14,463 AFY of SLOCFCWCD SWP Allocation is referred to as the SLOCFCWCD’s “Unsubscribed Allocation.”

The City’s SWP water is conveyed from the San Joaquin-Sacramento Delta via the California and Coastal Branch Aqueducts. The water is then pumped up to and treated at the Polonio Pass Water Treatment Plant, which is near the junction of Highways 41 and 46. From the water treatment plant, the water is then delivered via gravity to the City through the Coastal Branch and Chorro Valley Pipelines. The City’s maximum contractual instantaneous delivery capacity from its Chorro Valley Pipeline Turnout is 1.84 cubic feet per second or 109.41 Acre-Feet per month [3].

The City has a WSA of 1,313 AFY and a drought buffer of 2,290 AFY, as shown in Table 1 below. To calculate the amount of SWP water available to the City in a given year, its WSA and drought buffer are summed to get the total supply allocation. The total allocation is multiplied by DWR’s Annual Allocation (e.g. 5% for 2022) to determine a subcontractor’s allocation for that year. The City’s current drought buffer of 2,290 AFY provides the ability to receive its full WSA of 1,313 AFY in years when DWR’s Annual Allocation is 37% or greater. A subcontractor’s SWP deliveries within a given year cannot exceed its WSA, however, the City, through the SLOCFCWCD, has the ability to store a portion of its unused SWP water for use in future dry years (Stored SWP Water) in San Luis Reservoir.

Table 1: SLOFCWCD SWP Allocations

Subcontractor	Water Service Amount (AFY)	Drought Buffer (AFY)	Total Allocation
CSA 16 (Shandon)	100	-	100
CMC	400	400	800
County Ops Center	425	425	850
Cuesta College	200	200	400
City of Morro Bay	1,313	2,290	3,603
City of Pismo Beach	1,240	1,240	2,480
Oceano CSD	750	750	1,500
SMMWC	275	275	550
Avila Beach CSD	100	100	200
Avila Valley MWC	20	20	40
San Luis Coastal USD	7	7	14
SLOFCWCD "Unsubscribed Allocation"		14,463	14,463
Total			25,000

Stored SWP Water

As mentioned previously, the City can store a portion of its unused SWP water for use in future years in San Luis Reservoir, an off-stream storage reservoir in the SWP. The City has access to its stored water until there is a spill or the water in storage in San Luis Reservoir "interferes with the operations of the SWP or Central Valley Project." When a spill occurs in San Luis Reservoir, all water in storage is lost and the SLOFCWCD and City's storage accounts reset to zero.

Additionally, any SWP water in a given water year that the City cannot deliver or store in San Luis Reservoir is lost and no longer available for SLOFCWCD or City use. The equations for calculating how much SWP water the City can store in San Luis Reservoir are shown here:

Where:

W = Available SWP Water

T = Table A Water

B = Drought Buffer

A = Annual Allocation

$W = (T + B) \times A$

S = Amount Eligible for Storage

For deliveries from 0% to 50% the maximum storage allowed is 25% of the available water as shown in Equation 1.

Equation 1: $0 \leq A \leq 50\%$, $S \leq 25\% \times W$

For deliveries from 51% to 74% the maximum storage allowed is 25% plus 1% for every percentage point over 50% that is delivered as shown in Equation 2.

Equation 2: For $50\% < A < 75\%$, $S \leq [(A - 50\%) + 25\%] \times W$

For deliveries 75% and over the maximum storage allowed is 50% of the available water as shown in Equation 3.

Equation 3: For $A \geq 75\%$, $S = 50\% \times W$

Sample Calculations:

A = 20%
Maximum Storage, $S = 25\% \times W$ **Equation 1**
 $S = 25\% \times W$
 $S = 25\% \times [(T + B) \times A]$
 $S = 25\% \times [(1,313 + 2,290) \times 20\%]$
S = 180 AF

A = 65%
Maximum Storage, $S = [(A - 50\%) + 25\%] \times W$ **Equation 2**
 $S = [(A - 50\%) + 25\%] \times W$
 $S = [(A - 50\%) + 25\%] \times (T + B) \times A$
 $S = [(65\% - 50\%) + 25\%] \times [(1,313 + 2,290) \times 65\%]$
S = 937 AF

A = 85%
Maximum Storage, $S = 50\% \times W$ **Equation 3**
 $S = 50\% \times W$
 $S = 50\% [(T + B) \times A]$
 $S = 50\% [(1,313 + 2,290) \times 85\%]$
S = 1,531

SLOCFCWCD Unsubscribed Allocation

Currently, the City can access SLOCFCWCD “Unsubscribed Allocation” SWP water if there are times when it does not have sufficient SWP water to meet its customer demands or WSA capacity, whichever is lower. Historically this has provided a significant reliability buffer against extended drought conditions and multiple consecutive SWP low allocation years (e.g. 20% in 2020 and 5% in 2021 and 2022). However, as described previously this water may not always be available to the City or other subcontractors in the future.

Given the potential future unavailability of SLOCFCWCD “Unsubscribed Allocation” it would be beneficial for the City to evaluate how much water from other sources it may need as part of its future water supply strategy in order to make up for the loss of water supply reliability the SLOCFCWCD

“Unsubscribed Allocation” water has historically provided. Currently, the City can purchase additional drought buffer water from the SLOFCWCD, but that ability may not always be there in the future if the “Unsubscribed Allocation” is sold to other parties or put to other uses.

There are multiple considerations that come into play when evaluating purchasing additional drought buffer. Increasing its drought buffer would provide additional water during wet and dry periods to improve the reliability of the City’s water supply portfolio but could also increase the amount of City SWP water lost or that spills. Additionally with the Water Management Tools Amendment to the SWP Contracts there is significant increased flexibility for SWP contractors and subcontractors to transfer, exchange, and/or sell SWP water. These new management options could provide potential cost recovery opportunities through the transfer or sale of excess SWP water to neighboring, regional, or statewide agencies.

Morro Basin

The Morro Basin is located in the west-central area of San Luis Obispo County. It is bordered by impermeable rocks, except for the west side, where it borders the Pacific Ocean. It has a surface area of 1,200 acres [4]. The water source has had a history of water quality concerns, specifically high Total Dissolved Solids (TDS) associated with seawater intrusion and nitrate contamination [1].

The Morro Basin is currently a secondary source of water for the City. The City primarily uses SWP water, but uses Morro Basin groundwater when SWP water is not accessible due to maintenance. The City has two State Water Quality Control Board permits that allow the City to extract up to 581 AFY from the Morro Basin. While this is not sufficient water to meet the City’s total annual water demands (e.g. ~1,100 AFY), it does provide the City with a local water supply that it can utilize during SWP outages [1].

To access its Morro Basin water supply the City utilizes seven wells located near Lila Kaiser Park, Atascadero Road, and Highway 1 [5]. The City’s current active wells include HS-1, HS-2, MB-3, MB-4, MB-14, MB-15, and Flippos. On average approximately 100 AFY of Morro Basin water is currently utilized to provide water during planned and unplanned SWP shutdowns. However, due to nitrate concentrations in the Morro Basin exceeding the Maximum Contaminant Level, with concentrations ranging from 11 - 19 mg/L (NO₃-N), the Morro Basin groundwater is treated for nitrates at the City’s Brackish Water Reverse Osmosis Facility (BWRO). Approximately 25% of the groundwater extracted from the Morro Basin is rejected as concentrate during the BWRO reverse osmosis treatment process and discharged into the ocean [1].

IPR Recycled Water

Incorporated as part of the construction of the City’s new Water Resource Center (WRC) wastewater treatment facility is an advanced treatment system, which includes Reverse Osmosis (RO) and Ultraviolet/Advanced Oxidation (UV/AOP) treatment processes, that allow the City to produce advanced purified recycled water that can be injected into the Morro Basin and then extracted for use in the City’s drinking water system (IPR Recycled water). It is estimated that, at full build-out, the City’s IPR Program could have the capacity to treat and inject up to 887 AFY of advanced purified or IPR Recycled water into the Morro Basin to increase recharge, create a barrier against seawater intrusion, reduce nitrate contamination and allow the City to be able to extract up to 1,000 AFY of groundwater [6].

However, for the purposes of the Supply Model it was assumed that the City would implement an initial phase of the IPR program that would be designed to meet the City’s near-term water supply reliability

and resiliency needs and meet the recycled water implementation requirements of the City's low-interest and grant funding sources. For the purposes of the IPR Recycled water scenarios, it was assumed that the City would construct 3 injection wells capable of injecting ~400 AF of IPR Recycled water into the Morro Basin. During IPR operations, it is assumed that the City will blend groundwater extracted from the Morro Basin with incoming SWP water to reduce nitrate concentrations to levels below the Maximum Contaminant Level (MCL) and thus IPR recycled water is not required to be treated at the BWRO.

Non-Potable Reuse Recycled Water

Non-Potable Reuse (NPR) includes the use of recycled water for non-potable supply uses (e.g., landscape and/or agriculture irrigation, construction water, etc.). Producing recycled water for NPR does not require as extensive of a level of treatment as IPR Recycled water. The potential use of NPR Recycled water was included in the water supply evaluation scenarios to help the City understand what additional opportunities may be available to utilize its recycled water resources.

The primary uses for NPR Recycled water considered as part of the water supply evaluation scenarios were landscape irrigation at Lila Kaiser Park and Morro Bay High School. These locations were considered due to their proximity to the Morro Basin injection wells and the potential benefits to the City's potable water supply portfolio (i.e., ability to reduce potable water demand, ability to reduce Morro Basin groundwater pumping). For the scenarios that include NPR Recycled water, it was assumed that the City would provide ~60 AFY of IPR Recycled water for landscape irrigation at Lila Kaiser Park and Morro Bay High School. It was assumed that IPR Recycled water would be utilized for NPR Recycled water landscape irrigation purposes because of the challenges associated with delivering non-IPR Recycled water through the IPR pipeline and the limited opportunities to deliver recycled water of sufficient quality for NPR Recycled water use through the City's treated wastewater disposal pipeline. If opportunities are identified to deliver a lower quality water than IPR Recycled water for NPR Recycled water use, it could provide operational costs savings for the City.

A significant additional potential user of NPR Recycled water is the Morro Bay Golf Course, however, this was not initially considered in the water supply evaluation scenarios as the Morro Bay Golf Course currently obtains water from the Chorro Valley Groundwater Basin and the City does not have active water supply wells in that Basin. However, due to the potential significant demand for NPR Recycled water at the golf course, it is recommended that this be further evaluated as a potential cost recovery opportunity for the City.

Water Supply Model

To assist in evaluating the different options and strategies for managing its future water supply portfolio, City Staff worked with ConfluenceES to develop the Supply Model. The Supply Model is utilized to evaluate the City's current and future water supply portfolios under potential future hydrologic and demand conditions. The Supply Model operates on an annual time-step and illustrates how the City can utilize SWP water, stored SWP water, Morro Basin groundwater, IPR Recycled water, and NPR Recycled water over varying drought cycles to meet its customers' water demands. The Supply Model also calculates the volume of water lost to spills at San Luis Reservoir and the potential value of the lost water to assist the City in developing cost recovery strategies.

Hydrology

The Supply Model evaluates the anticipated performance of the City's current and potential alternate water supply portfolio over a future 25-Year Planning Period. The 25-Year Planning Period assumes a re-occurrence of the hydrologic conditions that occurred from 1999 to 2023 with anticipated impacts associated with Climate Change. By focusing on this timeframe, the Supply Model can more accurately predict spill events associated with the current SWP water supply infrastructure and evaluate how the City's water supply portfolio would fair under the historic droughts and low SWP allocations that occurred from 2012 – 2016 and 2020 – 2022, which correlate to Years 14 – 18 and 22 – 24 in the model.

The SWP Allocations within the 25-Year Planning Period were primarily based on two different hydrologic datasets. The Annual Allocation assumptions for 1998 – 2015 used in the Supply Model were obtained from the 2021 DWR Delivery Capability Report assuming Climate Change Hydrology from the Global Circulation Models and 55 cm of sea level rise. Annual Allocations from 2016 - 2023 were based on actual Annual Allocations for those years. The average SWP annual allocations in the hydrology dataset was 46% with allocations ranging from 5% - 100%. For reference, the average Annual Allocation 2021 DWR Delivery Capability Report Climate Change scenario from 1922 to 2015 is 46%.

Spill Assumptions

SWP Spill assumptions were made based off outputs from the analysis included in the Coastal Branch Water Management Strategies Report (1999 – 2019) and historical spill status data from recent years (2020 – 2023) for San Luis Reservoir [7]. In the Supply Model, during years where San Luis Reservoir is anticipated to spill the City stored water in the reservoir is reset to zero.

Demand Assumptions

Historic City water demands from 2008 to 2022 are shown in Figure 2 and were based on water production records for those years. Estimates for future water demands were obtained from the City's 2020 Urban Water Management Plan and were based off population projections from the City's General Plan and Local Coastal Program Land Use Plan (2021 Plan Morro Bay) [8,9]. Estimates of future water demand were developed by applying historical per capita water demands for the City to future population projections and were developed in five year increments from 2020 – 2045. An interpolation was performed develop demand estimates for the intermediate years and the projected City water demands for 2020 – 2050 are shown in Figure 3.

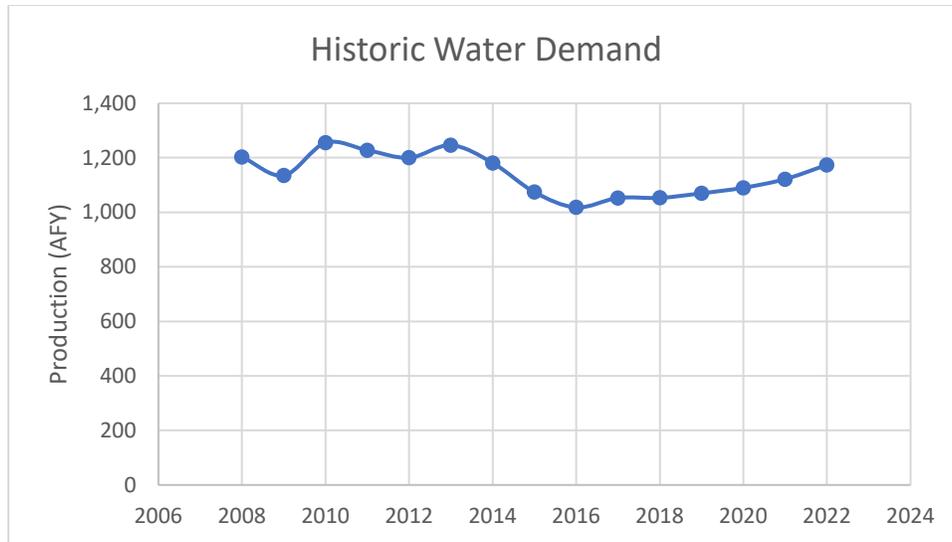


Figure 2: Historic City Water Demands

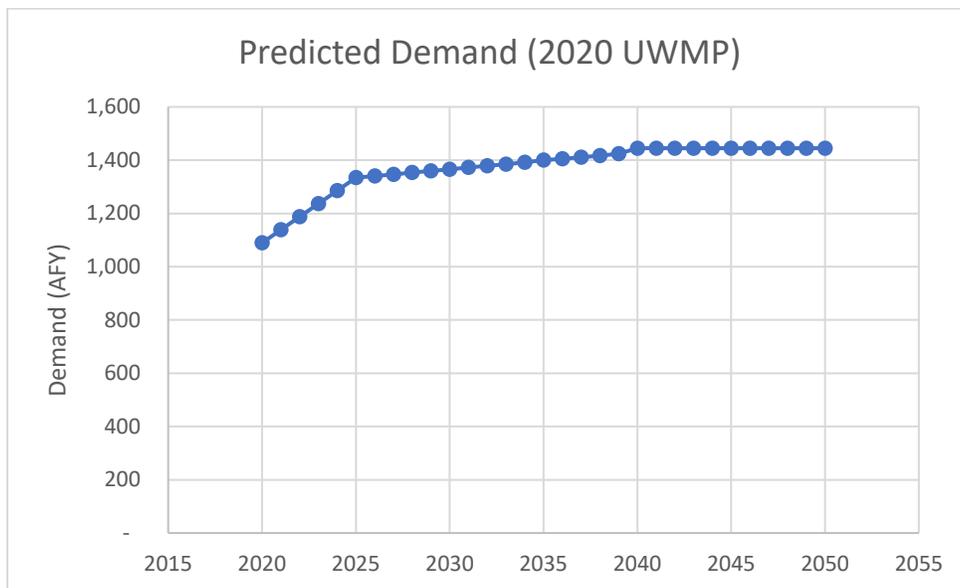


Figure 3: Future City Water Demand Projections for 2020 - 2050

Water Supply Usage Prioritization

The Supply Model incorporates water supply prioritization procedures to determine which sources of water to utilize and in what order to meet City water demands for each modeled year. The Supply Model utilizes available supply from the City’s portfolio in the following priority:

1. Morro Basin Groundwater – The Supply Model initially assumes that 100 AF of Morro Basin groundwater is used every year to provide water during SWP maintenance shutdowns. It additionally assumes that water will be treated through the BWRO facility because there is no SWP water available to blend down nitrate concentrations during SWP shutdowns.

2. NPR Recycled Water – Then for scenarios that include NPR recycled water, the Supply Model assumes that 60 AF of potable demand is offset through the use of NPR recycled water.
3. IPR Recycled Water – Then the Supply Model evaluates the SWP Allocation for the model year and if below the designated threshold assumes that the City will initiate operations of the IPR system and prioritize the production and use of IPR recycled water. The Supply Model assumes that the IPR recycled water does not need to be treated through the BWRO facility because it can be blended with SWP water to reduce nitrate concentrations below the Maximum Contaminant Level.
4. SWP Water - Then the Supply Model evaluates the amount of available SWP water based on that year’s SWP Annual Allocation and utilizes it to meet remaining demand, if available. If any unused SWP water is available, the Supply Model then evaluates to see if that water can be put into storage or is lost as undeliverable water.
5. Stored SWP water – Then if there is remaining demand, the Supply Model evaluates the amount of Stored SWP water available and utilizes it to meet remaining demand, if available. Any remaining Stored SWP water is retained for use in the subsequent years, unless the year is designated as a Spill Year, in which case the Stored SWP water is spilled.
6. Morro Basin Groundwater – Then if there is remaining demand, the Supply Model evaluates the amount of remaining Morro Basin groundwater the City can pump under its Water Rights Permit and utilizes it to meet remaining demand, if available.

Unused Morro Basin groundwater, IPR recycled water, and NPR recycled water supplies are not assumed to roll-over year over year and are limited within a given year based on the availability assumptions included in each scenario.

Water Cost/Value Assumptions

Included in the Supply Model are assumptions for the estimated cost of the City’s different water supplies and estimated value of that water during different hydrologic periods. Table 2 shows the fixed and variable costs for each water supply. The fixed costs are costs that the City must pay on an annual basis for each AF of allocation it has for its SWP Supplies and these costs do not significantly vary year to year. Variable costs are the costs the City must pay to take delivery or produce an AF of that water and these cost vary year to year depending on how much water from each source is utilized. See Appendix 1 for additional information on how the fixed and variable costs were derived.

Table 2. Fixed and Variable Water Cost Assumptions¹

Water Type	Fixed Costs (\$/AF)	Variable Costs (\$/AF)
SWP Water Service Amount (WSA)	\$1,100	\$300
SWP Drought Buffer	\$205	\$300
Morro Basin Groundwater	N/A	\$708
IPR Recycled Water	N/A	\$574
NPR Recycled Water	N/A	\$539

¹ The fixed and variable cost estimates included in the Supply Model were not adjusted for inflation as they are intended to be utilized for comparison purposes only.

No fixed cost was assumed for the recycled water treatment and distribution infrastructure because including recycled water as a component of the WRF Program allowed the City to be eligible for low-interest financing for the entire program. This equates to a total interest savings of ~\$40M based on the calculations outlined in Table 3 below. Additionally, by including recycled water as a component of the WRF Program the City was eligible for and awarded ~\$15.5M in grant funding and was able to construct the recycled water infrastructure (~\$40M value) at no additional cost to the City.

Table 3. WRF Recycled Water Interest Savings Calculations

WRF Program Alternatives	Total Financed Amount	Interest Rate	Total Cost of Loan	Total Interest Savings
WRF with Recycled Water	\$159,776,974	0.9%	\$182,375,880	~\$41,000,000
WRF without Recycled Water	\$119,776,974	4.7%	\$223,635,123	

To meet the requirements of the City’s low-interest financing and grant funding sources, the City must implement a recycled water program that includes the elements outlined in Table 4 below.

Table 4. WRF Financing and Funding Requirements

Funding/Financing Source	Recycled Water Implementation Requirement	Notes
Water Infrastructure Finance and Innovation Act (WIFIA) Loan	Multiple Injection Wells	
Clean Water State Revolving Fund (CWSRF) Loan	412.5 AFY of recycled water use in near term (5 years)	825 AFY of recycled water use at build-out
USBR Title XVI Grant	TBD	Grant agreement still under development
DWR IRWM Grant	2 or more injection wells	Draft grant agreement under development

Table 5 shows the estimated value for an AF of SWP water based on estimates of the value of water during different water year types from the Central Coast Water Management Strategies Report [7]. The estimated value of water varies significantly depending on the hydrologic conditions and the timing for when that water might be sold impacts the amount of revenue or cost recovery the City could potentially receive through selling excess water during periods of surplus.

Table 5. Estimated Water Value by Year Type

Year Type	Estimated Value (\$/AF)
Wet year	\$200
Normal Year	\$500 ²
Below Normal Year	\$1,000
Dry Year	\$1,500
Critical Year	\$2,000

²For the cost recovery calculations, \$500 per AF was selected as a starting point for evaluating the potential value of surplus SWP. The actual value of the water would likely depend on hydrologic conditions and the demand for water at the time of the sale.

Water Supply Scenarios

The Supply Model was utilized to evaluate five water supply and demand scenarios to assist the City in understanding how its new recycled water resources and reduced access to SLOFCWCD “Unsubscribed Allocation” could impact its future water supply availability. The scenarios included in this Technical Memorandum are not intended to be comprehensive of all the options the City has for utilizing its new recycled water resource but were developed as a starting point to assist the City in better understanding the reliability of its current and future water supply portfolio and in developing water supply management strategies to adapt changing water supply conditions. The scenarios in this Technical Memorandum, include Current Demand without Recycled Water, Current Demand with Limited IPR Recycled Water, Current Demand with Limited IPR/NPR Recycled Water, Current Demand with Continuous IPR/NPR Recycled Water, Mid-Buildout Demand with Limited Recycled Water, and Buildout Demand with Limited Recycled Water.

Current Demand without Recycled Water Scenario

This scenario simulates how the City’s current water supply portfolio is anticipated to perform over the next 25 years with current demand assumptions and a repeat of the last 25 years of hydrologic conditions with anticipated climate change impacts. The City’s current water supply portfolio and respective supply amounts for this scenario are shown in Table 6 below. A graphical representation of the scenario can be seen in Figure 4, and it illustrates whether or not it is anticipated that the City’s current water supply portfolio, which includes SWP water, SWP stored water, and Morro Basin groundwater, is able to meet current water demands under varying hydrologic conditions.

Table 6: Current Demand without Recycled Water Scenario Assumptions

Supply Source	Allocation/Supply Assumptions (AFY)	Water Demand	Demand (AFY)
SWP WSA	1,313	Current	1,200
SWP Drought Buffer	2,290		
Morro Basin Groundwater	581		
IPR Recycled Water	0		

Water Supply Reliability Results

For the Current Demand without Recycled Water Scenario, the Supply Model (Figure 4) anticipates a deficit occurring in year 24 if historic hydrology is repeated. The deficit occurs in the third year of a historic drought, like the one experienced from 2020 to 2022 where the SWP had a 20% Annual Allocation followed by two consecutive 5% allocations. In this scenario, consistent with what occurred during this drought, the City did not have sufficient SWP water to meet demands during the third year of the drought. In 2022, the City, along with many other SWP subcontractors, had to rely upon SLOFCWCD “Unsubscribed Allocation” SWP and Stored SWP water to provide water to its customers. Given that SLOFCWCD “Unsubscribed Allocation” SWP water may not be available for SWP subcontractor use in the future, it is prudent that the City improve the reliability of its water supply portfolio to be able to better provide water during extended drought conditions.

Supply Portfolio Costs

Estimates of the fixed and variable costs for the City to operate with its current water supply portfolio were developed utilizing the unit costs described in the Water Cost/Value Assumptions section of the TM. The estimates of fixed costs for the Current Demand without Recycled Water scenario over the 25-year model period are shown in Table 7 below and the variable cost, based on how much of each water supply is utilized in this scenario, are shown in Table 8. It should be noted that due to the deficit in water supply availability, the variable costs in this scenario are artificially lower than other scenarios that do not include a deficit.

Table 7: Fixed Cost calculations for the Current Demand without Recycled Water Scenario

	Allocation	Fixed Costs (\$/AF)	Annual Costs (\$/yr)	Model Time Frame (yr)	Total Cost (\$)
Water Service Amount	1,313	\$1,100	\$1,444,300	25	\$36,107,500
Drought Buffer	2,290	\$205	\$469,450	25	\$11,736,250
Total Fixed Costs					\$47,843,750

Table 8: Variable Cost Calculations for the Current Demand without Recycled Water Scenario

	Total Supply Utilized (AF)	Estimated Cost (\$/AF)	Total Cost (\$)
Annual Allocated SWP Water Utilized	22,697	\$300	\$6,809,052
Stored SWP Water Utilized	3,935	\$300	\$1,180,556
Morro Basin Groundwater	2,836	\$780	\$2,210,714
Total	29,468		\$10,200,321

Spilled/Lost Water Cost Recovery Opportunities

A cost recovery analysis was performed to estimate the potential value of the SWP water that is lost because it is not eligible for storage or due to spills at San Luis Reservoir over the 25-year modeled period. In the future, if excess SWP water can be sold or stored elsewhere, it can be utilized to offset operational costs for the City's water system. Estimates of the total variable costs and potential cost recovery opportunities for this scenario over the 25-year time frame are shown in Table 9.

Table 9: Cost Recovery Calculations for the Current Demand without Recycled Water Scenario

Total Variable Cost (\$)	\$10,200,321
Total SWP Lost/Spilled (AF)	16,571
Estimated Value of SWP Water (\$/AF)	\$500
Total Potential Value of SWP Lost/Spilled (\$)	\$8,285,380
Potential Net Variable Costs (\$)	\$1,914,941

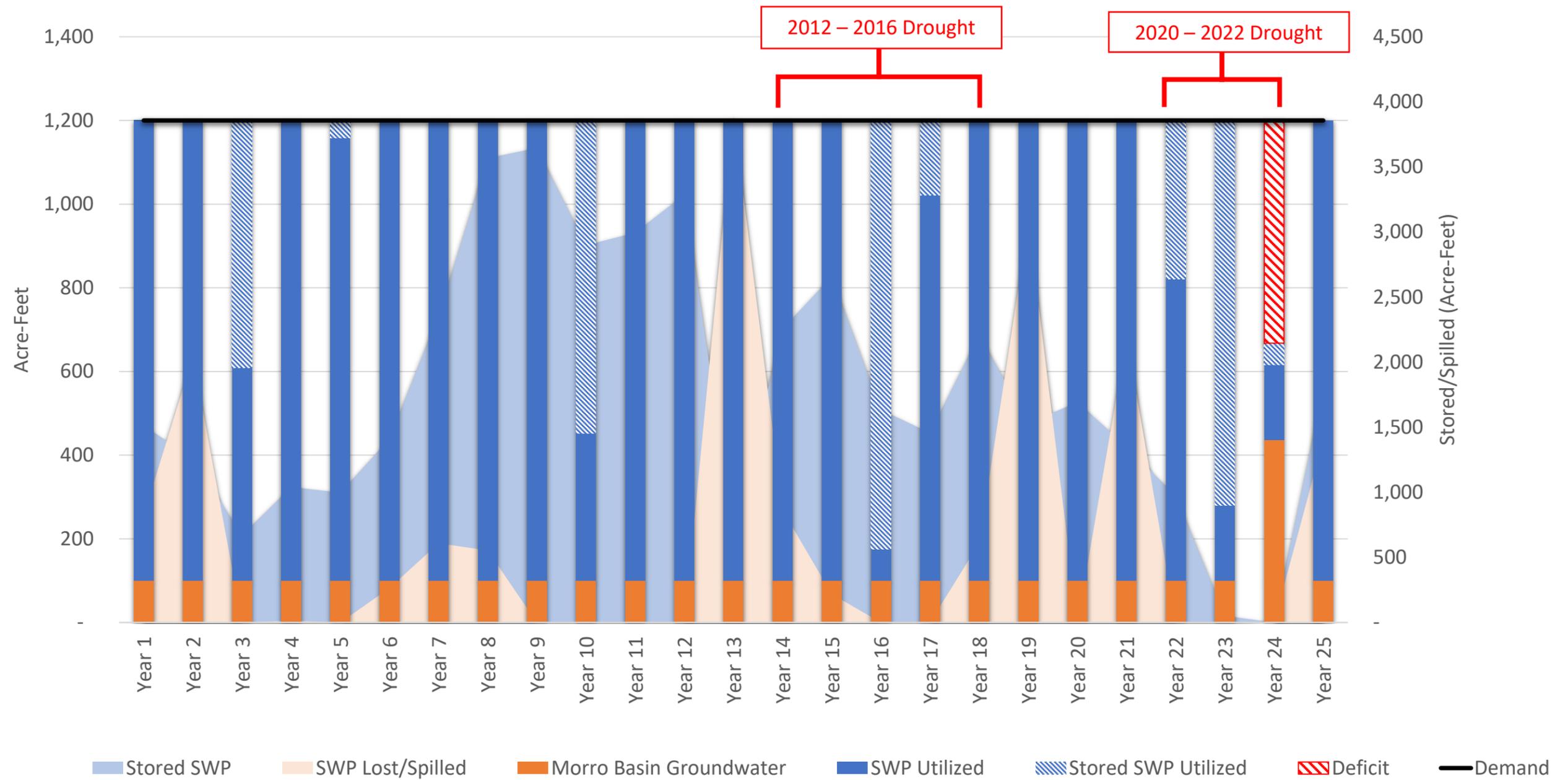


Figure 4: Current Demand without Recycled Water Scenario

Current Demand with Limited IPR Recycled Water Scenario

This scenario simulates how the City’s water supply portfolio, with implementation of an initial phase of the City’s IPR Program, is anticipated to perform over the next 25 years. The City’s water supply portfolio and respective supply amounts for this scenario are included in Table 10 and a graphical representation of this scenario is shown in Figure 5 below.

In this scenario, it is assumed the City initiates operation of its IPR Recycled Water Program during years when the SWP Annual Allocations are less than 25%. By utilizing its IPR Recycled Water at the beginning of a potential multi-year drought, the City is able to avoid a water supply deficit by preserving its SWP water for potential future dry years and associated low SWP Annual Allocations. This scenario is referred to as “limited” because IPR recycled water is only utilized during drought or low SWP Allocation years. For this scenario it is assumed that the City would construct sufficient injection well capacity to inject approximately 392 AFY of IPR recycled water into the Morro Basin and that water would be extracted for use in the City’s drinking water system.

Table 10: Current Demand with Limited IPR Recycled Water Scenario Assumptions

Supply Source	Allocation/Supply Assumptions (AFY)
SWP WSA	1,313
SWP Drought Buffer	2,290
Morro Basin Groundwater	581
IPR	392
IPR Initiation Threshold	25%

Water Demand	Demand (AFY)
Current	1,200

Water Supply Reliability Results

For the Current Demand with Limited IPR Recycled Water Scenario, the Supply Model anticipates that the City will have sufficient water supplies available to meet demands in all modeled years. This is achieved by utilizing its IPR Recycled Water supply during years where SWP allocations are less than 25% to preserve its SWP and Stored SWP water for potential future extended drought years.

Supply Portfolio Costs

The estimates of fixed costs for the Current Water Supply Scenario with Limited IPR Recycled Water over the 25-year model period are shown in Table 11 below and the variable cost, based on how much of each water supply is utilized in this scenario, are shown in Table 12.

Table 11: Fixed Cost Calculations for the Current Demand with Limited IPR Recycled Water Scenario

	Allocation	Fixed Costs (\$/AF)	Annual Costs (\$/yr)	Model Time Frame (yr)	Total Cost (\$)
Water Service Amount	1,313	\$1,100	\$1,444,300	25	\$36,107,500
Drought Buffer	2,290	\$205	\$469,450	25	\$11,736,250
Total Fixed Costs					\$47,843,750

Table 12: Variable Cost Calculations for the Current Demand with Limited IPR Recycled Water Scenario

	Total Supply Utilized (AF)	Estimated Cost (\$/AF)	Total Cost (\$)
Annual Allocated SWP Water Utilized	22,684	\$300	\$6,805,276
Stored SWP Water Utilized	2,464	\$300	\$739,147
Morro Basin Groundwater	2,500	\$780	\$1,948,967
IPR Recycled Water	2,352	\$574	\$1,350,005
Total	30,000		\$10,843,395

Spilled/Lost Water Cost Recovery Opportunities

A cost recovery analysis was performed to estimate the potential value of the SWP water that is lost because it is not eligible for storage or due to spills at San Luis Reservoir over the 25-year modeled period. In the future, if excess SWP water can be sold or stored elsewhere, it can be utilized to offset operational costs for the City’s water system. Estimates of the total variable costs and potential cost recovery opportunities for this scenario over the 25-year time frame are shown in Table 13.

Table 13: Cost Recovery Calculations for the Current Demand with Limited IPR Recycled Water Scenario

Total Variable Cost (\$)	\$10,843,394
Total SWP Lost/Spilled (AF)	\$18,055
Estimated Cost of SWP Water (\$/AF)	\$500
Total Potential Value of Lost/Spilled (\$/AF)	\$9,027,355
Potential Net Variable Costs (\$)	\$1,816,040

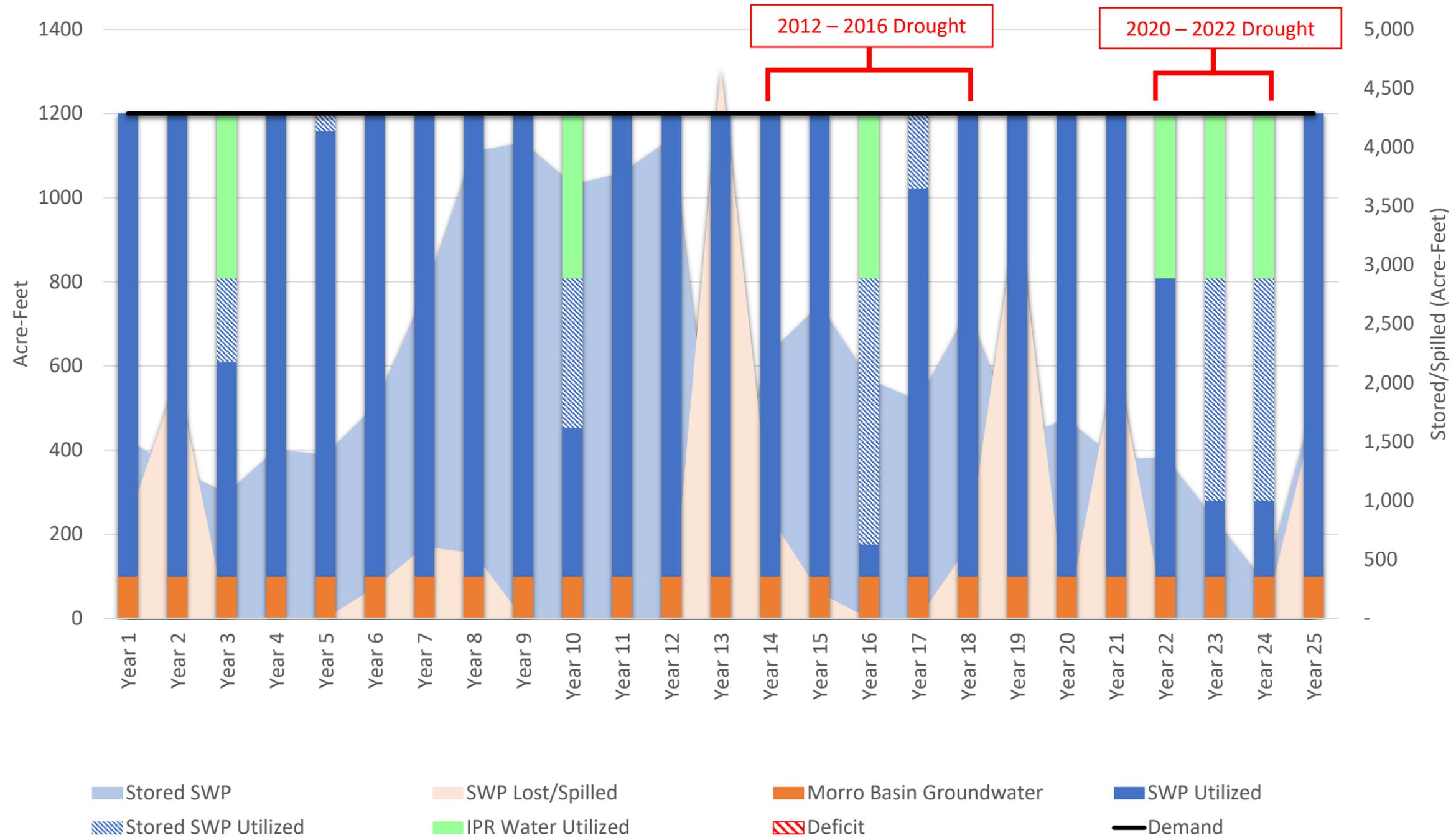


Figure 5: Current Demand with Limited IPR Recycled Water Scenario

Current Demand with Limited IPR/NPR Recycled Water Scenario

This scenario simulates how the City’s current water supply portfolio, with implementation of an initial phase of the City’s IPR and NPR Program, is anticipated to perform over the next 25 years. This scenario includes the same assumptions as the Current Demand with Limited IPR Recycled Water Scenario and additionally includes the use of 60 AFY NPR Recycled water every year to reduce demand for potable water. This scenario is referred to as “limited” because IPR recycled water is only utilized during drought or low SWP Allocation years. The City’s water supply portfolio and respective supply amounts for this scenario are included in Table 14 and a graphical representation of this scenario is shown in Figure 6 below.

Table 14: Current Demand with Limited IPR/NPR Recycled Water Scenario Assumptions

Supply Source	Allocation/Supply Assumptions (AFY)
SWP WSA	1,313
SWP Drought Buffer	2,290
Morro Basin Groundwater	581
IPR Recycled Water	392
NPR Recycled Water	60
IPR Initiation Threshold	25%

Water Demand	Demand (AFY)
Current	1,200

Water Supply Reliability Results

For the Current Demand with Limited IPR/NPR Recycled Water Scenario, the Supply Model anticipates that the City will have sufficient water supplies available to meet demands in all modeled years. This is achieved by utilizing NPR recycled water to reduce total potable water demands and IPR Recycled water during years where SWP allocations are less than 25% to preserve its SWP and stored SWP supplies for potential future extended drought years.

Supply Portfolio Costs

The estimates of fixed costs for the Current Water Supply Scenario with Limited IPR/NPR Recycled Water over the 25-year model period are shown in Table 15 below and the variable cost, based on how much of each water supply is utilized in this scenario, are shown in Table 16.

Table 15: Fixed Cost Calculations for the Current Demand with Limited IPR/NPR Recycled Water Scenario

	Allocation	Fixed Costs (\$/AF)	Annual Costs (\$/yr)	Model Time Frame (yr)	Total Cost (\$)
Water Service Amount	1,313	\$1,100	\$1,444,300	25	\$36,107,500
Drought Buffer	2,290	\$205	\$469,450	25	\$11,736,250
Total Fixed Costs					\$47,843,750

Table 16: Variable Cost Calculations for the Current Demand with Limited IPR/NPR Recycled Water Scenario

	Total Supply Utilized (AF)	Estimated Cost (\$/AF)	Total Cost (\$)
Annual Allocated SWP Water Utilized	21,586	\$300	\$6,475,888
Stored SWP Water Utilized	2,062	\$300	\$618,535
Morro Basin Groundwater	2,500	\$780	\$1,948,967
IPR Recycled Water	2,352	\$574	\$1,350,005
NPR Recycled Water	1,500	\$539	\$808,500
Total	30,000		\$11,201,895

Spilled/Lost Water Cost Recovery Opportunities

A cost recovery analysis was performed to estimate the potential value of the SWP water that is lost because it is not eligible for storage or due to SWP spills at San Luis Reservoir over the 25-year modeled period. In the future, if excess SWP water can be sold or stored elsewhere, it can be utilized to offset operational costs for the City’s water system. Estimates of the total variable costs and potential cost recovery opportunities for this scenario over the 25-year time frame are shown in Table 17.

For the cost recovery analysis, it was assumed that the NPR recycled water could be sold at a cost equivalent to the cost to produce and deliver the water. Therefore, an additional cost recovery opportunity was added to the Potential Net Variable Cost calculation. Other potential uses for NPR recycled water (e.g. Morro Bay Golf Course, agriculture uses, other City Park facilities, etc.) could further reduce potable water demands and provide additional cost recovery opportunities.

Table 17: Cost Recovery Calculations for the Current Demand with Limited IPR/NPR Recycled Water Scenario

Total Variable Cost (\$)	\$11,201,894
Total SWP Water Lost/Spilled (AF)	20,340
Estimated Cost of SWP Water (\$/AF)	\$500
Total Potential Value of SWP Water Lost/Spilled (\$/AF)	\$10,169,899
Total NPR Recycled Water Produced (AF)	1,500
Potential Value of NPR Recycled Water (\$)	\$808,500
Potential Net Variable Costs (\$)	\$223,496

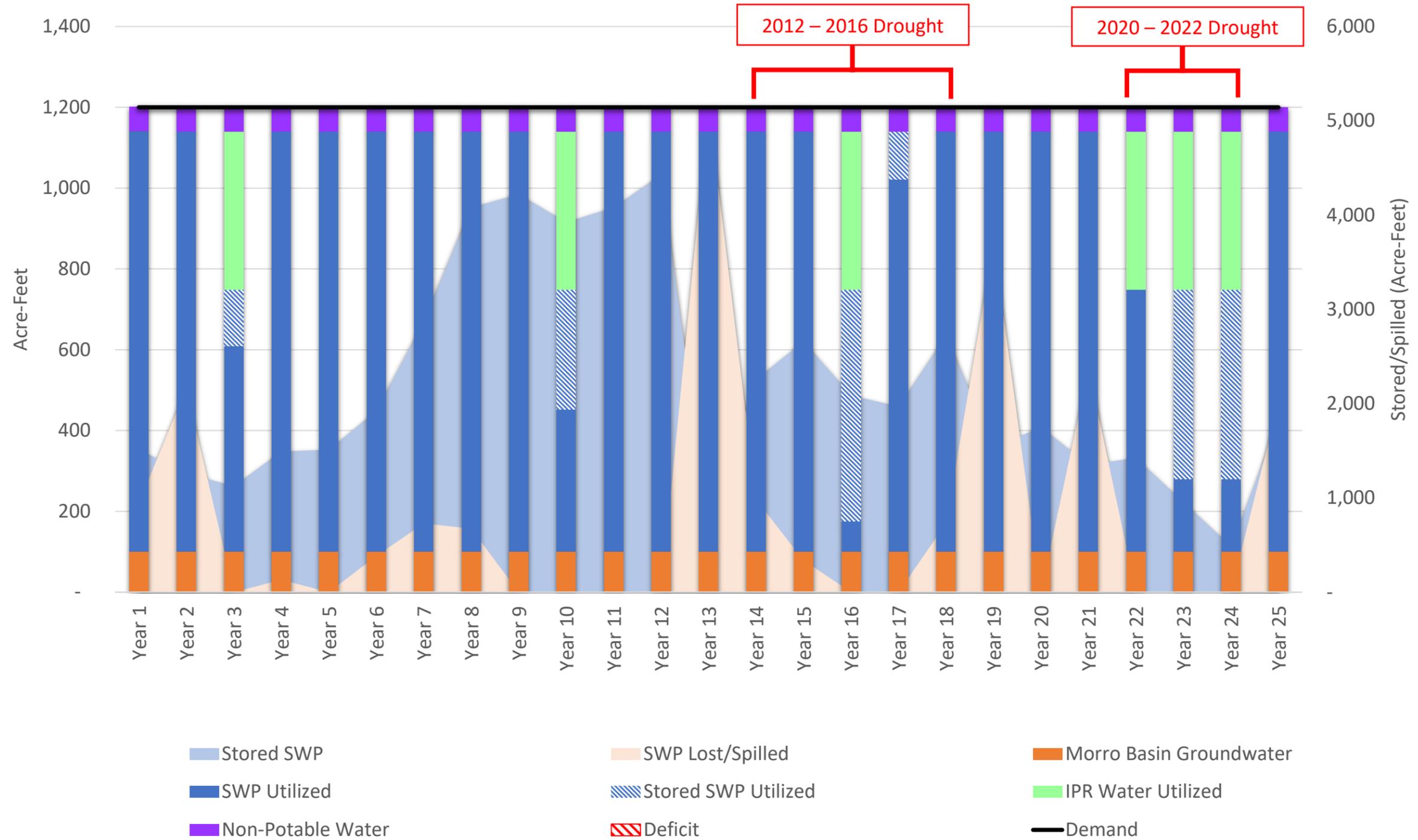


Figure 6: Current Demand with Limited IPR/NPR Recycled Water Scenario

Current Demand with Continuous IPR/NPR Recycled Water Scenario

This scenario simulates how the City’s current water supply portfolio, with implementation of an initial phase of the City’s IPR and NPR Program, is anticipated to perform over the next 25 years with continuous operation of the IPR Program. This scenario assumes the IPR initiation threshold is at 100% instead of 25% and the IPR system is used every year. Additionally, this scenario includes the use of 60 AFY NPR recycled water every year to reduce demand for potable water. This scenario is referred to as “continuous” because IPR recycled water is utilized for groundwater recharge every year instead of only during drought or low SWP Allocation years. The City’s current water supply portfolio and respective supply amounts for this scenario are shown in Table 18 below. A graphical representation of this scenario is shown in Figure 7 below.

Table 18: Current Demand with Continuous IPR/NPR Recycled Water Scenario Assumptions

Supply Source	Allocation/Supply Assumptions (AFY)
SWP WSA	1,313
SWP Drought Buffer	2,290
Morro Basin Groundwater	581
IPR Recycled Water	392
NPR Recycled Water	60
IPR Initiation Threshold	100%

Water Demand	Demand (AFY)
Current	1,200

Water Supply Reliability Results

For the Current Demand with Continuous IPR/NPR Recycled Water Scenario, the Supply Model anticipates that the City will have sufficient water supplies available to meet demands in all modeled years. This is achieved by utilizing NPR Recycled water to reduce total potable water demands and IPR Recycled water every year to preserve its SWP and stored SWP supplies for potential future extended drought years.

Supply Portfolio Costs

The estimates of fixed costs for the Current Demand with Continuous IPR/NPR Recycled Water Scenario over the 25-year model period are shown in Table 19 below and the variable cost, based on how much of each water supply is utilized in this scenario, are shown in Table 20.

Table 19: Fixed Cost Calculations for the Current Demand with Continuous IPR/NPR Recycled Water Scenario

	Allocation	Fixed Costs (\$/AF)	Annual Costs (\$/yr)	Model Time Frame (yr)	Total Cost (\$)
Water Service Amount	1,313	\$1,100	\$1,444,300	25	\$36,107,500
Drought Buffer	2,290	\$205	\$469,450	25	\$11,736,250
Total Fixed Costs					\$47,843,750

Table 20: Variable Cost Calculations for the Current Demand with Continuous IPR/NPR Recycled Water Scenario

	Total Supply Utilized (AF)	Estimated Cost (\$/AF)	Total Cost (\$)
Annual Allocated SWP Water Utilized	14,257	\$300	\$4,227,104
Stored SWP Water Utilized	1,943	\$300	\$582,990
Morro Basin Groundwater	2,500	\$780	\$1,948,967
IPR Recycled Water	9,800	\$574	\$5,652,020
NPR Recycled Water	1,500	\$539	\$808,500
Total	30,000		\$13,242,581

Spilled/Lost Water Cost Recovery Opportunities

A cost recovery analysis was performed to estimate the potential value of the SWP water that is lost because it is not eligible for storage or due to SWP spills at San Luis Reservoir over the 25-year modeled period. In the future, if excess SWP water can be sold or stored elsewhere, it can be utilized to offset operational costs for the City’s water system. Estimates of the total variable costs and potential cost recovery opportunities for this scenario over the 25-year time frame are shown in Table 21.

Table 21: Cost Recovery Calculations for the Current Demand with Continuous IPR/NPR Recycled Water Scenario

Total Variable Cost (\$)	\$13,242,581
Total SWP Water Lost/Spilled (AF)	34,247
Estimated Cost of SWP Water (\$/AF)	\$500
Total Potential Value of SWP Water Lost/Spilled (\$/AF)	\$17,123,550
Total NPR Recycled Water Produced (AF)	1,500
Potential Value of NPR Recycled Water (\$)	\$808,500
Potential Net Variable Costs (\$)	-\$4,689,469

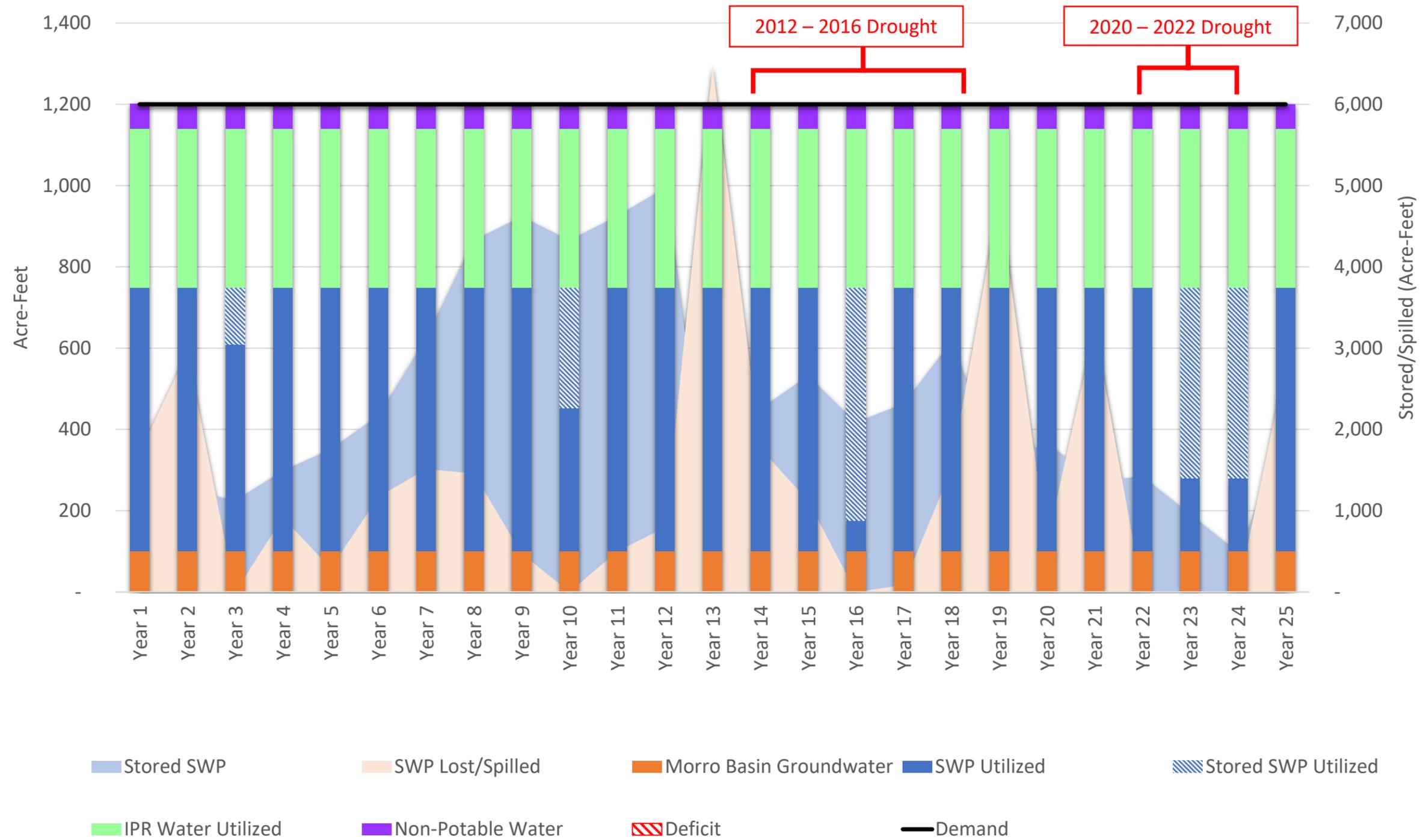


Figure 7: Current Demand with Continuous IPR/NPR Recycled Water

Mid-Buildout Demand with Limited Recycled Water Scenario

The Mid-Buildout Demand with Limited Recycled Water Scenario simulates how the City’s water supply portfolio, including IPR and NPR Recycled water, is anticipated to perform over the next 25 years under future demand conditions associated with Mid-Buildout of the City. This scenario is referred to as “limited” because IPR Recycled water is only utilized during drought or low SWP Allocation years. The City’s water supply portfolio and demand assumptions for this scenario are included in Table 22 and a graphical representation of the scenario is shown in Figure 8 below.

Table 22: Mid-Buildout Demand with Recycled Water Scenario Assumptions

Supply Source	Allocation/Supply Assumptions (AFY)	Water Demand	Demand (AFY)
SWP WSA	1,313	Mid-Buildout	1,325
SWP Drought Buffer	2,290		
Morro Basin Groundwater	581		
IPR	392		
NPR	60		
IPR Initiation Threshold	25%		

Water Supply Reliability Results

For the Mid-Buildout Demand with Limited Recycled Water Scenario, the Supply Model anticipates that the City will have sufficient water supplies available to meet demands in all modeled years. This is achieved by utilizing NPR Recycled water to reduce total potable water demands and IPR Recycled water during years where SWP allocations are less than 25% to preserve its SWP and stored SWP supplies for potential future extended drought years.

Supply Portfolio Cost

The estimates of fixed costs for the Mid-Buildout Water Supply over the 25-year model period are shown in Table 23 below and the variable cost, based on how much of each water supply is utilized in this scenario, are shown in Table 24.

Table 23: Fixed Cost Calculations for the Mid-Buildout Demand with Limited Recycled Water Scenario

	Allocation	Fixed Costs (\$/AF)	Annual Costs (\$/yr)	Model Time Frame (yr)	Total Cost (\$)
Water Service Amount	1,313	\$1,100	\$1,444,300	25	\$36,107,500
Drought Buffer	2,290	\$205	\$469,450	25	\$11,736,250
Total Fixed Costs					\$47,843,750

Table 24: Variable Cost Calculations for Mid-Buildout Demand with Limited Recycled Water Scenario

	Total Supply Utilized (AF)	Estimated Cost (\$/AF)	Total Cost (\$)
Annual Allocated SWP Water Utilized	23,802	\$300	\$7,140,552
Stored SWP Water Utilized	2,712	\$300	\$891,371
Morro Basin Groundwater Utilized	2,500	\$780	\$1,948,967
IPR Recycled Water	2,611	\$574	\$1,350,005
NPR Recycled Water	1,500	\$539	\$808,500
Total	31,625		\$12,139,395

Spilled/Lost Water Cost Recovery Opportunities

A cost recovery analysis was performed to estimate the potential value of the SWP water that is lost because it is not eligible for storage or due to spills at San Luis Reservoir over the 25-year period. In the future, if excess water can be sold or stored elsewhere, it can be utilized to offset operational costs for the City’s water system. Estimates of the total variable costs and potential cost recovery opportunities for this scenario over the 25-year time frame are shown in Table 25.

Table 25: Cost Recovery Calculations for the Mid-Buildout Demand with Limited Recycled Water Scenario

Total Variable Cost (\$)	\$12,139,395
Total SWP Lost/Spilled (AF)	15,643
Estimated Cost of SWP Water (\$/AF)	\$500
Total Potential Value of Lost/Spilled (\$/AF)	\$7,821,639
Total NPR Recycled Water Produced (AF)	1,500
Estimated Cost of NPR Recycled Water (\$)	\$539
Total Potential Value of NPR Recycled Water (\$)	\$808,500
Potential Net Variable Costs (\$)	\$3,509,255

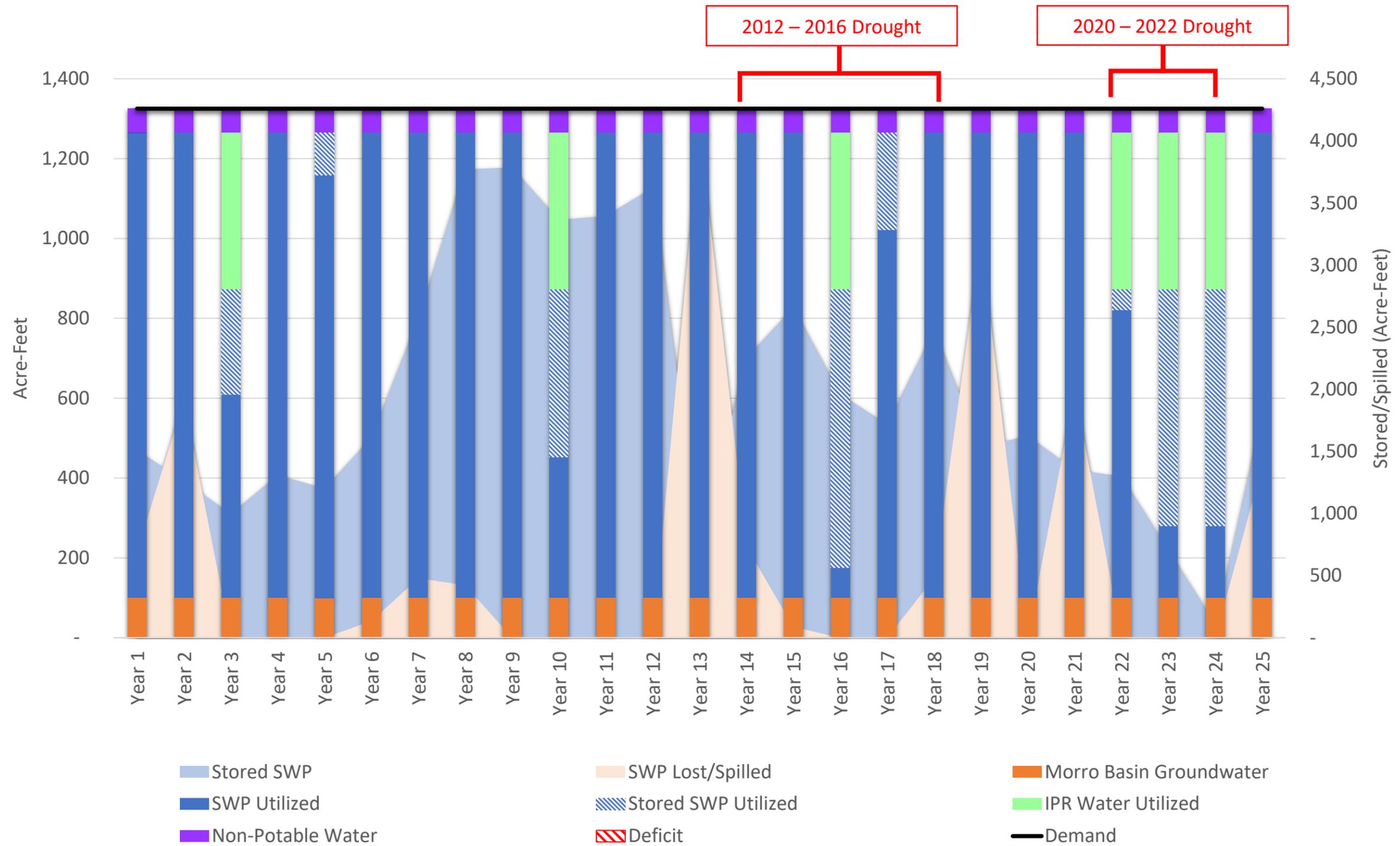


Figure 8: Mid-Buildout Demand with Limited Recycled Water Scenario

Buildout Demand with Limited Recycled Water Scenario

The Buildout Demand with Limited Recycled Water Scenario simulates how the City’s water supply portfolio, including IPR and NPR Recycled water, is anticipated to perform over the next 25 years under future demand conditions associated with full Buildout of the City. This scenario is referred to as “limited” because IPR Recycled water is only utilized during drought or low SWP Allocation years. The City’s water supply portfolio and demand assumptions for this scenario are included in Table 26 and a graphical representation of the scenario is shown in Figure 9 below.

Table 26: Buildout Demand with Limited Recycled Water Scenario Assumptions

Supply Source	Allocation/Supply Assumptions (AFY)	Water Demand	Demand (AFY)
SWP WSA	1,313	Buildout	1,445
SWP Drought Buffer	2,290		
Morro Basin Groundwater	581		
IPR Recycled Water	392		
NPR Recycled Water	60		
IPR Initiation Threshold	25%		

Water Supply Reliability Results

For the Buildout Demand with Limited Recycled Water Scenario, the Supply Model anticipates that the City will have sufficient water supplies available to meet demands in all modeled years. This is achieved by utilizing NPR Recycled water to reduce total potable water demands and IPR Recycled water during years where SWP allocations are less than 25% to preserve its SWP and stored SWP supplies for potential future extended drought years.

Supply Portfolio Cost

The estimates of fixed costs for the Buildout Demand with Limited Recycled Water Scenario over the 25-year model period are shown in Table 27 below and the variable cost, based on how much of each water supply is utilized in this scenario, are shown in Table 28.

Table 27: Fixed Cost Calculations for the Buildout Demand with Limited Recycled Water Scenario

	Allocation	Fixed Costs (\$/AF)	Annual Costs (\$/yr)	Model Time Frame (yr)	Total Cost (\$)
Water Service Amount	1,313	\$1,100	\$1,444,300	25	\$36,107,500
Drought Buffer	2,290	\$205	\$469,450	25	\$11,736,250
Total Fixed Costs					\$47,843,750

Table 28: Variable Cost Calculations for the Buildout Demand with Limited Recycled Water Scenario

	Total Supply Utilized (AF)	Estimated Cost (\$/AF)	Total Cost (\$)
Annual Allocated SWP Water Utilized	25,623	\$300	\$7,686,921
Stored SWP Water Utilized	3,903	\$300	\$1,170,898
Morro Basin Groundwater Utilized	2,747	\$780	\$2,141,235
IPR Recycled Water	2,352	\$574	\$1,350,005
NPR Recycled Water	1,500	\$539	\$808,500
Total	34,625		\$13,157,859

Spilled/Lost Water Cost Recovery Opportunities

A cost recovery analysis was performed to estimate the potential value of the SWP water that is lost because it is not eligible for storage or due to spills at San Luis Reservoir over the 25-year period. In the future, if excess water can be sold or stored elsewhere, it can be utilized to offset operational costs for the City’s water system. Estimates of the total variable costs and potential cost recovery opportunities for this scenario over the 25-year time frame are shown in Table 29.

Table 29: Cost Recovery Calculations for the Buildout Demand with Limited Recycled Water Scenario

Total Variable Cost (\$)	\$13,157,859
Total SWP Lost/Spilled (AF)	11,579
Estimated Cost of SWP Water (\$/AF)	\$500
Total Potential Value of Lost/Spilled (\$/AF)	\$5,789,350
Total NPR Recycled Water Produced (AF)	1,500
Estimated Cost of NPR Recycled Water (\$/AF)	\$539
Total Potential Value of NPR Recycled Water (\$)	\$808,500
Potential Net Variable Costs (\$)	\$4,980,850

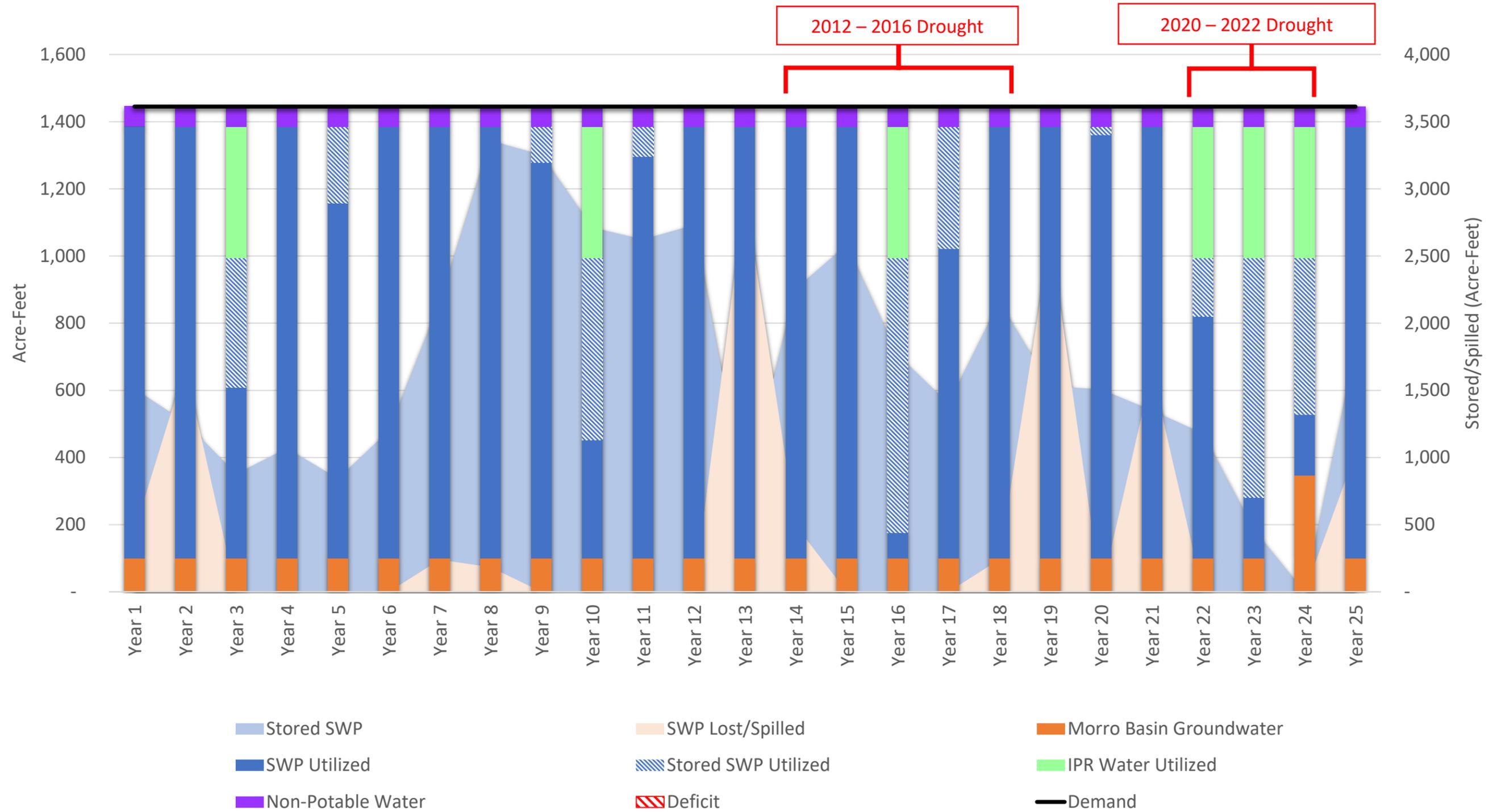


Figure 9: Buildout Demand with Limited Recycled Water Scenario

Results Comparison

Water Supply Reliability Comparison

Based on the results of the Scenario Analysis, it is anticipated that the City can reliably supply water over the 25-year period evaluated in the Supply Model under current and future demands through use of its new IPR and NPR Recycled water resources. Without the IPR and NPR Recycled water resources, the City's Water Supply portfolio is vulnerable to supply deficits during extended droughts under current demands and these conditions will be exacerbated with higher water demands associated with further build-out of the City.

Variable Cost and Cost Recovery Comparison

To assist in comparing the results of the different Current Demand Scenarios the following tables were developed:

Table 30 summarizes the variable costs; Table 31 summaries the potential cost recovery opportunities. The fixed costs for each of the scenarios were not included because they were assumed to be the same for each of the scenarios.

Based on review of the scenario results it's observed that the IPR Recycled water and IPR/NPR Recycled water scenarios have higher productions costs due to the increased variable cost associated with recycled water production compared to SWP water. It should be noted, however, that the cost estimate for the Current Demand without IPR Recycled Water Scenario is artificially lower than the other Recycled water scenarios because of the deficit in water supply availability that occurs in Year 24 of the Supply Model. To make up for this deficit without recycled water, the City would have to purchase water from an outside source during a period of high demand and scarcity or purchase additional drought buffer that would cost an additional ~\$10M in fixed costs over the 25-Year period evaluated in the Supply Model.

Review of the results of the potential cost recovery calculations indicate that the IPR Recycled water and IPR/NPR Recycled water scenarios could have the potential for a lower Net Variable cost due to the increased amount of unused SWP water, see Figure 10 below. In the Current Demand with Continuous IPR/NPR Recycled Water Scenario the cost recovery opportunities are significantly higher than the Limited IPR/NPR Recycled Water Scenarios and under the \$500/AF value assumption could provide the potential for a negative Net Variable cost. Therefore, if the City can find opportunities to sell its unused SWP Water, it could potentially reduce the overall operating costs for its water system, but this is dependent upon the value of the water that the City is able to obtain for its excess SWP supplies.

Table 30: Variable Costs Comparison for the Current Demand Scenarios

		Total Supply Utilized (AF)	Estimated Cost (\$/AF)	Total Costs (\$)
Current Demand w/o Recycled Water	Annual Allocated SWP Water Utilized	22,697	\$300	\$6,809,052
	Stored SWP Water Utilized	3,935	\$300	\$1,180,556
	Morro Basin Groundwater	2,836	\$780	\$2,210,714
	Total	29,468		\$10,200,321
Current Demand w/ Limited IPR Recycled Water	Annual Allocated SWP Water Utilized	22,684	\$300	\$6,805,276
	Stored SWP Water Utilized	2,464	\$300	\$739,147
	Morro Basin Groundwater	2,500	\$780	\$1,948,967
	IPR Recycled Water	2,352	\$574	\$1,350,005
Total	30,000		\$10,843,395	
Current Demand w/ Limited IPR/NPR Recycled Water	Annual Allocated SWP Water Utilized	21,586	\$300	\$6,475,888
	Stored SWP Water Utilized	2,062	\$300	\$618,535
	Morro Basin Groundwater	2,500	\$780	\$1,948,967
	IPR Recycled Water	2,352	\$574	\$1,350,005
	NPR Recycled Water	1,500	\$539	\$808,500
	Total	30,000		\$11,201,895
Current Demand w/ Continuous IPR/NPR Recycled Water	Annual Allocated SWP Water Utilized	14,257	\$300	\$4,227,104
	Stored SWP Water Utilized	1,943	\$300	\$582,990
	Morro Basin Groundwater	2,500	\$780	\$1,948,967
	IPR Recycled Water	9,800	\$574	\$5,625,020
	NPR Recycled Water	1,500	\$539	\$808,500
	Total	30,000		\$13,242,581

Table 31: Net Variable Costs Comparison for the Current Demand Scenarios

		Total Supply (AF)	Estimate Cost (\$/AF)	Total Cost (\$)
Current Demand w/o Recycled Water	Variable Costs	29,468	-	\$10,200,321
	Stored SWP Water Lost/Spilled	16,571	\$500	\$8,285,380
	Potential Net Variable Cost (\$)			\$1,914,941
Current Demand w/ Limited IPR Recycled Water	Variable Costs	30,000	-	\$10,843,395
	Stored SWP Water Lost/Spilled	18,055	\$500	\$9,027,355
	Potential Net Variable Cost (\$)			\$1,816,040
Current Demand w/ Limited IPR/NPR Recycled Water	Variable Costs	30,000	-	\$11,201,895
	Stored SWP Water Lost/Spilled	20,340	\$500	\$10,169,899
	NPR Recycled Water	1,500	\$539	\$808,500
	Potential Net Variable Cost (\$)			\$223,496
Current Demand w/ Continuous IPR/NPR Recycled Water	Variable Costs	30,000	-	\$13,242,581
	Stored SWP Water Lost/Spilled	33,463	\$500	\$17,123,550
	NPR Recycled Water	1,500	\$539	\$808,500
	Potential Net Variable Cost (\$)			-\$4,689,469



Figure 10: Cost Recovery Comparison Analysis

Conclusions and Recommendations

Based on the results of the Water Supply Evaluation, the following conclusions and recommendations were developed.

Conclusions

The City's current water supply portfolio is vulnerable to extended drought conditions (e.g. drought from 2020 to 2022). Implementation of an initial phase of a Recycled Water Program, including IPR and NPR Recycled water use is anticipated to address this water supply deficiency under current and potential future demands. By utilizing NPR Recycled water to reduce potable water demands and IPR Recycled water during low SWP allocation years (i.e. less than 25%) to preserve its SWP and Stored SWP water supplies for potential extended drought years, it is predicted that the City can reliably meet its water supply needs under current and future buildout demand conditions. As the City's demands increase with additional development it may be necessary to increase the capacity of the IPR program to increase the volume of drought proof water that the City has available during future extended drought conditions.

Recommendations

The following recommendations are provided to assist the City in developing and maintaining a reliable cost-effective future water supply portfolio for current and future drought conditions.

1. Implement an initial phase (Phase 1) of the Recycled Water Program capable of producing ~415 AFY of IPR and NPR Recycled water
2. Develop an implementation plan with criteria for when to implement future phases of the Recycled Water Program as City water demands increase or additional cost recovery opportunities are identified.
3. Investigate water storage and cost recovery opportunities (e.g. exchanges or sales agreements) for the City's excess SWP supplies that are undeliverable or lost to spills at San Luis Reservoir.

References

- [1] OneWater Morro Bay Engineering Plan. Carollo. (Oct. 2018). Available: [Complete OneWater Morro Bay \(morrobayca.gov\)](#) (Accessed Aug. 3, 2023).
- [2] “Morro Bay, CA.” Bing Maps. Available: [Morro Bay, California - Bing Maps](#) (Accessed Aug. 3, 2023).
- [3] Water Supply Agreement Between San Luis Obispo County Flood Control and Water Conservation District and City of Morro Bay. (May 11, 1992). (Accessed Oct. 4, 2023).
- [4] “Morro Valley Groundwater Basin.” California’s Groundwater Bulletin 118. (Feb. 8, 2004). Available: [B118 Basin Boundary Description 2003 - 3 041 \(ca.gov\)](#) (Accessed Aug. 3, 2023).
- [5] Title XVI Feasibility Study. City of Morro Bay Water Reclamation Facility Program Management. Carollo. (February 2020). Available: [Water Reclamation Facility Program Management \(morrobaywrf.com\)](#) (Accessed Aug. 3, 2023).
- [6] Basis of Design Report for Groundwater Injection, Monitoring and Extraction. City of Morro Bay Water Reclamation Facility Program Management. GSI Water Solutions Inc. (Sept. 8, 2023). (Accessed Oct. 4, 2023).
- [7] Coastal Branch: Water Management Strategies. Hallmark Group and Provost and Pritchard. (Jan. 19, 2022). Available: [2022-01-19-Coastal-Branch-Water-Management-Strateg.pdf \(ca.gov\)](#) (Accessed Oct. 4, 2023).
- [8] City of Morro Bay Urban Water Management Plan. Water Systems Consulting. (Oct. 2021). Available: [City of Morro Bay 2020 Urban Water Management Plan \(morrobayca.gov\)](#) (Accessed Aug. 3, 2023).
- [9] Plan Morro Bay. California Coastal Commission and California Ocean Protection Council. (May 2021). Available: [Plan-Morro-Bay-GP-LCP-Final \(morrobayca.gov\)](#) (Accessed Oct. 4, 2023).
- [10] L. Henry. “Groundwater agency to pay \$8,500 per acre-foot for SJV water rights.” (Aug. 7, 2022). Available: [LOIS HENRY: Groundwater agency to pay \\$8,500 per acre-foot for SJV water rights | Lois Henry | bakersfield.com](#) (Accessed Oct. 5, 2023).
- [11] Price Proposal Form for Design-Build Services of the City of Morro Bay: Water Reclamation Facility (WRF) Onsite Improvements Cost Proposal. (May 8, 2018). Filanc Black & Veatch. (Accessed Oct. 5, 2023).
- [12] “District’s Excess (Undescribed) Allocation (State Water Project).” San Luis Obispo County Conservation and Flood Control District. (Jan. 6, 2023). (Accessed Oct. 6, 2023).

Appendix 1: Variable and Fixed Costs Derivations

Variable Cost Derivations

The variable costs for the City’s different water supply sources are outlined in Table 1 and Table 2 below.

Table 1: SWP Variable Costs

Water Type	Variable Costs (\$/AF)
SWP Water Service Amount (WSA)	\$300
SWP Drought Buffer	\$300
Morro Basin Groundwater	\$708
IPR Recycled Water	\$574
NPR Recycled Water	\$539

Table 2: Recycled Water Variable Cost Components

	Cost (\$/AF)	Source
Groundwater Pumping Costs	\$35	OneWater Plan Appendix N [1]
BWRO O&M Costs	\$279	OneWater Plan pg. 7-14 [1]
BWRO Energy Costs	\$501	OneWater Plan pg. 7-15 [1]
Costs to Run IPR System	\$539	“30 Year Life Cycle Costs” WRF Improvements Cost Proposal [11]

The groundwater pumping cost estimates, BWRO O&M costs, and BWRO energy costs were based on values established in Morro Bay’s One Water Plan. The SWP WSA and Drought Buffer variable costs are based on input provided by SLOCFWCD Staff. The variable cost estimates do not include operating staff costs. The cost calculations for Morro Basin Groundwater costs, IPR Recycled water costs, and NPR Recycled water costs are shown below. Conveyance costs are not included in the IPR and NPR Recycled water costs because if not utilized for recycled water the wastewater would need to be conveyed to the City’s Outfall for disposal.

$$\begin{aligned}
 \text{Morro Basin Groundwater Costs} &= \text{BWRO O\&M Costs} + \text{BWRO Energy Costs} \\
 &= \$279/\text{AF} + \$501/\text{AF} \\
 &= \$780/\text{AF}
 \end{aligned}$$

$$\begin{aligned}
 \text{IPR Recycled Water Costs} &= \text{Groundwater Pumping Costs} + \text{Cost to Run IPR Treatment System} \\
 &= \$35/\text{AF} + \$539/\text{AF} \\
 &= \$574/\text{AF}
 \end{aligned}$$

$$\text{NPR Recycled Costs} = \text{Cost to Run IPR Treatment System}$$

The IPR Recycled water treatment costs, included in Table 4, were derived from the Reverse Osmosis (RO), Ultraviolet (UV) and Advanced Oxidation electrical and chemical costs from the Filanc/Black & Veatch “30 Year Life Cycle Costs” included in the Design-Build Proposal [11]. Costs to inject the IPR Recycled water into the basin are not included in the calculation because if not utilized for recycled water the wastewater would need to be conveyed to the City’s Outfall for disposal.

Table 4: IPR Treatment System Cost Calculations

	30 Year Costs	Cost Per Year	Cost Per AF
RO	\$4,519,775.00	\$150,659.17	\$259.31
UV	\$1,684,481.00	\$56,149.37	\$96.64
Chem pump, Antiscalant-Ro Feed	\$606,719	\$20,223.97	\$34.81
Chem pump, Hypo-RO Reject	\$100,948	\$3,364.93	\$5.79
Chem Pump, Hypo-RO Feed	\$676,588	\$22,552.93	\$38.82
Chem Pump, Hypo-UVAOP	\$349,371	\$11,645.70	\$20.04
Chem Pump, Hypo-Product Water	\$125,107	\$4,170.23	\$7.18
Chem Pump, Hydrox-RO CIP	\$64,301	\$2,143.37	\$3.69
Chem Pump, Hydrox-Product Water	\$138,674	\$4,622.47	\$7.96
Chem Pump, Citric Acid-RO CIP	\$96,266	\$3,208.87	\$5.52
Contactora, Calcite-Product Waste	\$1,029,788	\$34,326.27	\$59.08
Total	\$9,392,018.00	\$313,067.27	\$539

Fixed Cost Derivations

The fixed costs for the City’s different SWP water supply sources are outlined in Table 5 below.

Table 5: SWP Fixed Costs

Water Type	Fixed Costs (\$/AF)
SWP Water Service Amount (WSA)	\$1,100
SWP Drought Buffer	\$205

The Drought Buffer fixed cost can be found on the January 2023 “Notice to Subcontractors on the District’s Excess (Unsubscribed) Allocation (State Water Project)” from the SLOFCWCD [12]. The WSA fixed cost was derived from SWP cost estimate information included in the OneWater Plan [1].

CITY OF MORRO BAY

AMENDMENT NO. 4 TO THE AGREEMENT
FOR CONSULTANT SERVICES
BETWEEN THE CITY OF MORRO BAY AND
KEVIN MERK ASSOCIATES, LLC.

This Amendment No. 4 is entered by and between the City of Morro Bay, a municipal corporation (“City”) and Kevin Merk Associates, LLC, a California limited liability company (“Consultant”). City and Consultant are sometimes referred to individually as “Party” and collectively “Parties.”

RECITALS

WHEREAS, City and Consultant entered into an agreement as of January 21, 2021, for consulting services related to the Water Reclamation Facility Lift Stations and Offsite Pipelines (Project) for a not to exceed amount of \$71,310.00 (Agreement); and

WHEREAS, the Parties amended the Agreement to extend the contract expiration date from June 30th, 2022 to December 31st, 2022 with no increase in compensation (Amendment No. 1); and

WHEREAS, the Parties amended the Agreement as of August 23, 2022, to provide for additional time for the entire Agreement (Amendment No. 2); and

WHEREAS, the Parties amended the Agreement to extend the contract expiration date from December 31st, 2022 to June 30th, 2023 with no increase in compensation (Amendment No. 3); and

WHEREAS, the Agreement, Amendment No. 1, Amendment No. 2 and Amendment No. 3 are hereinafter referred to as the Amended Agreement; and

WHEREAS, the City requires additional Biological Resources Technical Support services to support the implementation of the Recycled Water Component of the Water Reclamation Facility Program; and

WHEREAS, Consultant has specific knowledge and experience to provide technical oversight needed to accomplish necessary tasks required to meet the City Council's goals for the Project.

NOW THEREFORE, City and Consultant again mutually agree to amend the Amended Agreement as follows:

1. The revised scope of services to be provided by Consultant, pursuant to the Amended Agreement, as hereby amended, shall include the Scope of Work and Fee Rates, as set forth in Exhibit A, which are incorporated herein by this reference. In the event of any inconsistency between terms in Exhibit A (excepting Scope of Work and Fee Rates) and the Amended Agreement, the terms of the Amended Agreement shall govern. No other terms and conditions

from Exhibit A, other than the amended description of the Scope of Work and Fee Rates, shall apply to the Amended Agreement, unless specifically agreed to by City in writing.

2. The not to exceed amount for Consultant’s services is hereby increased from the previous amount of Seventy-One Thousand Three Hundred Ten Dollars and No Cents (\$71,310.00) by Thirty-Nine Thousand Seven Hundred Thirty Dollars and No Cents (\$39,730.00), for a new revised total not to exceed amount of One Hundred Eleven Thousand Forty Dollars and No Cents (\$111,040.00) for the Amended Agreement.

3. This Amendment No. 4 ratifies all prior amendments to the Amended Agreement. The expiration date for the Amended Agreement, as hereby ratified, is extended from June 30, 2023 through December 31, 2025.

4. As of November 14, 2023, the compensation is to be paid by the City to the Consultant for consulting services related to the Water Reclamation Facility Indirect Potable Reuse (IPR) Project.

5. Except as expressly stated herein, the terms and conditions of the Amended Agreement remain in full force and effect and unless otherwise expressly stated herein or the context requires, all terms shall have the same meaning as provided in the Amended Agreement.

6. The effective date of this Amendment No. 4 shall be deemed to be June 30, 2023, excepting that the terms of Sections 1 and 2 hereof shall take effect November 14, 2023.

IN WITNESS WHEREOF, the Parties will be deemed to have caused this Amendment No. 4 to be executed by their duly authorized representatives as of the Effective Date.

CITY OF MORRO BAY

KEVIN MERK ASSOCIATES LLC

By: _____

By: _____

Yvonne Kimball
City Manager

_____,
Its _____

Attest:

Dana Swanson, City Clerk

Approved As To Form:

Chris Neumeyer, City Attorney



September 21, 2023

City of Morro Bay
595 Harbor Street
Morro Bay, CA 93442
Attention: Daniel Heimel

Subject: On-Call Services Proposal - Biological Resources Technical Support for the Morro Bay Indirect Potable Reuse Project, Morro Bay, California

Dear Mr. Heimel:

Kevin Merk Associates, LLC (KMA) is pleased to submit this proposal to provide biological resources consulting services to support ongoing planning and design efforts for the City of Morro Bay's Indirect Potable Reuse (IPR) project. As we have discussed, KMA will assist the team on a time and materials basis during the siting of future injection wells and the design/layout of pipeline routes. We would provide technical input as it pertains to biological resources including jurisdictional drainages and wetlands, and other Environmentally Sensitive Habitat Areas (ESHA) such as coastal dunes. We would review proposed alternatives to ensure consistency with the Final Environmental Impact Report prepared for the Water Reclamation Facility, and help with ESHA avoidance and mitigation strategy development to make sure the project minimizes impacts to important resources in the project area. At your direction, we would attend meetings and review design iterations, conduct field work, and share data through the preparation of maps and reports. We also anticipate communicating with you and the team by phone and email on a regular basis, as well as supporting regulatory agency consultation during the course of the work program.

We would provide our services on a time and materials reimbursement basis against a not to exceed budget of \$39,730 consistent with the attached cost estimate spreadsheet. Expenses such as vehicle reimbursement and field equipment costs would be included with this amount.

Thank you. We look forward to our continued collaboration on this project. If you have any questions regarding our anticipated scope of work, please call me directly.

Sincerely,

KEVIN MERK ASSOCIATES, LLC

Kevin B. Merk
Principal Biologist

Attachment: Cost Estimate Spreadsheet

Budgetary Cost Estimate - On-Call Biological Resources Services for Morro Bay's Indirect Potable Reuse Project

Task	Cost	Hours	Principal Biologist	Senior Biologist	GIS/Graphics	Admin Assist
			\$165/hr	\$130/hr	\$105/hr	\$75/hr
Task 1 - Alternatives Review and EIR Consistency	\$11,720	80	48	20	10	2
Task 2 - Biological Field Surveys for Injection Wells	\$9,910	66	44	16	4	2
Task 3 - ESHA Avoidance and Setback Reduction Strategy	\$12,710	84	60	14	8	2
Task 4 - Team Meetings and Agency Consultation	\$4,890	32	24	6		2
Expenses (vehicle, field equip., etc.)	\$500					
Total Budget Estimate	\$39,730	262	176	56	22	8



Kevin Merk Associates, LLC

CITY OF MORRO BAY

AMENDMENT NO. 8 TO THE AGREEMENT
FOR CONSULTANT SERVICES
BETWEEN THE CITY OF MORRO BAY AND
FAR WESTERN ANTHROPOLOGICAL RESEARCH GROUP, INC.

This Amendment No. 8 is entered by and between the City of Morro Bay, a municipal corporation (“City”) and Far Western Anthropological Research Group, Inc., a California corporation (“Consultant”). City and Consultant are sometimes referred to individually as “Party” and collectively “Parties.”

RECITALS

WHEREAS, City and Consultant entered into an agreement as of January 1, 2019, for consulting services related to the Water Reclamation Facility (the “Project”) for a not to exceed amount of \$124,644.01 (the “Agreement”); and

WHEREAS, the Parties amended the Agreement as of December 1, 2019, to expand the tasks to be provided by Consultant and to increase the compensation payable in the amount of \$5,469.00 (Amendment No. 1), increasing the total compensation payable pursuant to the Agreement to \$130,113.01;

WHEREAS, the Parties amended the Agreement as of February 1, 2020, to expand the tasks to be provided by the Consultant and to increase the compensation payable in the amount of \$130,809 (Amendment No 2), increasing the total compensation payable pursuant to the Agreement to \$260,922.01;

WHEREAS, the Parties amended the Agreement as of July 13, 2020, to expand the tasks to be provided by the Consultant and to increase the compensation payable in the amount of \$21,092 (Amendment No. 3), increasing the total compensation payable pursuant to the Agreement to \$282,014.01;

WHEREAS, the Parties amended the Agreement as of January 21, 2021, to extend the contract expiration date of the Consultant Contract from December 21, 2021 to June 30, 2022 as a non-compensable Contract Amendment (Amendment 4);

WHEREAS, the Parties amended the Agreement as of January 25, 2021, to expand the tasks to be provided by the Consultant and to increase the compensation payable in the amount of \$115,065 (Amendment No. 5), increasing the total compensation payable pursuant to the Agreement to \$397,079.01;

WHEREAS, the Parties amended the Agreement as of October 12, 2021, to expand the tasks to be provided by the Consultant and to increase the compensation payable in the amount of \$316,262.00 (Amendment No. 6), with an additional \$146,824 in optional tasks increasing the total compensation payable pursuant to the Agreement to \$860,165.01;

WHEREAS, the Parties amended the Agreement as of June 14, 2022, to extend the contract expiration date of the Consultant Contract from June 30, 2022 to December 31, 2025 as a non-compensable Contract Amendment (Amendment No. 7);

WHEREAS, the Agreement and Amendments Nos. 1, No. 2, No. 3, No. 4, No. 5, No. 6, and No. 7 are hereinafter referred to as the “Amended Agreement”; and

WHEREAS, the City requires additional archaeological testing support services to support the implementation of the Recycled Water Component of the Water Reclamation Facility Program; and

WHEREAS, Consultant has specific knowledge and experience to provide technical oversight needed to accomplish necessary tasks required to meet the City Council's goals for the Project.

NOW THEREFORE, City and Consultant mutually agree to amend the Amended Agreement as follows:

1. Unless otherwise expressly stated herein or the context requires, all terms shall have the same meaning as provided in the Amended Agreement.
2. The revised scope of services to be provided by Consultant, pursuant to the Amended Agreement, as hereby amended, shall include the Scope of Work and Fee Rates, as set forth in Exhibit A, which are incorporated herein by this reference. In the event of any inconsistency between terms in Exhibit A (excepting Scope of Work and Fee Rates) and the Amended Agreement, the terms of the Amended Agreement shall govern. No other terms and conditions from Exhibit A, other than the description of the Scope of Work and Fee Rates, shall apply to the Amended Agreement, unless specifically agreed to by City in writing.
3. The not to exceed amount for Consultant’s services is hereby increased from the previous amount of Eight Hundred Sixty Thousand One Hundred Sixty-Five Dollars and One Cent (\$860,165.01) by One Hundred Eighty-Four Thousand Five Hundred Sixty-Eight Dollars and No Cents (\$184,568.00), for a new revised total not to exceed of One Million Forty-Four Thousand Seven Hundred Thirty-Three Dollars and One Cent (\$1,044,733.01).
4. Except as expressly stated herein, all terms and conditions in the Amended Agreement shall remain in full force and effect.
5. The effective date of this Amendment No. 8 shall be deemed to be November 14, 2023 (Effective Date).

--SIGNATURES ON NEXT PAGE--

IN WITNESS WHEREOF, the Parties will be deemed to have caused this Amendment No. 8 to be executed by their duly authorized representatives as of the Effective Date.

CITY OF MORRO BAY

FAR WESTERN ANTHROPOLOGICAL
RESEARCH GROUP, INC.
(2 signatures required)

By: _____
Yvonne Kimball
City Manager

By: _____
_____,
Its _____

Attest:

Dana Swanson, City Clerk

By: _____
_____,
Its _____

Approved As To Form:

Chris Neumeyer, City Attorney



September 22, 2023

Daniel HeimeI
Principal Engineer
Confluences Engineering Solutions
2122 9th Street, Suite 200
Los Osos, CA 93402

Re: Water Reclamation Facility Project, Construction Phase 3 Archaeological Presence/Absence Testing, Morro Bay, San Luis Obispo County, California.

Dear Dan,

Per your request, the following serves as a scope of work and cost estimate for archaeological presence/absence testing for Construction Phase 3 (Injection wells). The injection wells are in an archaeologically sensitive area and require testing in accordance with the Programmatic Agreement among the City, Environmental Protection Agency (EPA), and the State Historic Preservation Officer (SHPO). If results of the testing are positive and the identified archaeological site cannot be avoided, additional investigations will be needed that are not covered under this scope.

In May 2021, I completed archaeological testing for the pilot injection well, the performance of which will determine the number and location of additional injection wells in close proximity to archaeological sites CA-SLO-16 and -29. The City is now considering up to seven injection well locations and five alternative recycled water pipeline alignments, which will require updating the Area of Potential Effects map for the project through consultation with the EPA and SHPO.

This scope of work assumes all seven potential injection well locations will need to be tested with deep cores, five on Vistra property and two on the Embarcadero. Additionally, shallow testing for boundary definition at site SLO-29 will be necessary to determine if this resource is within the pipeline alignment. Shallow testing will also be required for four of the five proposed pipeline alignments. The Vistra easement pipeline, Morro Bay High School west driveway pipeline, and Park Street pipeline alignments would require testing due to archaeological sensitivity, which would consist of a series of shallow trenches at 25-meter intervals. The Surf Street pipeline alignment would require testing to define the boundary of site SLO-239, which would consist of shallow cores at 25-meter intervals. No additional testing is required for the Alternative Power Plant pipeline alignment based on negative results of prior testing in the northeast and the low archaeological sensitivity in the southwest. Overall, the testing program would include seven deep cores and up to 30 shallow cores and/or trenches for the new pipeline alignment and boundary testing at CA-SLO-29.



The enclosed cost estimate details labor and direct costs necessary to complete this testing. The costs of additional investigations and any necessary construction monitoring will be conducted as a separate task.

If you have any questions, please contact me at phil@farwestern.com or 530-756-3941. Thank you for your consideration.

Best Regards,

A handwritten signature in black ink, appearing to read "Philip Kaijankoski", written over a horizontal line.

Philip Kaijankoski
Principal

Enclosure: Cost Estimate

Project Title: Morro Bay WRF
Task: Phase III testing for injection wells, conveyance lines, and archaeological site CA-SLO-29

Client Name: City of Morro Bay
Contact: Greg Kwolek

TASK	LABOR HOURS	LABOR COST	TRAVEL EXPENSES	OTHER DIRECT COSTS	SUBCONSULTANTS	SUBTOTAL
<i>Fiscal Year 23-24</i>						
MANAGEMENT	24	\$ 2,945	\$ -	\$ -	\$ -	\$ 2,945
UPDATE APE	30	\$ 3,938	\$ -	\$ -	\$ -	\$ 3,938
PREFIELD	88	\$ 11,483	\$ -	\$ 5,280	\$ -	\$ 16,763
FIELD	250	\$ 30,857	\$ 10,617	\$ 68,310	\$ 9,161	\$ 118,945
LABORATORY	68	\$ 7,509	\$ -	\$ 3,850	\$ -	\$ 11,359
DELIVERABLE	254	\$ 30,618	\$ -	\$ -	\$ -	\$ 30,618
GRAND TOTAL						\$ 184,568



Contract Name: Standard 140/15
 Contract No.: 140_15
 Fiscal/Rate Year: 23-24
 Date: September 22, 2023

Client Name: City of Morro Bay
 Contact: Greg Kwolek
 Rates Valid for Period: 09/22/2023-9/30/2024
 Services under this Contract Subject to Prevailing Wage: No
 Staffing Restrictions: None

Project Name Morro Bay WRF

Phase III testing for injection wells, conveyance lines, and archaeological site CA-SLO-29

* A Cost of Living adjustment of up to four percent or the annual average of the Consumer Price Index (whichever is higher) will be applied annually; not inclusive of merit increases.

Regular Employees				MANAGEMENT	UPDATE APE	PREFIELD	FIELD	LABORATORY	DELIVERABLE	Total	
Title	Name	REG/OT	Rate	Hrs	Hrs	Hrs	Hrs	Hrs	Hrs	Hrs	Amount
Principal Archaeobotanist	Wohlgemuth, Eric	REG	\$149.26	-	-	-	-	4	-	4	\$ 597
Geoarchaeologist	Kajankoski, Phil	REG	\$172.22	8	12	40	100	8	80	248	\$ 42,711
GIS Supervisor	DeArmond, Shannon	REG	\$172.22	-	2	-	-	-	2	4	\$ 689
GIS Analyst	Bradeen, Jill	REG	\$94.72	-	8	-	-	-	16	24	\$ 2,273
Lab Director	Harold, Laura	REG	\$129.17	-	-	-	-	8	-	8	\$ 1,033
Flotation Lab Director	Armstrong-Ingram, Angela	REG	\$106.20	-	-	-	-	16	-	16	\$ 1,699
Senior Lab Scientist	Eubanks, Jill	REG	\$97.59	-	-	-	-	16	-	16	\$ 1,561
Lab Assistant	Aviles, Anthony	REG	\$77.50	-	-	-	-	16	-	16	\$ 1,240
Production Director	Pardee, Michael	REG	\$114.54	-	-	-	-	-	4	4	\$ 458
Asst. Production Director	Sterling, Liz	REG	\$99.03	-	-	-	-	-	16	16	\$ 1,584
Production Specialist	Montgomery, Kathleen	REG	\$87.41	-	-	-	-	-	16	16	\$ 1,399
Staff Archaeologist	Bales, Emily	REG	\$96.16	-	8	40	100	-	120	268	\$ 25,771
Staff Archaeologist	Bacon, William	REG	\$80.37	-	-	-	50	-	-	50	\$ 4,019
Logistics Coordinator	Townsend, Valarie	REG	\$90.42	-	-	4	-	-	-	4	\$ 362
Project Accountant	Chavez, Monika	REG	\$111.95	4	-	-	-	-	-	4	\$ 448
Project Accountant	Artega, Israel	REG	\$75.35	8	-	-	-	-	-	8	\$ 603
Project and Proposal Director	Johnson, Melissa	REG	\$129.17	4	-	-	-	-	-	4	\$ 517
Operations Supervisor	Tanner, Ashley	REG	\$96.43	-	-	4	-	-	-	4	\$ 386
TOTAL LABOR				\$2,945	\$3,938	\$11,483	\$30,857	\$7,509	\$30,618	\$	87,349

Travel Expenses		County		MANAGEMENT	UPDATE APE	PREFIELD	FIELD	LABORATORY	DELIVERABLE	Total
Unit Cost Travel	Unit	Unit Rate	Qty	Qty	Qty	Qty	Qty	Qty	Qty	
Per Diem (Motel)	GSA Rate -- CA: San Luis Obispo Co.	Night	\$191.00	-	-	-	22	-	-	\$ 4,202
Meals/Incidentals	GSA Rate -- CA: San Luis Obispo Co.	Day	\$74.00	-	-	-	25	-	-	\$ 1,850
Vehicle Rental (Month)		Month	\$1,300.00	-	-	-	2	-	-	\$ 2,600
Travel (Unit Costs) Subtotal				\$0	\$0	\$0	\$8,652	\$0	\$0	\$ 8,652
At Cost Travel				\$	\$	\$	\$	\$	\$	
Gasoline	At Cost	At Cost	\$0	\$0	\$0	\$1,000	\$0	\$0	\$0	\$ 1,000
Travel (At Cost) Subtotal				\$0	\$0	\$0	\$1,000	\$0	\$0	\$ 1,000
SUBTOTAL TRAVEL EXPENSES				\$0	\$0	\$0	\$9,652	\$0	\$0	\$ 9,652
FEE ON TRAVEL EXPENSES			10%	\$0	\$0	\$0	\$965	\$0	\$0	\$ 965
TOTAL TRAVEL EXPENSES				\$0	\$0	\$0	\$10,617	\$0	\$0	\$ 10,617



(530) 756-3941 Davis • (415) 413-1450 Sausalito

(775) 847-0223 Carson City • (702) 982-3691 Henderson



Contract Name: Standard 140/15
 Contract No.: 140_15
 Fiscal/Rate Year: 23-24 September 22,
 Date: 2023

Client Name: City of Morro Bay
 Contact: Greg Kwolek
 Rates Valid for Period: 09/22/2023-09/30/2024
 Services under this Contract Subject to Prevailing Wage: No
 Staffing Restrictions: None

Project Name Morro Bay WRF

Phase III testing for injection wells, conveyance lines, and archaeological site CA-SLO-29

Other Direct Costs			MANAGEMENT	UPDATE APE	PREFIELD	FIELD	LABORATORY	DELIVERABLE	Total
<i>Unit Cost ODCs</i>	<u>Unit</u>	<u>Unit Rate</u>	<u>Qty</u>	<u>Qty</u>	<u>Qty</u>	<u>Qty</u>	<u>Qty</u>	<u>Qty</u>	
Radiocarbon	Sample	\$350.00	-	-	-	-	10	-	\$ 3,500
Coring Rig	Day	\$5,000.00	-	-	-	11	-	-	\$ 55,000
Private Utility Locator	Hour	\$200.00	-	-	24	-	-	-	\$ 4,800
ODCs (Unit Costs) Subtotal			\$0	\$0	\$4,800	\$55,000	\$3,500	\$0	\$ 63,300
At Cost ODCs			<u>\$</u>	<u>\$</u>	<u>\$</u>	<u>\$</u>	<u>\$</u>	<u>\$</u>	
Supplies	At Cost	At Cost	\$0	\$0	\$0	\$100	\$0	\$0	\$ 100
Coring/Drilling Permit	At Cost	At Cost	\$0	\$0	\$0	\$1,000	\$0	\$0	\$ 1,000
Traffic Control	At Cost	At Cost	\$0	\$0	\$0	\$5,000	\$0	\$0	\$ 5,000
Toilet Rental	At Cost	At Cost	\$0	\$0	\$0	\$1,000	\$0	\$0	\$ 1,000
ODCs (At Cost) Subtotal			\$0	\$0	\$0	\$7,100	\$0	\$0	\$ 7,100
SUBTOTAL OTHER DIRECT COSTS			\$0	\$0	\$4,800	\$62,100	\$3,500	\$0	\$ 70,400
FEE ON DIRECT COSTS		10%	\$0	\$0	\$480	\$6,210	\$350	\$0	\$ 7,040
TOTAL OTHER DIRECT COSTS			\$0	\$0	\$5,280	\$68,310	\$3,850	\$0	\$ 77,440

Subconsultants		MANAGEMENT	UPDATE APE	PREFIELD	FIELD	LABORATORY	DELIVERABLE	Total
<i>Tribal Representative</i>	<u>Unit Rate</u>	<u>Qty</u>	<u>Qty</u>	<u>Qty</u>	<u>Qty</u>	<u>Qty</u>	<u>Qty</u>	
Native American	\$100.00	-	-	-	80	-	-	\$ 8,000
Mileage	\$0.655	-	-	-	500	-	-	\$ 328
Tribal Representative Subtotal		\$0	\$0	\$0	\$8,328	\$0	\$0	\$ 8,328
<i>Special Study/Service</i>		<u>\$</u>	<u>\$</u>	<u>\$</u>	<u>\$</u>	<u>\$</u>	<u>\$</u>	
SUBTOTAL SUBCONSULTANTS		\$0	\$0	\$0	\$8,328	\$0	\$0	\$ 8,328
FEE ON SUBCONSULTANTS		10%	\$0	\$0	\$833	\$0	\$0	\$ 833
TOTAL SUBCONSULTANTS		\$0	\$0	\$0	\$9,161	\$0	\$0	\$ 9,160

GRAND TOTAL		\$2,945	\$3,938	\$16,763	\$118,945	\$11,359	\$30,618	\$	184,568
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*Coring Rig operator subject to prevailing wage.

**AMENDMENT NO. 1 TO THE
AGREEMENT FOR CONSULTANT SERVICES
AMONG THE CITY OF MORRO BAY AND
RINCON CONSULTANTS, INC.**

This Amendment No. 1 is entered by and between the CITY OF MORRO BAY, a municipal corporation (City), and RINCON CONSULTANTS, INC., a California corporation (Consultant). City and Consultant are sometimes referred to individually as “Party” and collectively “Parties.”

RECITALS

WHEREAS, City and Consultant entered into an agreement as of March 1st, 2023, whereby Consultant agreed to prepare an Environmental Assessment for the Water Reclamation Facility (Project), which was approved by the City Council for a not to exceed amount for Consultant’s services of \$43,532.00 (Agreement); and

WHEREAS, the City requires additional Environmental Review Support services to support the implementation of the Recycled Water Component of the Water Reclamation Facility Program; and

WHEREAS, Consultant has specific knowledge and experience to provide technical oversight needed to accomplish necessary tasks required to meet the City Council's goals for the Project.

NOW THEREFORE, City and Consultant mutually agree to amend the Agreement, as follows:

1. Unless otherwise expressly stated herein or the context requires, all terms shall have the same meaning as provided in the Agreement.
2. The revised scope of services to be provided by Consultant, pursuant to the Agreement, as hereby amended, shall include Task 4 from the Scope of Work and Fee Rates, as set forth in Exhibit A, which are incorporated herein by this reference, which is also incorporated herein by this reference (Scope of Work). In the event of any inconsistency between terms in Exhibit A (excepting the Scope of Work and Fee Rates) and the Agreement, the terms of the Agreement shall govern. No other terms and conditions from Exhibit A, other than the description of the Scope of Work and Fee Rates, shall apply to the Agreement, unless specifically agreed to by City in writing.
3. The compensation to be paid for the Scope of Work shall be paid in accordance with the terms of the Agreement on a time and material basis and shall increase the previous not to exceed amount of Forty-Three Thousand Five Hundred Thirty-Two Dollars and No Cents (\$43,532.00) by One Hundred Eighty-Six Thousand Nine Hundred Ninety-Nine Dollars and Fifty-Five Cents (\$186,999.55), for a new revised total not to exceed amount for Consultant’s services of Two Hundred Thirty Thousand Five Hundred Thirty-One and Fifty-Five Cents (\$230,531.55) for the Agreement. Consultant shall not be compensated for any services rendered in connection with its performance of the Scope of Work, which are in addition to those set forth herein, unless such

additional services are authorized in advance and in writing by the City Manager in accordance with the Agreement.

4. The expiration date for the Agreement is hereby extended from March 1, 2024 through December 31, 2025.

5. The effective date of this Amendment No. 1 shall be deemed to be November 14, 2023 (Effective Date).

IN WITNESS WHEREOF, the parties will be deemed to have caused this Amendment No. 1 to be executed by their duly authorized representatives as of the Effective Date.

CITY OF MORRO BAY

RINCON CONSULTANTS, INC.

By: _____
Yvonne Kimball
City Manager

By: _____
_____,
Its _____

Attest:

Dana Swanson, City Clerk

Approved As To Form:

Chris Neumeyer, City Attorney



Rincon Consultants, Inc.
1530 Monterey Street, Suite D
San Luis Obispo, California 93401
805-547-0900

September 22, 2023
Rincon Project No. 23-14015

Greg Kwolek, Public Works Director
City of Morro Bay
595 Harbor Street
Morro Bay, California 93442

Subject: Proposal to Provide Additional Environmental Consulting Services for the Proposed Modifications to the Morro Bay Water Reclamation Facility (WRF) Project, Morro Bay, California

Rincon Consultants, Inc. (Rincon) is submitting this proposal to provide additional environmental consulting services in support of the Morro Bay Water Reclamation Facility (WRF) Project (proposed project). Based on the results of recent project design efforts, the project team anticipates additional California Environmental Quality Act (CEQA) documentation will need to be prepared to cover updated pipeline alignments and injection well locations that were not specifically identified in the 2018 certified Environmental Impact Report (EIR) or the 2019 Addendum. The following sections outline our proposed scope of work and cost to complete these additional tasks.

Scope of Work

Based on recent conversations with Confluence, we have included a scope of work to prepare a Supplemental EIR (SEIR), which is a conservative approach that would be appropriate if the updated pipeline alignments and injection well locations may result in new significant environmental impacts or substantially more severe environmental impacts than those identified in the 2018 certified EIR. However, if the updated pipeline alignments and injection well locations do not result in new significant environmental impacts or substantially more severe environmental impacts than those identified in the 2018 certified EIR, Rincon can reduce this scope of work to instead prepare an Addendum to the 2018 certified EIR.

Task 4 Subsequent Environmental Impact Report

Task 4.1 Project Description

Rincon will prepare a Project Description (PD) for the proposed modifications in coordination with Carollo and Confluence. The PD will include up to nine figures showing the location of the proposed modifications, including maps of General Plan land use and zoning designations as well as the Coastal Zone boundary and coastal development permitting authority(ies). Rincon will respond to up to two rounds of review and comment on the PD, as follows:

- **First Draft PD.** Rincon will provide the First Draft PD to the City, Carollo, and Confluence for review and comment within three weeks of receiving responses to all data requests provided. This scope of work assumes all comments will be provided in an electronic and editable, consolidated format, with internal discussions or conflicts resolved.
- **Second Draft PD.** The revised First Draft PD will constitute the Second Draft PD. Rincon will address City/Carollo/Confluence comments on the First Draft PD and incorporate associated revisions. The Second Draft PD will be provided in tracked changes to the City to show edits made in response to



comments on the First Draft PD along with a clean Second Draft PD for review and comment. This scope of work assumes all comments will be provided in an electronic and editable, consolidated format, with internal discussions or conflicts resolved.

- **Final PD.** The revised Second Draft PD will constitute the Final PD. Rincon will address comments on the Second Draft PD and incorporate associated revisions in tracked changes. Rincon will provide the Final PD to the City, Carollo, and Confluence with tracked changes shown, for ease of confirming all comments were addressed and for final approval of the PD. This scope of work assumes no comments will be provided on the Final PD, and no revisions will be necessary. The Final PD will be used to inform the environmental analyses in the SEIR. If revisions are introduced following approval of the Final PD, additional scope and budget may be necessary.

Assumptions

- Carollo and Confluence will provide all design details and mapping data to inform the PD.
- The PD will include up to nine maps.
- Rincon will respond to two rounds of comments on the PD, including the figures.
- No project design revisions will be introduced after approval of the Final PD.

Task 4.2 Initial Study and Notice of Preparation

Under Task 2.2, Rincon will prepare a Notice of Preparation (NOP) and an Initial Study for the proposed modifications. The purpose of the NOP is to provide public and agency notification of the project, including description of the proposed modifications, the City’s intended pathway to CEQA compliance for the project, and guidance on how and where to learn more about the project and submit comments regarding the scope of the SEIR while the environmental documentation is being prepared. The NOP will include information on the time and location of the public scoping meeting, discussed under Task 2.3. The NOP will be filed with the San Luis Obispo County Clerk of the Board and the State Clearinghouse (SCH). This scope of work assumes Rincon will conduct the required filings of the NOP to the County Clerk and the SCH, as a designated representative (“Submitter”) of the City. Rincon has previously been granted authority by the City as an official representative and “Submitter” to the SCH, and no further authorization will be required. Rincon will also complete mailings of the NOP to responsible and trustee agencies, federal agencies involved in approving or funding the project, and other interested parties.

Under Task 2.2, Rincon will also prepare an Initial Study to assess all environmental issue areas from the *State CEQA Guidelines* Appendix G Environmental Checklist, as listed below.

- | | |
|--------------------------------------|---------------------------------|
| • Aesthetics | • Land Use/Planning |
| • Agriculture and Forestry Resources | • Mineral Resources |
| • Air Quality | • Noise |
| • Biological Resources | • Population/Housing |
| • Cultural Resources | • Public Services |
| • Energy | • Recreation |
| • Geology and Soils | • Transportation |
| • Greenhouse Gas Emissions | • Tribal Cultural Resources |
| • Hazards and Hazardous Materials | • Utilities and Service Systems |



- Hydrology and Water Quality
- Wildfire

Consistent with CEQA Guidelines Section 15162, the purpose of the Initial Study will be to identify those environmental issue areas for which major revisions to the certified EIR are not necessary because no new or substantially more severe significant impacts would result from substantial changes to the Approved Project, substantial changes in circumstances, or new information of substantial importance. The issue areas under which the proposed modifications could result in new or substantially more severe significant impacts will be analyzed in detail in the SEIR. For the purposes of the Initial Study, and to the maximum extent practicable, impacts will be quantified and compared to applicable criteria used to define significant impacts. Under this scope of work, Rincon will respond to up to two rounds of review and comment on the Initial Study, as follows:

- **First Draft Initial Study:** Rincon will provide the First Draft Initial Study within six weeks of approval of the PD (see Task 2.1), assuming no substantive changes to the project design are introduced after approval of the Final PD. The City will provide review and comment on the First Draft Initial Study, with comments provided in an electronic and editable, consolidated format, and with all internal conflicts resolved prior to providing comments to Rincon.
- **Second Draft Initial Study:** Rincon will address City comments on the First Draft Initial Study, incorporate any associated revisions, and produce the Second Draft Initial Study. The City will review the Second Draft Initial Study and provide comments in an electronic and editable, consolidated format, and with all internal conflicts resolved. We assume comments will be limited only to new information included in the Second Draft Initial Study in response to comments on the First Draft Initial Study.
- **Final Initial Study.** The Final Initial Study will be circulated with the NOP for a 30-day public scoping period, during which time comments from agencies, interested parties and the public may be submitted for consideration in preparation of the SEIR, including those related to scope of analysis, as well as the identification and characterization of impacts. The Initial Study will be incorporated by reference and attached as an appendix to the SEIR.

Assumptions

- Rincon will address two rounds of consolidated comments on the Initial Study and NOP.
- Rincon will be responsible for filing the NOP with the County Clerk and SCH.
- Rincon will distribute the NOP via the SCH to State responsible and trustee agencies and via certified mail to up to 15 federal and local agencies. The NOP will be distributed via regular mail to up to 50 other interested parties.
- This scope of work does not include digital accessibility compliance for the Initial Study and NOP, which can be provided for additional scope and cost.
- The Initial Study and NOP will be submitted in electronic format; no hard copies will be provided.
- Far Western will provide the City with assistance related to Assembly Bill 52 tribal consultation. If desired, Rincon can provide this assistance for additional scope and cost.

Task 4.3 Public Scoping Meeting

The purpose of the scoping meeting is to solicit public comments and concerns on the proposed project, for consideration in the CEQA analysis and documentation. Scoping comments are those submitted prior to publication of the draft CEQA document. In comparison to public comments



submitted on the Draft SEIR (see Task 2.5), for which responses are provided in the Final SEIR, responses to scoping comments from commenters are not individually provided.

Under this scope of work, Rincon will support the City in the planning and execution of one public scoping meeting for the proposed project. Rincon's Project Manager will assist the City in preparing a PowerPoint presentation for the public scoping meeting. We assume City staff will present the PowerPoint presentation, which will inform the public about the purpose and design of the proposed modifications to the Approved Project, the CEQA environmental review requirements, the scope of the Initial Study, and the results and recommendations of the Initial Study, as available. The presentation may also include discussion of the environmental issues that will be analyzed in detail in the SEIR. It is anticipated the City will receive comments from the public regarding project purpose, design, and CEQA review. If desired, Rincon can lead the portion of the presentation related to CEQA.

Assumptions

- The City will find and secure a location for the public scoping meeting to occur, and Rincon will attend virtually.
- One preparation meeting up to one hour in length will be held via conference call prior to the scoping meeting.
- The scoping meeting will be up to two hours in length.
- Rincon will address two rounds of consolidated comments on the PowerPoint presentation for the scoping meeting.
- City staff will present the PowerPoint presentation with support from Rincon as needed and receive comments at the scoping meeting.
- The City will collect written and verbal comments from the public during the public scoping meeting and provide those comments to Rincon for consideration in the Initial Study and/or SEIR, as applicable.

Task 4.4 Administrative Draft SEIR

The Administrative Draft SEIR will be prepared in accordance with the CEQA Guidelines 15151, which sets the standards for adequacy of an EIR, and CEQA Guidelines Section 15162, which provides guidance on preparation of an SEIR. The overall approach to the analysis will be to verify and utilize existing data, including technical studies prepared for the proposed modifications as well as the Morro Bay Battery Energy Storage System Project, and supplement where necessary with new information, analysis, or modeling. The Administrative Draft SEIR will also respond to environmental topics raised during the scoping period described under Tasks 2.2 and 2.3.

Under this scope of work, Rincon will respond to up to two rounds of review and comment on the Administrative Draft SEIR, as follows:

- **First Administrative Draft SEIR.** Rincon will provide the First Administrative Draft SEIR within eight weeks of approval of the Final Initial Study (see Task 2.2). The City will provide review and comment on the First Administrative Draft SEIR, with comments provided in an electronic and editable, consolidated format, and with all internal conflicts resolved prior to providing comments to Rincon.
- **Second Administrative Draft SEIR.** Rincon will address City comments on the First Administrative Draft SEIR, incorporate any associated revisions, and produce the Second Administrative Draft SEIR within three weeks of receipt of all comments on the First Administrative Draft SEIR. The City will review the Second Administrative Draft SEIR and provide comments in an electronic and editable, consolidated format, which Rincon will respond to, incorporating associated revisions, to



produce the Draft SEIR for public review within two weeks of receipt of comments on the Second Administrative Draft SEIR (see Task 2.5). We assume comments will be limited only to new information included in the Second Administrative Draft SEIR in response to comments on the First Administrative Draft SEIR.

The main sections of the Draft SEIR are summarized below.

Executive Summary

Rincon will prepare a summary of the proposed modifications and associated environmental consequences, as analyzed in the SEIR. This information will summarize the impacts of the proposed modifications and the proposed mitigation measures in a tabular format to simplify review by decision-makers and the general public. The table will also outline the significance of the environmental impacts of the proposed modifications as compared to the Approved Project. The summary will note the background of the Approved Project and the certified EIR and will summarize any changes to the alternatives analysis contained in the SEIR as compared to that conducted in the certified EIR for the Approved Project.

Introduction and Environmental Setting

Rincon will prepare these sections of the SEIR based on detailed information to be provided by Carollo and Confluence as part of Task 2.1. The Introduction will describe the background of the Approved Project and the relationship of the proposed modifications to the Approved Project as well as provide an overview of CEQA and the overall SEIR methodology. The Environmental Setting will provide a description of the vicinity of the locations of the proposed modifications, including its geographic extent, climatic conditions, and demographic conditions to establish the environmental baseline. The Environmental Setting will also describe the approach to and basis for the cumulative impact analysis.

Environmental Impacts and Mitigation Measures

For the purposes of this proposal, we anticipate the SEIR will focus on evaluating nine environmental resource categories, currently anticipated to be Air Quality, Biological Resources, Cultural Resources, Greenhouse Gas Emissions, Hydrology and Water Quality, Land Use/Planning, Noise, Tribal Cultural Resources, and one other chapter (to be determined in consultation with the City based on comments received during the scoping period).

Each environmental issue addressed in the SEIR will contain the following components:

- Environmental and Regulatory Setting
- Methodology and Thresholds of Significance
- Environmental Impact Analysis (Project-level and Cumulative)
- Mitigation Measures
- Level of Significance after Mitigation

Where practicable, impacts will be quantified. If existing data does not allow quantification, reasonable assumptions based on available evidence will be used to qualitatively forecast potential impacts. Cumulative impacts will be discussed within this analysis but at a lesser level of detail than the project-specific impacts. The cumulative impacts analysis will consider the potential impacts of the proposed modifications, in combination with other existing, planned, and reasonably foreseeable projects and planned growth in Morro Bay. All necessary mitigation measures will be presented in wording that can be directly applied to the proposed modifications and will include monitoring requirements.



A significance determination will be provided for each environmental impact identified in the SEIR. Impacts will be classified as one of the following:

- Significant and unavoidable
- Significant but mitigable to a less-than-significant level
- Less than significant with no mitigation

The discussion of impact significance after mitigation will identify the effectiveness of the mitigation measures and monitoring procedures.

Other CEQA-Required Discussions

Other CEQA-required discussions that will be addressed in the SEIR include irreversible significant effects.

Alternatives

The SEIR will evaluate whether any changes to the Alternatives analysis contained in the certified EIR would occur as a result of the proposed modifications. For the purposes of this scope of work, we assume no changes to the Alternatives analysis will be necessary because no changes to the pipeline alignments (Alternative 2) or the WRF design (Alternative 3) are part of the proposed modifications.

Assumptions

- Up to nine environmental resource categories will be evaluated in the SEIR.
- The City will provide biological, cultural, and paleontological resources technical studies that evaluate the proposed modifications in light of the CEQA Appendix G checklist thresholds.
- Construction-related air pollutant emissions, greenhouse gas emissions, and noise will generally be evaluated qualitatively in comparison to the analysis conducted in the certified EIR with minor quantitative updates where necessary.
- Air quality impacts will be evaluated based on San Luis Obispo County Air Pollution Control District guidance and thresholds of significance.
- Health risk assessments for construction and operation will not be prepared.
- Greenhouse gas emissions impacts will be assessed based on the San Luis Obispo County Air Pollution Control District's threshold of 10,000 metric tons of carbon dioxide equivalents per year, consistent with the analysis contained in the certified EIR.
- No new noise measurements will be conducted.
- Computerized modeling to characterize hydrology, drainage patterns, and other existing physical conditions will not be conducted as part of the SEIR. Rather, existing information including previously prepared maps and models will be utilized to the extent feasible.
- This scope of work does not include hydrogeologic modeling to support the analysis of project impacts to groundwater, which we assume will be provided by Carollo/Confluence or other members of the consultant team if deemed necessary.
- The proposed modifications will result in no changes to the Alternatives analysis contained in the certified EIR.
- Rincon will address two rounds of consolidated comments on the Administrative Draft SEIR. All comments will be provided in an electronic and editable format with internal conflicts resolved prior to transmittal to Rincon.



Task 4.5 Draft SEIR and Notice of Availability

This scope of work assumes the Draft SEIR for public review will consist of the revised version of the Second Administrative Draft SEIR (see Task 2.4), with no additional revisions necessary. Rincon will prepare a website-ready electronic version of the public review Draft SEIR and appendices. This scope of work assumes the City will be responsible for producing hard copies of the Draft SEIR to make the document available for public review in hard-copy format at City Hall and other repository locations selected by the City. This scope of work assumes the City will identify and distribute hard copies to repositories as applicable.

Under Task 2.5, Rincon will also prepare a Notice of Availability (NOA) and Notice of Completion (NOC) for the SEIR and electronically submit the NOA/NOC with the Draft SEIR and appendices to the SCH electronic filing system. Rincon will also file the NOA with the San Luis Obispo County Clerk. No filing fees are anticipated to be required. Rincon will also publish the contents of the NOA in a local newspaper and distribute the NOA to responsible and trustee agencies as well as other interested parties.

The Draft SEIR will remain available for public review and comment for the required 45-day timeframe. During this time, comments will be directed to the City, and the City will forward all comments immediately upon receipt to Rincon for incorporation into the Final SEIR. Rincon will also support the City in the planning and execution of one public meeting during the public review period.

Assumptions

- No City comments will be provided on the Public Review Draft SEIR.
- Rincon will be responsible for filing the NOA with the County Clerk and SCH, publishing the NOA in a local newspaper, and distributing the NOA to responsible and trustee agencies and other interested parties. No filing fees will be required, and the newspaper publication fee will not exceed \$600. The NOA will be distributed via the SCH to State responsible and trustee agencies and via certified mail to up to 15 federal and local agencies. The NOA will be distributed via regular mail to up to 50 other interested parties.
- The City will be responsible for producing and distributing hard copies of the Draft SEIR to repositories.
- This scope of work does not include digital accessibility compliance for the Draft SEIR and noticing, which can be provided for additional scope and cost.
- The Draft SEIR, NOA, and NOC will be submitted in electronic format; no hard copies will be provided.
- The City will forward all comments immediately upon receipt to Rincon for incorporation into the Final SEIR.
- The City will find and secure a location for the public meeting to occur, and Rincon will attend virtually.
- One preparation meeting up to one hour in length will be held via conference call prior to the public meeting.
- The public meeting will be up to two hours in length.
- Rincon will address two rounds of consolidated comments on the PowerPoint presentation for the public meeting.
- City staff will present the PowerPoint presentation with support from Rincon as needed and receive public comments at the public meeting.



- The City will collect written and verbal comments from the public during the public meeting and provide those written comments to Rincon for inclusion in the Final SEIR.

Task 4.6 Administrative Final SEIR

Rincon staff, in coordination with the City, Carollo, and Confluence, will respond to public and agency review comments on the Draft SEIR in accordance with CEQA Guidelines Section 15088. The Final SEIR will consist of the body of the Draft SEIR, as revised based on comments received and City-approved responses to those comments, an additional section including all comment letters in their original form, with individual comments bracketed and numbered, as well as responses to comments (RTCs) and a Mitigation Monitoring and Reporting Program (MMRP). Under this scope of work, Rincon will respond to up to two rounds of review and comment on the Administrative Final SEIR, as follows:

- **First Administrative Final SEIR.** Rincon will provide the First Administrative Final SEIR within four weeks of the close of the 45-day public review period for the Draft SEIR. The City will provide review and comment on the First Administrative Final SEIR, with comments provided in an electronic and editable, consolidated format, and with all internal conflicts resolved prior to providing comments to Rincon.
- **Second Administrative Final SEIR.** Rincon will address City comments on the First Administrative Final SEIR, incorporate any associated revisions, and produce the Second Administrative Final SEIR within three weeks of receipt of City comments. The City will review the Second Administrative Final SEIR and provide comments in an electronic and editable, consolidated format, which Rincon will respond to, incorporating associated revisions, to produce the Final SEIR for consideration by the City Council to approve and certify as satisfying the requirements of CEQA. Rincon will provide the Final SEIR within two weeks of receipt of comments on the Second Administrative Final SEIR.

The main sections of the Final SEIR are described below.

Comment Letters

All comment letters submitted by members of the public, organizations, and agencies to the City during the 45-day public review period for the Draft SEIR will be included in the Final SEIR, with individual comments identified with a unique identification number. This scope of work assumes up to 50 hours of Rincon staff time to prepare comment letters and draft responses (see below); extensive comment letters may require expanded scope and budget. A copy of each comment letter including brackets identifying each comment will be included in the Final SEIR. The brackets and identification numbers facilitate clear and thorough responses to all comments received.

RTCs

Rincon will prepare and submit draft written responses to public comments that pertain to environmental issues for City review. The Responses to Comments document will detail any changes, clarifications, or additions to the Draft SEIR that may be necessary in response to the comments received during public review.

Errata

If any revisions to the information or analysis included in the Draft SEIR are necessary based upon the comments received and the associated RTCs, those revisions will be shown in an Errata section, using underline and ~~strikeout~~ formatting to clearly portray all changes that occurred between the Draft and Final iterations of the SEIR.



MMRP

The MMRP will match the format of the MMRP adopted for the certified EIR and include any changes made to the mitigation measures during preparation of the SEIR.

Assumptions

- Up to 50 hours of Rincon staff time will be required to prepare comment letters and draft responses.
- Carollo and Confluence will provide assistance addressing comments pertaining to project design information and technical data provided or developed by Carollo and Confluence.
- Rincon will address two rounds of consolidated comments on the Administrative Draft SEIR.

Task 4.7 Final SEIR and Notice of Determination

The Final SEIR will consist of the revised version of the Second Administrative Draft SEIR, as discussed above. In addition, Rincon will prepare the CEQA Findings and Facts in Support of Findings (“CEQA Findings”) for the proposed modifications based on the potentially significant impact conclusions of the Final SEIR. If any significant unavoidable environmental impacts are identified, Rincon will also prepare a Statement of Overriding Considerations (SOC) for the proposed modifications.

Rincon will respond to two rounds of review and comment on the CEQA Findings and SOC. This scope of work assumes comments will be minimal and two rounds of review will be sufficient, because the CEQA Findings and SOC will be directly informed by previously-reviewed iterations of the Final SEIR, and no new analysis will be introduced. The CEQA Findings and SOC will be submitted to the Planning Commission and City Council alongside the Final SEIR for consideration of approval of the proposed modifications and certification during regularly scheduled Planning Commission and City Council meetings. Rincon will attend up to two meetings for certification of the Final SEIR (assumed to be one Planning Commission and one City Council) to present on the outcomes of the environmental process and respond to related questions.

Under Task 2.7, Rincon will also prepare a Notice of Determination (NOD) for the proposed modifications. The NOD will be signed by the City upon approval of the proposed modifications and will be filed with the San Luis Obispo County Clerk within five days of approval of the proposed modifications, to initiate the statute of limitations period during which objections to the project may be filed on the basis of the environmental review conducted, including compliance with CEQA requirements. This scope of work assumes Rincon will file the NOD with the County Clerk and SCH and pay the required filing fees for the San Luis Obispo County Clerk and California Department of Fish and Wildlife.

Assumptions

- If the Statement of Overriding Considerations relies on specific economic or financial factors, the financial data to support such conclusions will be provided by the City.
- The SOC, if applicable, will rely on input from the City, Carollo, and Confluence regarding the benefits of the proposed modifications.
- Rincon will address two rounds of consolidated comments on the CEQA Findings and SOC.
- This scope of work does not include digital accessibility compliance for the Final SEIR and noticing, which can be provided for additional scope and cost.



- Rincon will be responsible for filing the NOD with the County Clerk and SCH and payment of the filing fees, which we assume will not exceed a direct cost of \$50 (based on the County's 2023 fee). We assume payment of the California Department of Fish and Wildlife fee will not be necessary because the fee was paid at the time of NOD filing for the certified EIR.
- Rincon will attend up to two meetings for certification of the Final SEIR (one Planning Commission and one City Council), assumed to be held in-person and to be no more than three hours in length, to present on the outcomes of the environmental process and respond to related questions. Rincon will provide input on the PowerPoint presentation for the meetings and attend one preparation meeting up to one hour in length via conference call prior to the meetings. City staff will present the PowerPoint presentation with support from Rincon as needed.
- The Final SEIR, Findings, SOC, and NOD will be submitted in electronic format; no hard copies will be provided.

Task 4.8 CEQA Project Management and Meeting Attendance

Under Task 4.8, Rincon will provide overall project management and coordination for the successful completion of this CEQA scope of work. This task includes the planning and execution of one kickoff meeting for the CEQA scope of work to discuss fundamental process and scope and approach issues, as well as to review and confirm objectives and establish an operational protocol. The kickoff meeting will consist of one, one-hour conference call to confirm project details, review and confirm the proposed deliverable schedule for the project, share and discuss preliminary data requests, and establish a communication protocol. Rincon's Project Manager will plan and conduct the kickoff meeting and include any attendees identified by the City (e.g., Carollo, Confluence).

Rincon's Project Manager will be the primary contact for execution of the approved scope of work and will be responsible for coordinating communication and developing a close working relationship with the project team. This will include participation in biweekly, 30-minute meetings via conference call with the City/Carollo/Confluence team throughout the environmental review process to discuss the budget, schedule, and progress of the project as well as the provision of status updates via email outlining tasks completed, upcoming tasks, details regarding any communications about the project, and deliverable information (including timeline). Rincon will also coordinate with Carollo and Confluence regarding any project description or technical information needed to complete the approved scope of work.

Assumptions

- One, one-hour CEQA kickoff meeting will be held via conference call.
- Check-in meetings will occur on a bi-weekly basis, be up to 30 minutes in length, and be held via conference call.
- Project management will be required over a 12-month period, starting at Notice to Proceed, which will be given no later than December 2023. Should the project schedule extend beyond 12 months, additional project management time would require a scope amendment.

Schedule

The following schedule was developed to identify the projected timeline for each task. Based on the timeframes shown herein, we believe the CEQA/NEPA process can be completed in 12 months of receiving all necessary project information and materials as follows:



- Rincon’s Project Manager will schedule a kick-off meeting within one week of authorization to proceed.
- The First Draft PD will be provided within three weeks of receiving responses to all data requests provided. Assuming two-week review periods, the Final PD will be submitted within 10 weeks of receiving responses to all data requests provided.
- The Draft Initial Study and NOP will be provided within six weeks of approval of the Final PD. Assuming two-week review periods, the Final Initial Study will be submitted within 13 weeks of approval of the Final PD.
- The Initial Study and NOP will be circulated for a 30-day public scoping period within two weeks of approval of the Final Initial Study.
- The First Administrative Draft SEIR will be provided within eight weeks of approval of the Final Initial Study. Assuming three-week review periods, the Draft SEIR and NOA will be submitted within 19 weeks of approval of the Final Initial Study.
- The Draft SEIR and NOA will be circulated for a 45-day public review period within two weeks of approval of the Draft SEIR.
- The First Administrative Final SEIR will be provided within four weeks of the close of the public review period. Assuming two-week review periods, the Final SEIR will be submitted within 13 weeks of approval of the close of the public review period.

Cost

As shown in Table 1, the estimated cost to complete Task 4 outlined above is **\$186,999.55**, which would increase our total authorized budget of \$43,532.00 to **\$230,531.55**.

Table 1 Cost Summary

Task	Estimated Cost
Task 4 Subsequent Environmental Impact Report	
Task 4.1 Project Description	\$10,602.00
Task 4.2 Initial Study and NOP	\$22,200.95
Task 4.3 Public Scoping Meeting	\$3,741.00
Task 4.4 Administrative Draft SEIR	\$80,135.00
Task 4.5 Draft SEIR and NOA	\$10,535.70
Task 4.6 Administrative Final SEIR	\$20,797.00
Task 4.7 Final SEIR and NOD	\$19,272.90
Task 4.8 CEQA Project Management and Meeting Attendance	\$19,715.00
Total Task 4 Budget	\$186,999.55

Thank you for your consideration and for this opportunity to support your project. This offer for professional services will remain in effect for a period of 30 days from the date of this proposal. If you have any questions regarding this proposal, please contact Annaliese Torres at 657-999-8337 or atorres@rinconconsultants.com.



Sincerely,
Rincon Consultants, Inc.

A handwritten signature in blue ink that reads "Annaliese Torres".

Annaliese Torres
Senior Environmental Planner/Project
Manager

A handwritten signature in blue ink that reads "Megan Jones".

Megan Jones, MPP
Principal



Standard Fee Schedule for Environmental Sciences and Planning Services

Professional, Technical, and Support Personnel*	2023	2024	2025	2026
	Jul 1 – Dec 31	Jan 1 – Dec 31	Jan 1 – Dec 31	Jan 1 – Dec 31
Senior Principal	\$308	\$319	\$330	\$342
Principal	\$297	\$307	\$318	\$329
Director	\$297	\$307	\$318	\$329
Senior Supervisor II	\$282	\$292	\$302	\$313
Supervisor I	\$263	\$272	\$282	\$291
Senior Professional II	\$246	\$255	\$264	\$273
Senior Professional I	\$230	\$238	\$246	\$255
Professional IV	\$204	\$211	\$218	\$226
Professional III	\$189	\$196	\$203	\$210
Professional II	\$168	\$174	\$180	\$186
Professional I	\$150	\$155	\$160	\$166
Associate III	\$126	\$130	\$135	\$139
Associate II	\$113	\$117	\$121	\$125
Associate I	\$105	\$109	\$113	\$117
Field Technician	\$91	\$94	\$97	\$101
Data Solutions Architect	\$189	\$196	\$203	\$210
Senior GIS Specialist	\$181	\$187	\$194	\$200
GIS/CADD Specialist II	\$161	\$167	\$173	\$179
GIS/CADD Specialist I	\$145	\$150	\$155	\$161
Technical Editor	\$142	\$147	\$152	\$157
Project Accountant	\$121	\$125	\$129	\$134
Billing Specialist	\$103	\$107	\$111	\$115
Publishing Specialist	\$116	\$120	\$124	\$129
Clerical	\$103	\$107	\$111	\$115

* Professional classifications include environmental scientists, urban planners, biologists, geologists, marine scientists, GHG verifiers, sustainability experts, cultural resources experts, and other professionals. Expert witness services consisting of depositions or in-court testimony are charged at the hourly rate of \$400.

Reimbursable Expenses

Direct Cost	Rates
Photocopies – B/W	\$0.25 (single-sided), \$0.45 (double-sided)
Photocopies – Color	\$1.55 (single-sided), \$3.10 (double-sided)
Photocopies – 11” by 17”	\$0.55 (B/W), \$3.40 (color)
Oversized Maps	\$8.50/square foot
Digital Production	\$15/CD, \$20/flash drive
Light-Duty and Passenger Vehicles*	\$90/day
4WD and Off-Road Vehicles*	\$150/day

*Current IRS mileage rate for mileage over 50 and for all miles incurred in employee-owned vehicles.

Other direct costs associated with the execution of a project, that are not included in the hourly rates above, are billed at cost plus 16%. These may include, but are not limited to, laboratory and drilling services, subcontractor services, authorized travel expenses, permit charges and filing fees, mailings and postage, performance bonds, sample handling and shipment, rental equipment, and vehicles other than covered by the above charges.

Annual Escalation. Standard rates subject to 3.5% annual escalation, on Jan 1.

Payment Terms. All fees will be billed to Client monthly and shall be due and payable upon receipt or as indicated in the contract provisions for the assignment. Invoices are delinquent if not paid within 10 days from receipt or per the contractually required payment terms.

Effective July 1, 2023



Equipment	Rate
Environmental Site Assessment	
Soil Vapor Extraction Monitoring Equipment	\$160
Four Gas Monitor	\$137
Flame Ionization Detector	\$110
Photo Ionization Detector	\$82
Hand Auger Sampler	\$62
Water Level Indicator, DC Purge Pump	\$46
CAPDash	\$7,500
Natural Resources Field Equipment	
UAS Drone	\$276
Spotting or Fiberoptic Scope	\$170
Pettersson Bat Ultrasound Detector/Recording Equipment	\$170
Sound Level Metering Field Package (Anemometer, Tripod and Digital Camera)	\$113
GPS (Submeter Accuracy)	\$67
Infrared Sensor Digital Camera or Computer Field Equipment	\$57
Scent Station	\$23
Laser Rangefinder/Altitude	\$11
Pitfall Traps, Spotlights, Anemometer, GPS Units, Sterilized Sample Jar	\$9
Mammal Trap, Large/Small	\$1.55/\$0.55
Water and Marine Resources Equipment	
Boat (20-foot Boston Whaler or Similar)	\$800
Multiparameter Sonde (Temperature, Conductivity, Turbidity, DO, pH) with GPS	\$170
Water Quality Equipment (DO, pH, Turbidity, Refractometer, Temperature)	\$62
Refractometer (Salinity) or Turbidity Meter	\$38
Large Block Nets	\$114
Minnow Trap	\$98
Net, Hand/Large Seine	\$57
Field Equipment Packages	
Standard Field Package (Digital Camera, GPS, Thermometer, Binoculars, Tablet, Safety Equipment, and Botanic Collecting Equipment)	\$114
Remote Field Package (Digital Camera, GPS, Thermometer, Binoculars, Tablet and Mifi, Delorme Satellite Beacon, 24-Hour Safety Phone)	\$144
Amphibian/Vernal Pool Field Package (Digital Camera, GPS, Thermometer, Decon Chlorine, Waders, Float Tube, Hand Net, Field Microscope)	\$170
Fisheries Equipment Package (Waders, Wetsuits, Dip Nets, Seine Nets, Bubblers, Buckets)	\$57
Underwater and Marine Sampling Gear (Photo/Video Camera, Scuba Equipment [Tanks, BCD, Regulators, Wetsuits, etc.])	\$57/diver
Marine Field Package (Personal Flotation Devices, 100-foot Reel Tapes with Stainless Carabiners, Pelican Floats, Underwater Slates, Thermometer, Refractometer, Anemometer, Various Field Guides)	\$100
Insurance, Hazard, and Fees	
Historic Research Fees	\$55
L&H Dive Insurance	\$57/diver
Level C Health and Safety	\$70/person

**AMENDMENT NO. 3 TO THE
AGREEMENT FOR CONSULTANT SERVICES
AMONG THE CITY OF MORRO BAY AND
GSI WATER SOLUTIONS, INC.**

This Amendment No. 3 is entered by and between the CITY OF MORRO BAY, a municipal corporation (City), and GROUND WATER SOLUTIONS INC., dba GSI WATER SOLUTIONS INC., an Oregon corporation (Consultant). City and Consultant are sometimes referred to individually as “Party” and collectively “Parties.”

RECITALS

WHEREAS, City and Consultant entered into an agreement as of October 31, 2018, whereby Consultant agreed to perform Phase 1 and Phase 2 hydrogeological services to support the permitting and design of injection wells for potable reuse for the Water Reclamation Facility (Project), which was approved by the City Council for a not to exceed amount of \$351,000.00 (Agreement); and

WHEREAS, on November 10, 2020, the City Council reviewed and approved changes for the Project that would increase the not to exceed amount for Consultant’s services set forth in the Agreement by a not to exceed amount of \$530,000.00 (from \$351,000.00 to \$881,000.00) for Consultant’s satisfactory completion of Phase 3 for the Project (Amendment No. 1); and

WHEREAS, included in the Agreement as amended by Amendment No. 1 is an approved contingency amount of up-to \$220,250, or 25 percent of the amount to be paid for Consultant’s services that could be authorized by the City Manager for additional services (Contingency); and

WHEREAS, the City Manager previously authorized use of \$52,650.00 of the Contingency budget for previously completed work outside of the original scope of services to increase the authorized budget for Consultant’s services to not exceed a total amount of \$933,650.00, and thus the sum of \$167,600.00 of the Contingency is remaining; and

WHEREAS, through the course of providing the requested services in Agreement, as amended, numerous challenges (associated with permitting, well site access, coordination with other Project work and other requests from City) have been satisfactorily responded to by Consultant. These additional, out-of-scope services from Consultant have resulted the need to again use a portion of the Contingency; and

WHEREAS, Consultant has provided a proposal for the completion of the requested services for an amount not to exceed \$147,213.00; and

WHEREAS, on May 8, 2023, the Interim City Manager reviewed and approved changes for the Project that would increase the not to exceed amount for Consultant’s services by \$147,213.00,

from \$933,650.00 to \$1,080,863.00, through use of the remaining Contingency budget for Consultant's satisfactory completion of Phase 3 for the Project and memorialized such approval as Amendment No. 2 to the Agreement (Amendment No. 2); and

WHEREAS, the Agreement, Amendment No.1, and Amendment No. 2 are hereinafter referred to as the "Amended Agreement"; and

WHEREAS, the City requires additional Hydrogeologic Technical Support services to support the implementation of the Recycled Water Component of the Water Reclamation Facility Program; and

WHEREAS, Consultant has specific knowledge and experience to provide technical oversight needed to accomplish necessary tasks required to meet the City Council's goals for the Project.

NOW, THEREFORE, City and Consultant mutually agree to amend the Amended Agreement as follows:

1. Unless otherwise expressly stated herein or the context requires, all terms shall have the same meaning as provided in the Amended Agreement.
2. The revised scope of services to be provided by Consultant, pursuant to the Amended Agreement, as hereby amended, shall include Tasks 1-3 of the Phase 4 Scope of Work and Fee Rates, as set forth in Exhibit A, which are incorporated herein by this reference.
3. The compensation to be paid for the Phase 4 Scope of Work shall be paid in accordance with the terms of the Amended Agreement on a time and material basis and shall increase the previous not to exceed amount of One Million Eighty Thousand Eight Hundred Sixty-three Dollars and No Cents (\$1,080,863.00) by Two Hundred Thirty Thousand Nine Hundred Dollars and No Cents (\$230,900.00), for a new revised total not to exceed amount for Consultant's services of One Million Three Hundred Eleven Thousand Seven Hundred Sixty-Three Dollars and No Cents (\$1,311,763.00). Consultant shall not be additionally compensated for any services rendered in connection with its performance of the Phase 4 Scope of Work, which are in addition to those set forth herein, unless such additional services are authorized in advance and in writing by the City Manager in accordance with the Amended Agreement.
4. This Amendment No. 3 ratifies all prior amendments to, and the, Agreement. The expiration date for the Amended Agreement, as hereby ratified, is extended through December 31, 2025.
5. Except as expressly stated herein, all other terms and conditions in the Amended Agreement shall remain in full force and effect.
6. The effective date of this Amendment No. 3 shall be deemed to be June 30, 2020, excepting that the terms of Sections 2 and 3 hereof shall take effect November 14, 2023.

IN WITNESS WHEREOF, the Parties have caused this Amendment No. 3 to be executed by their duly authorized representatives.

CITY OF MORRO BAY
a municipal corporation

GSI WATER SOLUTIONS, INC.

By: _____
Yvonne Kimball,
City Manager

By: _____
Tim Thompson,
Principal Water Resources
Consultant

Dated: November __, 2023

Dated: November __, 2023

By: _____
Its _____

Dated: November __, 2023

Attest:

Dana Swanson, City Clerk

Approved As To Form:

Chris Neumeyer, City Attorney



October 17, 2023

Mr. Greg Kwolek
Director of Public Works
City of Morro Bay
gkwolek@morrobayca.gov

RE: Proposal for GSI Phase 4 Professional Services for IPR Project Development

Dear Mr. Kwolek,

GSI Water Solutions (GSI) is pleased to provide this proposal to the City of Morro Bay (City) to continue the project planning, permitting and technical analyses needed for the City's planned indirect potable reuse (IPR) project that will use highly treated recycled water from the City's planned Water Reclamation Facility (WRF).

As you know, GSI has been involved in several aspects of the City's work to implement the IPR project, and understands the technical, institutional, and regulatory challenges that need to be addressed to make this project a success. GSI personnel have been supporting the City on this effort since 2015, and we bring a wealth of institutional understanding and experience to the project.

We recommend conducting the tasks identified in this scope of work based upon our understanding of the anticipated needs of the project. We believe this will provide the level of accuracy and technical documentation that is needed for the successful permitting and implementation of this project.

We are excited about the opportunity to continue our partnership with you, and to support the City's goal of diversifying their water supply portfolio and reducing reliance on variably available imported water from the State Water Project. Thank you for your consideration of our proposal.

Sincerely,
GSI Water Solutions

A handwritten signature in blue ink that reads "Tim Thompson".

Tim Thompson, PG, CHG
Principal Water Resources Consultant

A handwritten signature in blue ink that reads "Dave O'Rourke".

Dave O'Rourke, PG, PE
Principal Hydrogeologist

Proposal

Phase 4 Scope of Work: IPR Project Development

Summary of Work Conducted to Date

As part of the City of Morro Bay's plan to augment its water supply with recycled water, GSI has conducted a series of evaluations to determine the feasibility of injecting and subsequently recovering highly-treated recycled water. The project area is located west of Highway 1 as shown on Figure 1.

To date GSI has prepared several technical documents as follows:

1. In 2017 GSI:
 - a. Developed a screening level groundwater model of the lower Morro Valley (May, 2017),
 - b. Characterized the condition of the "desalination" wells located along Embarcadero and Colman Drive, (May, 2017), and
 - c. Conducted an evaluation of the Chorro Valley as a potential area for locating the IPR project (May, 2017).
2. In 2019, GSI used the groundwater model to conduct a series of water quality scenarios that documented the IPR project would improve water quality conditions in the Basin (April, 2019). GSI also conducted field evaluations to characterize the two potential project areas in the Lower Morro Valley (March, 2019)).
3. In 2020, GSI evaluated data collected during 2019 and 2020 and performed groundwater model scenarios leading to the recommendation that the Western project area be selected as the preferable area for the IPR project based upon hydrogeologic and logistical information (June, 2020).
4. GSI summarized the water level and production data, along with aquifer testing details from pumping tests conducted as part of the characterization of the Narrows and Western areas (August 10, 2020).
5. GSI conducted several groundwater model updates, model calibration and additional scenarios to evaluate phased implementation of the IPR project with new potential locations for injection wells in support of increasing retention times with key assumptions (i.e., selected City wells converted to monitoring wells; dated August 7, 2020).
6. GSI assisted the City with ongoing monitoring of Basin groundwater conditions during operation of production wells, during construction dewatering of a project pumping station, and other times, summarizing the results from deployment of a series of water level recording devices installed in the City's production and desalination wells.
7. GSI has designed, permitted, installed and tested the initial injection well.

8. GSI has conducted detailed groundwater modeling, including a range of scenarios to support well site selection, Regional Board permitting considerations and project operational analyses.
9. GSI has supported the Carollo Engineers and the City in discussions and planning with the Regional Board to guide the development of a Groundwater Replenishment and Reuse Permit (GRRP), including completion of the 4 consecutive quarterly groundwater sampling events as required prior to issuance of the permit.
10. GSI conducted geochemical modeling as required by the Regional Board to evaluate the potential of geochemical reactions that could occur as a result of the proposed IPR activities.
11. Most recently, GSI prepared the Basis of Design Report for Groundwater Injection, Monitoring and Extraction (BOD Report), which involved a robust review of historical hydrogeologic data from projects dating back to the 1990s, detailed injection well design, installation and testing, groundwater modeling of project scenarios, summary of water quality considerations, recommendations for monitoring well locations, and regular coordination with Recycled Water (RW) team members.
12. GSI has provided ongoing support to the City regarding evaluation and cost estimates of future City production wells, technical support for grant applications, maintenance of continuous hydrogeologic data collection, and response to any other ancillary requests arising during the operation and maintenance of the City's groundwater production facilities.

As documented in GSI's BOD Report, the proposed IPR program is technically feasible and permissible. The results of the BOD report and associated hydrogeologic work conducted to date, including the extensive field exploration and groundwater modeling, provide adequate support for recommending the following tasks be conducted to continue with the permitting and implementation elements of the IPR project.

PHASE 4 SCOPE OF WORK

Based on the results of these investigations, the IPR project appears to be feasible and is recommended using a series injection wells to be located south of Morro Creek and parallel to the coast along Atascadero Road. This Phase 4 scope of work provides descriptions of the next steps associated with continued planning and implementation of the IPR project, which will include:

1. Evaluate options for locations anticipated injection rates for the initial IPR program wells, plan and run a 30-day injection test, conduct groundwater modeling scenarios, and provide updates to the BOD Report in response to comments from City staff, consultants, and the public.
2. Support for preparation of project's Report of Waste Discharge report, Title 22 Engineering Report, and ASR permit extension. This work includes coordination with Carollo and DDW regarding project design to meet requirements of DDW's GRRP permit.
3. Attend regular team meetings and Project Management

The following text describes the details of these task items.

Task 1: Evaluate options for initial IPR program facilities

- a. Coordinate with Recycled Water program team to select locations for two additional injection wells, and to provide estimate of injection rates, and delineation of operational schedule.
- b. At the City's discretion, plan for and implement an additional injection test at IW-1, possibly including either an added or an intrinsic tracer. The test may be conducted while City production wells are running if logistical considerations can be met. City staff will be requested to conduct a portion of the necessary field support during the test.
- c. Plan for and conduct additional groundwater modeling scenarios. Assume a need for 4 additional scenarios to capture conditions during the expected phased implementation of the program during which 3 injection wells will be operating initially, and additional wells during later phases. Modeling scenario results will be documented with a technical memorandum.
- d. Prepare additional refinements and updates to BOD report, as requested by the RW Team, including development of groundwater model calibration and sensitivity analyses (documented in a stand-alone technical memorandum). Respond to technical comments on calibration and sensitivity analysis technical memorandum.

Task 2: Permitting Support

- a. Complete preparation of portions of Title 22 Engineering Report in coordination with Carollo Engineers. Sections to include: Hydrogeologic setting, anti-degradation analysis, summary of groundwater modelling, specification of future injection and monitoring well locations, analysis of retention time (RT) calculations, calculation of the response retention time (RRT), identification of anticipated monitoring requirements and compliance requirements, geochemical evaluation summary, results of quarterly monitoring, designation of zone of control for future well construction and operation schedule for injection and pumping.
- b. Prepare technical sections of ROWD in coordination with Carollo Engineers, including preparation of optimization operations plan (OOP) for injection wells, summary of groundwater quality data and preparation of the required tracer test workplan to be implemented after project startup.
- c. Work with the Regional Board to secure a revised ASR permit to cover the time period for the proposed second injection test. The 24-month time period for the existing ASR permit has expired. Provide ongoing compliance monitoring and reporting for the City's existing ASR Permit from Regional Board.

Task 3: Meetings and PM

- a. Regular Recycled Water Facilities Team meetings and other meetings with team members from October 2023 through June 2024 (18 meetings, twice a month).
- b. Attendance at City meetings in Fall of 2023: PWAB and City Council

Budget

The following table presents an estimated budget for this Phase 4 Scope of Work. We propose to conduct this work on a time-and-materials basis in accordance with the attached rate schedule. We will not exceed this budget without prior approval. Costs for any water quality laboratory costs will be contracted directly to the City, with GSI providing oversight and approvals.

Description	Total Labor Hours	Principal Hours	Supervisor Hours	Staff Hours	Labor Cost	Total
Task 1 – Evaluate Options for initial IPR Program Facilities	603	215	260	128	\$132,755	\$132,755
Subtask 1 – Select Locations for 2 additional injection wells	45	0	0	0	\$12,225	\$12,225
Subtask 2 – Additional injection testing at IW-1	202	56	80	66	\$38,470	\$38,470
Subtask 3 – Conduct Additional Modeling Scenarios	180	50	100	30	\$41,350	\$41,350
Subtask 4 – Refinements to BOD Report	176	64	80	32	\$40,710	\$40,710
Task 2 – Permitting Support	410	124	108	178	\$78,920	\$78,920
Subtask 1 – Prepare Title 22 Engineering Report sections	122	44	40	38	\$25,140	\$25,140
Subtask 2 – Prepare ROWD Report sections	192	56	48	88	\$36,600	\$36,600
Subtask 3 – ASR Permit Extension and Compliance Reporting	96	24	20	52	\$17,180	\$17,180
Task 3 – Meetings and PM	75	65	0	10	\$19,225	\$19,225
Subtask 1 – Regular Meetings (9 months)	75	65	0	10	\$19,225	\$19,225
Project Totals	1088	404	278	406	\$230,900	\$230,900