

Monterey County Water Resources Agency



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Interlake Tunnel and San Antonio Spillway Modification Assessment Engineers Report

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INDEPENDENT PUBLIC FINANCE ADVISORS

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Executive Summary

This report serves as the detailed engineer's report required by Section 4(b) of Article XIII D of the California Constitution, Proposition 218, to support the assessments proposed to be levied within the benefit assessment area being established in the County of Monterey, California. This assessment would, if approved and passed, fund Monterey County Water Resources Agency (MCWRA) with the capital costs of the Interlake Tunnel and San Antonio Dam Spillway Modification Project (Project). The discussion and analysis contained within this report constitutes the required nexus of rationale between assessment amounts levied and benefits derived by real properties within the proposed Zone 2E Assessment District.

The proposed assessment is set to recover MCWRA's total Project costs for the construction of the Interlake Tunnel and San Antonio Dam Spillway Modifications needed to:

- Minimize flood control releases through the Nacimiento Dam Spillway and reduce associated downstream flood damage.
- Increase the overall surface water supply available from Nacimiento and San Antonio Reservoirs by maximizing the opportunity for water to be collectively stored in the reservoirs.
- Improve the hydrologic balance of the Salinas Valley Groundwater Basin (Basin) and reduce seawater intrusion.
- Continue to meet downstream environmental flow requirements for south-central California coast steelhead.
- Minimize the impact on existing hydroelectric production.
- Protect agricultural viability and prime agricultural land.

Assessment law does not specify the method or formula that should be used to apportion assessments. Since this Project is still in a preliminary phase, this report provides three options for allocating Project benefits.

This report relies on data provided by the 2003 RMC Engineer's Report, the 2024 West Yost Historical Benefits Analysis Update, and other data provided by MCWRA staff related to this Project.

This Engineer's Report includes the following Parts:

Part I - Project Description: A background of the Nacimiento and San Antonio Reservoirs and Dams, and a general description of the proposed Project and its components.

Part II - Estimate of Costs: An estimate of the costs of the proposed Project including a breakdown of costs for the Interlake Tunnel and the modifications to the spillway.

Part III - Assessment Zone Boundary: A description of the proposed assessment zone boundary.

Part IV - Assessment Methodology: A description of the assessment methodology used to develop the assessment roll for the Proposition 218 Special Assessment election.

Part V - Assessment Roll: The proposed assessment is based on a portion of the costs and expenses of the proposed improvements in proportion to the estimated special benefits to be received by properties within the Assessment District from said improvements. The Assessment Roll also includes the Assessor's Parcel Number corresponding to each property within the Assessment District as recorded in the County of Monterey Assessor's Office.

Pursuant to the provisions of law and the Resolution of Intention, the costs and expenses of the Zone 2E Assessment District have been assessed upon each of the parcels of land benefitted in direct proportion and relation to the estimated special benefits to be received by each of the parcels.

Part VI - Maximum Annual Administration Assessment: A proposed maximum annual administration assessment upon each parcel to pay costs incurred by the Agency resulting from the administration and collection of assessments and/or administration and registration of bonds and other funds, if required.

1 PROJECT SUMMARY

The proposed Project includes the construction of a water conveyance tunnel approximately 2 miles long connecting the Nacimiento Reservoir to the San Antonio Reservoir (Interlake Tunnel) and modifications to the existing spillway at the San Antonio Reservoir (Spillway Modification) to enhance water supply and flood control capabilities. The Project has been under consideration since the late 1970s and was included in MCWRA's July 1991 Water Facilities Capital Plan, as an approach to better manage flood and conservation flows in the Salinas River watershed. More recently, the proposed Project was included in the 2013 Greater Monterey County Integrated Regional Water Management Plan and in May 2014, a group of Salinas Valley growers revitalized the urgency water storage projects due to the ongoing multi-year drought. Additional details on the history of the Project and its description are provided below.

1.1 BACKGROUND

MCWRA is responsible for managing, protecting, and enhancing water supply and quality as well as providing flood protection in the County of Monterey. The Agency was formed under Chapter 699 of the Statutes of 1947 as the Monterey County Flood Control and Water Conservation District. In 1990, MCWRA had its mandate updated: to provide for the control of flood and storm waters, conservation of such waters through storage and percolation, control of groundwater extraction, protection of water quality, reclamation of water, exchange of water, and the construction and operation of hydroelectric power facilities.

Construction of the Nacimiento Dam was completed in 1957 and the San Antonio Dam was completed in 1967. Both dams, and the associated reservoirs, were constructed and are owned by MCWRA and serve as flood control, water conservation, and recreation facilities.

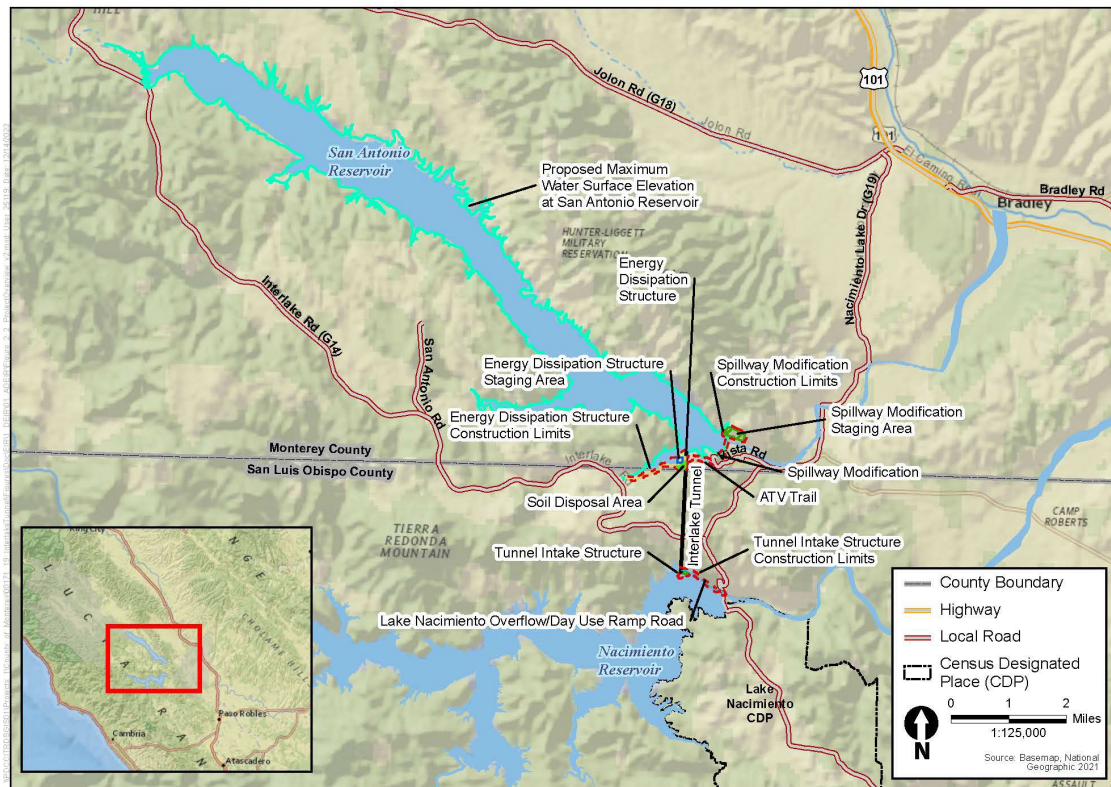
1.2 PROJECT DESCRIPTION

The Nacimiento Reservoir fills approximately three times faster than the San Antonio Reservoir, resulting in the possibility of unused storage in the San Antonio Reservoir when the Nacimiento Reservoir is at capacity and releasing flood spills.

The San Antonio Dam Spillway Modification (Spillway Modification) would include removal and replacement of the existing ogee spillway crest control hydraulic structure with a new labyrinth weir structure. The Spillway Modification would provide an up to 7-foot increase in the reservoir's maximum water surface elevation (WSE), effectively increasing San Antonio Reservoir's storage capacity by up to approximately 41,000 acre-feet without raising the height of the dam itself.

Construction of the Interlake Tunnel connection would provide the conveyance means to transfer water from the Nacimiento Reservoir to the San Antonio Reservoir before it is spilled in a flood release. Additionally, water could be transferred from the Nacimiento Reservoir at appropriate times to maximize the net storage of the combined reservoirs. The Interlake Tunnel would be approximately 11,000 feet (2.06 miles) long and have a minimum inner diameter of 10 feet. Figure 1 shows an overview of the proposed Interlake Tunnel and associated components.

Figure 1: Interlake Tunnel



2 ESTIMATE OF COSTS

MCWRA estimated the Project cost to be \$264,580,290 in 2023. The cost breakdown is inclusive of Project development, construction, spillway modification, administrative costs, capitalized O&M costs, capital equipment replacements, financing fees, contingency, and escalation. Using the ENR CCI from December 2023, the Project cost was escalated to 2024 dollars, bringing the total Project cost \$271,402,731 in 2024.

The Project assumes 50% grant funding and annual payments reflecting a 30 -year bond with 5% interest for the remaining portion of costs. Table 1 below provides a cost breakdown for each cost component and the annual payment from financing.

Table 1: Total Project Cost with Inflation

Project Cost	2023 Dollars	2024 Dollars¹
Project Development	\$15,064,920	\$15,453,383
Construction	160,637,490	164,779,672
Spillway Modification	8,757,450	8,983,269
Management & Administration	21,174,660	21,720,668
Capitalized O&M Costs	23,381,280	23,984,187
Capital Equipment Replacement Fund	6,767,280	6,941,780
Financing Fees	3,388,320	3,475,691
Contingency & Escalation	\$25,408,890	\$26,064,081
TOTAL	\$264,580,290	\$271,402,731
Grant	50%	<u>\$135,701,365</u>
Debt Funded Amount		\$135,701,365
Annual Payment²		<u>\$8,827,569</u>

¹ Escalated to 2024 dollars using ENR CCI 20 Cities, December 2023.

² Annual payment reflects financing of 5% interest over 30 years.

3 ASSESSMENT OF ZONE BOUNDARY

The following section provides a description of the assessment zone boundaries, and the potential subareas boundaries, for the proposed Zone 2E Assessment District.

3.1 ZONE 2E ASSESSMENT BOUNDARY

The proposed assessment zone boundary is equivalent to the existing MCWRA assessment Zone 2C boundary.

There are seven distinct subareas within Zone 2E (Figure 2). Six subareas receive benefits from MCWRA Dam Operations; the Above Dam subarea is not included here. These subareas are:

- East Side
- Pressure
- Forebay
- Arroyo Seco
- Upper Valley
- Below Dam

Historical work has shown that each of the subareas identified within the Salinas Valley Groundwater Basin are hydraulically connected, but due to their varying geology and geography they receive varying levels of benefits from the operation of the two Reservoirs. Portions of the upper Arroyo Seco Cone area have been described as predominantly receiving recharge from the Arroyo Seco River.

Figure 2: Map of Zone 2C



4 ASSESSMENT METHODOLOGY

The following section provides an overview of current assessment law and the assessment methodology for the proposed Assessment developed for the Zone 2E Assessment District.

4.1 ASSESSMENT LAW

Projects typically confer a combination of both general and special benefits to properties. Under California law, the only Project costs that can be assessed to properties are those that provide a special benefit to the assessed properties. This means that no assessment may exceed the proportional special benefit conferred on the assessed parcel; and that publicly owned parcels shall not be exempt from the assessment unless clear and convincing evidence demonstrates that such publicly owned parcels receive no special benefits from the improvements for which the assessments are imposed.

General enhancement of property does not constitute special benefit. It is therefore necessary to identify the special benefits that the works of improvement will render to the properties within an assessment district. It is also necessary that the properties receive a special and direct benefit as distinguished from benefit to the general public.

MCWRA's mission is to manage water resources sustainably while minimizing impacts from flooding for present and future generations. The Project will allow MCWRA to operate the Reservoirs at maximum possible capacity, for the primary purpose of providing sustainable water supply and flood protection to parcels within the Zone 2E Assessment District. The MCWRA Board of Supervisors may take final action and establish the Zone 2E Assessment District once all Proposition 218 requirements have been met. Proposition 218 Requirements are listed in the following section.

Assessment law does not specify the method or formula that should be used to apportion assessments.

4.1.1 Proposition 218 Requirements

In November 1996, the California voters approved Proposition 218, the "Right to Vote on Taxes Act", Articles XIII C and XIII D to the California Constitution. Proposition 218 imposes requirements for the levying of assessments. Before a public agency can levy a new or increased assessment, the following requirements must be met:

- 1) Preparation of a detailed engineer's report by a registered engineer certified by the State of California that calculates the proposed assessment for each parcel.
- 2) The record owner of each parcel must be given written notice by mail of the proposed assessment, the total amount chargeable to the entire District, the amount chargeable to the

owner's particular parcel, the duration of the payments, the reason for the assessment as a special benefit, and the basis upon which the amount of the proposed assessment was calculated.

- 3) Notice to the record owner must include the time, date, and location of the public hearing on the assessment. Each notice must also include a summary of the procedures applicable to the completion, return, and tabulation of the ballots, and a disclosure statement that a majority protest will result in the assessment not being imposed.
- 4) Each notice mailed to parcel owners must contain a ballot including the agency's address for receipt of the completed ballot by any owner receiving the notice. The ballot form must include the owner's name, reasonable identification of the parcel, the amount of proposed assessment, and his or her support or opposition to the proposed assessment.
- 5) A public hearing to consider protests and tabulate the ballots must be conducted not less than 45 days after mailing the notice to landowners.
- 6) The agency shall not impose an assessment if there is a majority protest. A majority protest exists if the ballots submitted in opposition to the assessment exceed the ballots submitted in favor of the assessment. In tabulating the ballots, the ballots must be weighted according to the proportional financial obligation of the affected property.
- 7) The assessment may include an annual adjustment tied to a cost inflator such as the Consumer Price Index (CPI).

The proposed assessment calculated in this engineer's report was developed pursuant to Article XIII D of the California Constitution.

4.2 PROJECT BENEFITS

The proposed assessment examined the benefits resulting from the proposed Project. These benefits are primarily the enhancement of 1.) the water supply and 2.) flood protection within the study area Zone 2E Assessment District. These benefits were found to be a direct result of the Project and would not materialize without construction of the Interlake Tunnel and San Antonio Spillway Modification Project. General benefits identified are not included in the proposed assessments because they are not special benefits to property owners in the Zone 2E Assessment District.

4.2.1 Water Supply Benefits

The Interlake Tunnel and San Antonio Spillway Modification Project increases the reliability and potential amount of water supply. Improved water supply conditions among the reservoirs also allows for heightened water conservation storage. Without Project enhancements, water unable to be stored in the reservoirs, percolate into underlying aquifers, be rediverted at the Salinas River Diversion Facility, or be directly used would otherwise be lost to the Monterey Bay. With the reservoir enhancements in place, additional water supply collected during the wet weather season may be made available for release during the subsequent seasons. The stored water may also be

released to increase groundwater recharge in the Salinas Valley. Increase in groundwater recharge would likely result in additional benefits, including increased water supply levels, reduction of seawater intrusion, improved general groundwater quality, drought protection, preservation of aquifer storage, and timing and location of recharge in relation to the timing and location of groundwater pumping.

The Project also provides the benefit of reducing or slowing the advancement of seawater intrusion. Seawater intrusion is considered an extreme event as it can threaten health, crops, and other ecosystems reliant on sources of fresh water supply. Seawater intrusion is the process by which saltwater moves into freshwater aquifers, contaminating groundwater, and potentially making it unstable for drinking and other purposes and is associated with groundwater overdraft and lower water supply levels. The increased water storage resulting from the Interlake Tunnel and the modification of the spillway enhances protection against the likelihood of this event.

4.2.2 Flood Control Benefits

Flood protection is another benefit resulting from the construction and operation of the Project. Increased flood protection is achieved through increased storage of river flows to reduce the peak flows downstream of the reservoirs. The reduction in flows results in decreased frequency and magnitude of flooding events, resulting in fewer inundated acres. Analysis has been performed to quantify the level of flood protection benefit received due to the Project.

4.2.3 General Benefits

The proposed Project also provides additional benefits to the public at large. Both the Nacimiento and San Antonio Reservoirs have provided recreational opportunities to the area since the reservoirs began operation. These recreation and tourism activities provide certain economic benefits to the area. Such activities may increase as a result of the Project.

The Project may also, through the enhancements to water supply sustainability and flood control, impact stream flows throughout the area which support fish and wildlife habitats. Studies are ongoing on how to operate the reservoirs to maximize benefits for fish and wildlife in the area.

These economic and environmental benefits will not provide the study area with additional water supply sustainability or flood control and are therefore considered general benefits and not included as part of the proposed assessments presented in this report. MCWRA intends to evaluate and quantify economic benefits in further detail in an Economics Benefits Analysis.

4.2.4 Benefit Allocation

There are numerous reasonable ways to allocate the benefits of the Project between the three benefit categories identified above. Ultimately, deciding the manner and measure for allocating the benefits will involve a qualitative analysis. The weighting factors identified by the Cost Allocation Committee (CAC) formed by MCWRA for the Zone 2C assessment in 2003 to support the existing infrastructure are one reflection of the portion of benefits because they reflect the importance of each benefit category. As the Project enhances the functions of the existing infrastructure, the 2003

analysis provides a reasonable apportionment of the Project benefits. The Project benefit allocation applied to the Project costs is summarized in the Table below.

Table 2: Cost Allocation

Benefit	Allocation¹	Allocated Cost
Water Supply	66.7%	\$5,885,046
Flood Control	25.0%	\$2,206,892
General Benefit	8.3%	\$735,631
Total Annual Cost:	100.0%	\$8,827,569

¹ Based on 2003 RMC Engineer's Report.

4.3 ACTIVE/PASSIVE USE OF LAND

Project benefits were evaluated based on whether the land is actively or passively utilized. The County of Monterey is the jurisdictional agency responsible for designating land use areas within the County. Monterey County has agricultural, residential, commercial, industrial, open space, and other land use designations. These land use areas do not all receive the same benefits from the enhanced operations of the Nacimiento and San Antonio Reservoirs with the Project. For instance, an acre of irrigated agricultural land is expected to have a higher benefit from the enhanced operations of the Nacimiento and San Antonio Reservoirs with the Project than an acre of open space. This is because the irrigated agricultural land is likely to use the water supply that is recharged through flows in the Salinas River and is also likely to maintain infrastructure or crops that could be impacted if flood protection was not provided. Each land use area receives a distinct benefit from the proposed Project and requires an assessment proportional to the benefits that would be received from the Project.

Land use factors are assigned based on whether the land is actively or passively used. Active use of the land means the landowner has put the land to its potential use. The highest potential land uses are considered residential, commercial, industrial, institutional, and irrigated agricultural uses and are assigned a land use factor of 1.0. Dry farming, grazing, vacant lot, lands subject to frequent flooding, and native lands (lands receiving no charge) are lower levels of use of land, or considered more passive uses and are assigned a lower land use factor. This methodology is consistent with the existing and previously assessed methodologies. The passive/active use land factors are summarized in the following table.

Table 3: Proposed Active/Passive Land Use and Weighted Factor

Land Use		Active (A) or Passive (P)	Weighted Factor
Factor A	Irrigated Agriculture	A	1.0
Factor B	Residential (Single Family, Multi-Family)	A	1.0
	Commercial		
	Industrial		
	Institutional		
Factor C	Dry Farming	P	0.1
	Grazing		
	Vacant Lot		
Factor D	River Channels	P	0.01
	Lands with Frequent Flooding		
Factor E	Open Space	P	0.0

The “equivalent acreage” is the product of multiplying the land use factors by the total land use acreage. Calculating the equivalent acreage of each subarea is necessary to assign the assessments per equivalent acre. The table below summarizes the equivalent acreages for each subarea.

Table 4: Total Equivalent Acreages by Subarea

Subarea ¹	Total Acres	Land Use Factors				Total Equivalent Acreages
		0	0.01	0.1	1	
		<i>Open Space</i>	<i>River Channels, Lands w/ Frequent Flooding</i>	<i>Dry Farming, Grazing, Vacant Lot</i>	<i>Residential, Commercial, Industrial, Institutional, Irrigated Agriculture</i>	
East Side	16,144	6,351	550	37,486	46,858	50,612
Pressure	29,226	4,134	5,156	43,545	67,256	71,662
Forebay	46,010	430	5,024	15,171	38,375	39,942
Arroyo Seco	36,727	66	255	8,792	18,390	19,272
Upper Valley	44,222	2,053	8,578	42,162	53,889	58,191
Below Dam	21,049	865	3,395	17,918	217	2,043
Total	193,379	13,899	22,957	165,073	224,984	241,721

¹ Source: West Yost "LU by ESU Clean" Workbook.

4.4 ASSESSMENT CALCULATION METHODOLOGY

There are several reasonable approaches to allocating Project benefits between the subareas. Since this project is still in a preliminary phase, this section will explore three assessment methodologies that illustrate the range of reasonable benefit allocations. A brief summary of the three options is provided below.

- Option 1, 2003 Cost Allocation Committee (CAC) weighting: This option allocates the benefits based on the judgement of a committee of experts and stakeholders as developed for the Salinas Valley Water Project. Benefits of this approach are that it reflects qualitative benefits and extreme events, for example seawater intrusion events, which are difficult to measure and can be very costly and difficult to reverse.
- Option 2, Historical benefit weighting, as analyzed by the 2024 West Yost Historical Benefits Analysis Update Report: This option allocates benefits based on the benefits of the existing infrastructure as of 2024. This would reasonably apportion benefits because the Project is an enhancement to the existing infrastructure. This approach reflects the most recent analysis of existing reservoir benefits prepared for the MCWRA by West Yost in May 2024.
- Option 3: Even weighting: Under even weighting, the entire study area is considered a single area of benefit. This methodology reflects that the essence of the Project is to enhance water supply and flood control for the six of the seven Zone 2E subareas. This option would utilize one proposed assessment for the entire study area and all properties will pay the same annual assessment amount by land use type.

The proposed assessments and full calculations of each of the three methodologies are provided in the following sections of this report.

4.4.1 Option 1: 2003 CAC Weighting

MCWRA previously established an assessment to fund the Salinas Valley Water Project (SVWP). The allocations in their 2003 Engineer's Report were based on the work of the Cost Allocation Committee (CAC) formed by the MCWRA Board. The goal of the CAC was to develop a basis for the assessment of benefits to fully comply with the provisions of Proposition 218. The CAC assigned weighting factors to the identified special benefits received from implementing the SVWP project. Benefit factor rankings were then assigned to each of the SVWP's project components by subarea and multiplied by the weighting factor. The benefit ratios for each subarea are derived by dividing the subarea's total benefit by the total benefit of the subarea with the minimum benefit received. The following table (Table 5), demonstrates that the Arroyo Seco subarea received the lowest benefit factor rankings and was assigned a benefit ratio of 1.0.

Table 5: Weighted Benefits and Benefit Ratio

Benefit¹	East Side	Pressure	Forebay	Arroyo Seco	Upper Valley	Below Dam
Water Supply	19	25	10	4	9	11
Flood Control	3	15	9	3	9	9
Total	22	40	19	7	18	20
Benefit Ratio²	3.1	5.7	2.7	1.0	2.6	2.9

¹ Source: 2003 Engineer's Report, Table 3-6d: Operations Weighted Benefits

² Calculated by dividing subarea's total benefit by baseline subarea's (the subarea with the minimum benefit received) total benefit.

A cost allocation percentage for each subarea was determined by multiplying the subarea's total equivalent acreage by the subarea's benefit ratio to determine each subarea's cost share factor (see Table 6). Each cost share factor was then divided by the total cost share factor of all benefitting subareas.

Table 6: Cost Share Factors and Allocation

Subarea	Total Equivalent Acreages	Benefit Ratio	Cost Share Factor	Cost Allocation Percentage
East Side	50,612	3.1	159,065	18.68%
Pressure	71,662	5.7	409,496	48.08%
Forebay	39,942	2.7	108,414	12.73%
Arroyo Seco	19,272	1.0	19,272	2.26%
Upper Valley	58,191	2.6	149,635	17.57%
Below Dam	2,043	2.9	5,836	0.69%
Cost Share Factor			851,717	100.0%

4.4.2 Option 2: Historical Benefits Analysis Update Weighting

The benefits for water supply and flood control are based on the 2024 West Yost Historical Benefits Analysis Update Report prepared for MCWRA which models the change in water supply and flood inundation due to the construction of the infrastructure subsequent to the 2003 Engineer's Report that affects each subarea. The West Yost Report assessed the difference in the average annual groundwater budget in acre feet per year and the amount of inundated acres between the "historical" scenario (current infrastructure) and the "no projects" (no infrastructure) scenario. Since the Project enhances existing infrastructure, allocating Project benefits based on the modeled changes from the construction of existing infrastructure is an alternative and equally reasonable second option to consider as the methodology for the proposed assessments.

The measurement of inundated acres was used to reflect the benefit to the water supply because it is impacted by changes in surface flows, groundwater levels, and seawater intrusion.

In 1998 the Castroville Seawater Intrusion Project (CSIP) was completed. The change in freshwater storage by subarea as a result of this project provides a comparative estimate of how the water supply of each subarea benefits from the proposed Project. The time period of the water supply comparison in the West Yost report is from the beginning of the 1998 water year to the end of the 2018 water year, to reflect the benefit impact after the existing infrastructure was substantially completed. The HBA Update model simulations conclude in Water Year 2018 due to model calibration constraints at the time this work was completed. The resulting benefit was then allocated to each subarea by dividing the subarea's respective change in water storage by the total change in water storage in the study area.

Table 7: Water Supply Benefit Allocation – Option 2

Subarea	Change in Storage¹	Allocation Percentage
East Side	3,000	10.7%
Pressure	9,000	32.1%
Forebay	4,000	14.3%
Arroyo Seco	1,000	3.6%
Upper Valley	10,000	35.7%
Below Dam	0	0.0%
Non-Zone	1,000	3.6%
Total	28,000	100.00%

¹ Source: "ESU_NoProjects" and "ESU_Historical" spreadsheets provided by West Yost on 7/19/2024.

As shown in Table 8, the flood control benefit is allocated to each subarea by dividing the subarea's reduction in inundated acres due to the existing infrastructure by the total reduction in inundated acres due to the existing infrastructure in the study area.

Table 8: Flood Control Benefit Allocation – Option 2

Subarea	Reduced Inundation Acres²	Allocation Percentage
East Side	0	0.0%
Pressure	4,340	39.0%
Forebay	1,700	15.3%
Arroyo Seco	300	2.7%
Upper Valley	4,800	43.0%
Below Dam	0	0.0%
Non-Zone	0	0.0%
Total	11,140	100.0%

² Source: "ESU_NoProjects" and "ESU_Historical" spreadsheets provided by West Yost on 7/19/2024.

4.4.3 Option 3: Even Weighting

Option 3 applies one assessment per equivalent acre to the entire Zone 2E Assessment District rather than by each subarea. This reflects how the purpose of the Project is to enhance the water supply and flood control in the entire Zone 2E Assessment District. Under this option, each equivalent acre in each subbasin will pay the same annual assessment amount.

4.5 ASSESSMENTS

The assessments per equivalent acre for Options 1 and 2 were derived by using the allocation percentage that was calculated in the previous sections, the equivalent acreages of each subarea, and the costs allocated to each benefit. The calculation of proposed assessments under benefit allocation methodology option 1 and option 2 is as follows:

$$\text{Assessment per Equivalent Acre by subarea} = (\text{Subarea's Allocation Percentage} * \text{Cost Allocated to Benefit}) / \text{Subarea's Equivalent Acreages}$$

The assessment per equivalent acre for Option 3 was derived by dividing the Project cost allocated to the specified benefit by the total equivalent acreage of the whole basin.

The assessment per acre under all three options is derived by multiplying the assessment per equivalent acre by each land use factor.

The tables below show the assessment per acre by subarea for both the water supply and flood control benefit for all options.

Table 9: Option 1 - Assessment Derivation

Water Supply Assessment

Subarea	Allocation Percentage	Water Supply Assessment \$5,885,046	Equivalent Acreages	Assessment Per Equivalent Acre	Assessment per Acre Land Use Factor			
					0	0.01	0.1	1
East Side	18.68%	\$1,099,327	50,612	\$21.72	\$0.00	\$0.22	\$2.17	\$21.72
Pressure	48.08%	2,829,530	71,662	39.48	0.00	0.39	3.95	39.48
Forebay	12.73%	749,166	39,942	18.76	0.00	0.19	1.88	18.76
Arroyo Seco	2.26%	133,002	19,272	6.90	0.00	0.07	0.69	6.90
Upper Valley	17.57%	1,034,003	58,191	17.77	0.00	0.18	1.78	17.77
Below Dam	0.69%	40,607	2,043	19.88	0.00	0.20	1.99	19.88

Flood Control Assessment

Subarea	Allocation Percentage	Flood Control Assessment \$2,206,892	Equivalent Acreages	Assessment Per Equivalent Acre	Assessment per Acre Land Use Factor			
					0	0.01	0.1	1
East Side	18.68%	\$412,247	50,612	8.15	\$0.00	\$0.08	\$0.81	\$8.15
Pressure	48.08%	1,061,074	71,662	14.81	0.00	0.15	1.48	14.81
Forebay	12.73%	280,937	39,942	7.03	0.00	0.07	0.70	7.03
Arroyo Seco	2.26%	49,876	19,272	0.00	0.00	0.00	0.00	0.00
Upper Valley	17.57%	387,751	58,191	6.66	0.00	0.07	0.67	6.66
Below Dam	0.69%	15,228	2,043	7.45	0.00	0.07	0.75	7.45

Total Assessment

Subarea	Assessment per Acre Land Use Factor			
	0	0.01	0.1	1
East Side	\$0.00	\$0.30	\$2.98	\$29.87
Pressure	0.00	0.54	5.43	54.29
Forebay	0.00	0.26	2.58	25.79
Arroyo Seco	0.00	0.07	0.69	6.90
Upper Valley	0.00	0.25	2.45	24.43
Below Dam	0.00	0.27	2.74	27.33

Table 10: Option 2 - Assessment Derivation

Water Supply Assessment

Subarea	Allocation Percentage	Groundwater Assessment \$5,885,046	Equivalent Acreages	Assessment Per Equivalent Acre	Assessment per Acre Land Use Factor			
					0	0.01	0.1	1
East Side	10.70%	\$629,700	50,612	\$12.44	\$0.00	\$0.12	\$1.24	\$12.44
Pressure	32.10%	1,889,100	71,662	26.36	0.00	0.26	2.64	26.36
Forebay	14.30%	841,562	39,942	21.07	0.00	0.21	2.11	21.07
Arroyo Seco	3.60%	211,862	19,272	10.99	0.00	0.11	1.10	10.99
Upper Valley	35.70%	2,100,961	58,191	36.10	0.00	0.36	3.61	36.10
Below Dam	0.00%	0	2,043	0.00	0.00	0.00	0.00	0.00

Flood Control Assessment

Subarea	Allocation Percentage	Flood Control Assessment \$2,206,892	Equivalent Acreages	Assessment Per Equivalent Acre	Assessment per Acre Land Use Factor			
					0	0.01	0.1	1
East Side	0.00%	\$0	50,612	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Pressure	39.00%	860,688	71,662	12.01	0.00	0.12	1.20	12.01
Forebay	15.30%	337,654	39,942	8.45	0.00	0.08	0.85	8.45
Arroyo Seco	2.70%	59,586	19,272	0.00	0.00	0.00	0.00	0.00
Upper Valley	43.00%	948,964	58,191	16.31	0.00	0.16	1.63	16.31
Below Dam	0.00%	0	2,043	0.00	0.00	0.00	0.00	0.00

Total Assessment

Subarea	Assessment per Acre Land Use Factor			
	0	0.01	0.1	1
East Side	\$0.00	\$0.12	\$1.24	\$12.44
Pressure	0.00	0.38	3.84	38.37
Forebay	0.00	0.29	2.96	29.52
Arroyo Seco	0.00	0.11	1.10	10.99
Upper Valley	0.00	0.52	5.24	52.41
Below Dam	0.00	0.00	0.00	0.00

Table 11: Option 3 - Assessment Derivation

Water Supply Assessment

	Groundwater (\$)	Equivalent Acreages	Assessment Per Equivalent Acre	<u>Assessment per Acre</u> <u>Land Use Factor</u>			
				0	0.01	0.1	1
Whole Basin	\$5,885,046	241,721	\$24.35	\$0.00	\$0.24	\$2.43	\$24.35

Flood Control Assessment

	Flood Control (\$)	Equivalent Acreages	Assessment Per Equivalent Acre	<u>Assessment per Acre</u> <u>Land Use Factor</u>			
				0	0.01	0.1	1
Whole Basin	\$2,206,892	241,721	\$9.13	\$0.00	\$0.09	\$0.91	\$9.13

Total Assessment

<u>Assessment per Acre</u> <u>Land Use Factor</u>			
0	0.01	0.1	1
\$0.00	\$0.33	\$3.34	\$33.48

APPENDIX A: STUDY TABLES

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Monterey County Water Resources Agency

Draft Engineer's Report Tables



October 21, 2024



BARTLE WELLS ASSOCIATES
INDEPENDENT PUBLIC FINANCE ADVISORS

Table 1
Monterey County Water Resources Agency
Monterey Interlake Tunnel Costs - Preliminary Estimates

Project Cost	2023 Dollars	2024 Dollars¹
Project Development	\$15,064,920	\$15,453,383
Construction	160,637,490	164,779,672
Spillway Modification	8,757,450	8,983,269
Management & Administration	21,174,660	21,720,668
Capitalized O&M Costs	23,381,280	23,984,187
Capital Equipment Replacement Fund	6,767,280	6,941,780
Financing Fees	3,388,320	3,475,691
Contingency & Escalation	\$25,408,890	\$26,064,081
TOTAL	\$264,580,290	\$271,402,731
Grant	50%	<u>\$135,701,365</u>
Debt Funded Amount		\$135,701,365
Annual Payment²		<u>\$8,827,569</u>

¹ Escalated to 2024 dollars using ENR CCI 20 Cities, December 2023.

² Annual payment reflects financing of 5% interest over 30 years.

Table 2
Monterey County Water Resources Agency
Cost Allocation

Benefit	Allocation¹	Allocated Cost
Water Supply	66.7%	\$5,885,046
Flood Control	25.0%	\$2,206,892
General Benefit	8.3%	\$735,631
Total Annual Cost:	100.0%	\$8,827,569

¹ Based on 2003 RMC Engineer's Report.

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Table 3
Monterey County Water Resources Agency
Total Equivalent Acreages by Subarea

		Land Use Factors				Total Equivalent Acreages
		0	0.01	0.1	1	
Subarea ¹	Total Acres	Open Space	River Channels, Lands w/ Frequent Flooding	Dry Farming, Grazing, Vacant Lot	Residential, Commercial, Industrial, Institutional, Irrigated Agriculture	
East Side	16,144	6,351	550	37,486	46,858	50,612
Pressure	29,226	4,134	5,156	43,545	67,256	71,662
Forebay	46,010	430	5,024	15,171	38,375	39,942
Arroyo Seco	36,727	66	255	8,792	18,390	19,272
Upper Valley	44,222	2,053	8,578	42,162	53,889	58,191
Below Dam	21,049	865	3,395	17,918	217	2,043
Total	193,379	13,899	22,957	165,073	224,984	241,721

¹ Source: West Yost "LU by ESU Clean" Workbook.

Table 4
Monterey County Water Resources Agency
Weighted Benefits and Benefit Ratio: Option 1, 2003 Weighting

Benefit¹	East Side	Pressure	Forebay	Arroyo Seco	Upper Valley	Below Dam
Water Supply	19	25	10	4	9	11
Flood Control	3	15	9	3	9	9
Total	22	40	19	7	18	20
Benefit Ratio²	3.1	5.7	2.7	1.0	2.6	2.9

¹ Source: 2003 Engineer's Report, Table 3-6d: Operations Weighted Benefits

² Calculated by dividing subarea's total benefit by baseline subarea's (the subarea with the minimum benefit received) total benefit.

Table 5
Monterey County Water Resources Agency
Cost Share Factors and Allocation: Option 1, 2003 Weighting

Subarea	Total Equivalent Acreages	Benefit Ratio	Cost Share Factor	Cost Allocation Percentage
East Side	50,612	3.1	159,065	18.68%
Pressure	71,662	5.7	409,496	48.08%
Forebay	39,942	2.7	108,414	12.73%
Arroyo Seco	19,272	1.0	19,272	2.26%
Upper Valley	58,191	2.6	149,635	17.57%
Below Dam	2,043	2.9	5,836	0.69%
Cost Share Factor			851,717	100.0%

Table 6
Monterey County Water Resources Agency
Assessment Derivation: Option 1, 2003 Weighting

Water Supply Assessment

Subarea	Allocation Percentage	Water Supply Assessment \$5,885,046	Equivalent Acreages	Assessment Per Equivalent Acre	Assessment per Acre Land Use Factor			
					0	0.01	0.1	1
East Side	18.68%	\$1,099,327	50,612	\$21.72	\$0.00	\$0.22	\$2.17	\$21.72
Pressure	48.08%	2,829,530	71,662	39.48	0.00	0.39	3.95	39.48
Forebay	12.73%	749,166	39,942	18.76	0.00	0.19	1.88	18.76
Arroyo Seco	2.26%	133,002	19,272	6.90	0.00	0.07	0.69	6.90
Upper Valley	17.57%	1,034,003	58,191	17.77	0.00	0.18	1.78	17.77
Below Dam	0.69%	40,607	2,043	19.88	0.00	0.20	1.99	19.88

Flood Control Assessment

Subarea	Allocation Percentage	Flood Control Assessment \$2,206,892	Equivalent Acreages	Assessment Per Equivalent Acre	Assessment per Acre Land Use Factor			
					0	0.01	0.1	1
East Side	18.68%	\$412,247	50,612	8.15	\$0.00	\$0.08	\$0.81	\$8.15
Pressure	48.08%	1,061,074	71,662	14.81	0.00	0.15	1.48	14.81
Forebay	12.73%	280,937	39,942	7.03	0.00	0.07	0.70	7.03
Arroyo Seco	2.26%	49,876	19,272	0.00	0.00	0.00	0.00	0.00
Upper Valley	17.57%	387,751	58,191	6.66	0.00	0.07	0.67	6.66
Below Dam	0.69%	15,228	2,043	7.45	0.00	0.07	0.75	7.45

Total Assessment

Subarea	Assessment per Acre Land Use Factor			
	0	0.01	0.1	1
East Side	\$0.00	\$0.30	\$2.98	\$29.87
Pressure	0.00	0.54	5.43	54.29
Forebay	0.00	0.26	2.58	25.79
Arroyo Seco	0.00	0.07	0.69	6.90
Upper Valley	0.00	0.25	2.45	24.43
Below Dam	0.00	0.27	2.74	27.33

Table 7
Monterey County Water Resources Agency
Benefit Allocation: Option 2, Historical Benefit Weighting

Water Supply Benefit Allocation

Subarea	Change in Storage ¹	Allocation Percentage
East Side	3,000	10.7%
Pressure	9,000	32.1%
Forebay	4,000	14.3%
Arroyo Seco	1,000	3.6%
Upper Valley	10,000	35.7%
Below Dam	0	0.0%
Non-Zone	1,000	3.6%
Total	28,000	100.00%

¹ Source: "ESU_NoProjects" and "ESU_Historical" spreadsheets provided by West Yost on 7/19/2024.

Flood Control Benefit Allocation

Subarea	Reduced Inundation Acres ²	Allocation Percentage
East Side	0	0.0%
Pressure	4,340	39.0%
Forebay	1,700	15.3%
Arroyo Seco	300	2.7%
Upper Valley	4,800	43.0%
Below Dam	0	0.0%
Non-Zone	0	0.0%
Total	11,140	100.0%

² Source: "ESU_NoProjects" and "ESU_Historical" spreadsheets provided by West Yost on 7/19/2024.

Table 8
Monterey County Water Resources Agency
Assessment Derivation: Option 2, Historical Benefit Weighting

Water Supply Assessment

Subarea	Allocation Percentage	Groundwater Assessment \$5,885,046	Equivalent Acreages	Assessment Per Equivalent Acre	Assessment per Acre Land Use Factor			
					0	0.01	0.1	1
East Side	10.70%	\$629,700	50,612	\$12.44	\$0.00	\$0.12	\$1.24	\$12.44
Pressure	32.10%	1,889,100	71,662	26.36	0.00	0.26	2.64	26.36
Forebay	14.30%	841,562	39,942	21.07	0.00	0.21	2.11	21.07
Arroyo Seco	3.60%	211,862	19,272	10.99	0.00	0.11	1.10	10.99
Upper Valley	35.70%	2,100,961	58,191	36.10	0.00	0.36	3.61	36.10
Below Dam	0.00%	0	2,043	0.00	0.00	0.00	0.00	0.00

Flood Control Assessment

Subarea	Allocation Percentage	Flood Control Assessment \$2,206,892	Equivalent Acreages	Assessment Per Equivalent Acre	Assessment per Acre Land Use Factor			
					0	0.01	0.1	1
East Side	0.00%	\$0	50,612	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Pressure	39.00%	860,688	71,662	12.01	0.00	0.12	1.20	12.01
Forebay	15.30%	337,654	39,942	8.45	0.00	0.08	0.85	8.45
Arroyo Seco	2.70%	59,586	19,272	0.00	0.00	0.00	0.00	0.00
Upper Valley	43.00%	948,964	58,191	16.31	0.00	0.16	1.63	16.31
Below Dam	0.00%	0	2,043	0.00	0.00	0.00	0.00	0.00

Total Assessment

Subarea	Assessment per Acre Land Use Factor			
	0	0.01	0.1	1
East Side	\$0.00	\$0.12	\$1.24	\$12.44
Pressure	0.00	0.38	3.84	38.37
Forebay	0.00	0.29	2.96	29.52
Arroyo Seco	0.00	0.11	1.10	10.99
Upper Valley	0.00	0.52	5.24	52.41
Below Dam	0.00	0.00	0.00	0.00

Table 9

Monterey County Water Resources Agency

Assessment Derivation: Option 3, Even Weighting

Water Supply Assessment

	Groundwater (\$)	Equivalent Acreages	Assessment Per Equivalent Acre	<u>Assessment per Acre</u>			
				Land Use Factor			
				0	0.01	0.1	1
Whole Basin	\$5,885,046	241,721	\$24.35	\$0.00	\$0.24	\$2.43	\$24.35

Flood Control Assessment

	Flood Control (\$)	Equivalent Acreages	Assessment Per Equivalent Acre	<u>Assessment per Acre</u>			
				Land Use Factor			
				0	0.01	0.1	1
Whole Basin	\$2,206,892	241,721	\$9.13	\$0.00	\$0.09	\$0.91	\$9.13

Total Assessment

<u>Assessment per Acre</u>			
Land Use Factor			
0	0.01	0.1	1
\$0.00	\$0.33	\$3.34	\$33.48