AECOM

City of Santa Barbara
Sea-Level Rise Adaptation Plan

Benefit-Cost Analysis

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Prepared for:

ESA and the City of Santa Barbara

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Executive Summary

The Santa Barbara region is no stranger to the wide-ranging damages that can result from natural hazards. The recent Thomas Fire and Montecito debris flow demonstrate the vulnerability of people, the economy, and the environment to extreme hazard events, the impacts of which climate change is anticipated to exacerbate. The City of Santa Barbara's waterfront and adjacent neighborhoods host a wide variety of valuable assets that are currently vulnerable to coastal hazards. This vulnerability is expected to increase in the coming decades if sea-level rises as projected.

Developing an understanding of the extent of economic and fiscal impacts from future coastal hazard conditions is critical so that City decision-makers can make informed choices about how best to protect the communities, businesses, and places that make Santa Barbara a world-class place to live, work, and recreate. This report provides *high-level* estimates of the economic and fiscal impacts that could occur from the present day until 2100, if no action is taken to make the City of Santa Barbara more resilient to storm surge, sea-level rise and related shoreline and bluff erosion. Additional estimates are provided for the costs of proposed adaptation strategies and the benefits conveyed by such actions to illustrate the cost-effectiveness or economic justification for investing in resilience.

Key Findings

Analysis was undertaken to quantify and compare the potential economic and fiscal impacts in a no action scenario to the costs and benefits of two adaptation scenarios designed to mitigate future coastal hazard risk. While effort was taken to account for the broad types of impacts that could result under the modeled coastal hazards, limited data, time, and resources made a full cost accounting of each potential impact infeasible in the context of this analysis. More detailed descriptions of the scenarios evaluated, and the analytical approaches used to develop results, can be found in subsequent sections of this report.

Table 1 below shows the estimated event-based impacts (i.e., tidal inundation, shoreline and bluff erosion, 100-year coastal storm) for the No Action scenario. Table 2 reports the estimated event-based impacts *avoided* for the Protect scenario, a scenario focused on protecting vulnerable assets by armoring bluffs and building protective flood control devices. Table 3 reports the estimated event-based impacts *avoided* for a scenario that combines elements of retreat and protection, referred to as the Retreat/Protect Hybrid scenario. *Avoided* impacts were calculated by subtracting the impacts estimated for the Protect and the Retreat/Protect Hybrid scenarios from the impacts estimated for the No Action scenario. Results are reported for three distinct time horizons (i.e., 2018, 2060 and 2100) and reflect the impacts that could be expected if the modeled hazards conditions were to occur in the City of Santa Barbara today. In other words, the modeled coastal hazard conditions were superimposed on the existing built environment and economy. As shown in Table 1 below, the City's economy faces increasing vulnerability as coastal hazard risks increase in the future.

Event-based impacts for the No Action scenario (Table 1) were estimated at nearly $31 million for 2018 modeled conditions and $710 million and $1.46 billion for 2060 and 2100 modeled conditions, respectively. Under 2060 modeled conditions, a majority of impacts are associated with vulnerable infrastructure assets (~$403 million) and property (~$207 million). Under the

2100 modeled conditions, estimated impacts to property increase measurably (~$817 million) and account for a majority of the modeled impacts.

Table 1: Summary of Impacts: No Action Scenario (2018 Dollars, $Millions)

SUMMARY OF IMPACTS AT EACH TIME HORIZON			
Impact Type	**2018 Conditions**	**2060 Conditions**	**2100 Conditions**
Direct Property	$26.6 M	$206.9 M	$816.8 M
Displacement	$1.1 M	$0.7 M	$12.2 M
Business	$2.4 M	$57.6 M	$127.8 M
Infrastructure	$0.0 M	$402.7 M	$444.3 M
Fiscal	$0.7 M	$15.2 M	$24.4 M
Non-Market (Beach Recreation)	NA	$27.0 M	$34.9 M
TOTAL	**$30.8 M**	**$710.2 M**	**$1460.3 M**

Notes:

Results account for both temporary storm impacts as well as permanent tidal inundation and erosion impacts.

Impacts are not adjusted to account for the probability of the modeled hazards occurring.

Results are not adjusted to account for financial discounting.

NA = Impacts not applicable based on methodological framework; NE = Impacts not evaluated based on scope of the analysis.

Due to rounding, results may not add up precisely to the totals presented.

Event-based avoided impacts (or benefits conveyed) for the Protect scenario (Table 2) were estimated at $662 million and $1.38 billion for 2060 and 2100 modeled conditions, respectively. Under 2060 modeled conditions, a majority of avoided impacts are associated with vulnerable infrastructure assets (~$396 million) and property (~$203 million). For the 2100 modeled conditions, avoided impacts to property increase measurably (~$789 million). The Protect scenario provides significant mitigation benefits across all the impact types evaluated except for the non-market recreational value provided by the City's beaches. This scenario includes measures that help to reinforce the bluffs on the northern part of the City, resulting in the narrowing of beaches in the near term, which further limits recreational opportunity and results in nominal adverse non-market recreational impacts under 2060 modeled conditions.

Table 2: Summary of Avoided Impacts: Protect Scenario (2018 Dollars, $Millions)

SUMMARY OF IMPACTS AT EACH TIME HORIZON			
Impact Type	**2018 Conditions**	**2060 Conditions**	**2100 Conditions**
Direct Property	No Change	$202.5 M	$788.6 M
Displacement	No Change	$0.7 M	$12.2 M
Business	No Change	$48.0 M	$117.4 M
Infrastructure	No Change	$395.5 M	$435.4 M
Fiscal	No Change	$14.9 M	$23.8 M
Non-Market (Beach Recreation)	No Change	-$0.1 M	$5.5 M
TOTAL	**No Change**	**$661.5 M**	**$1382.9 M**

Notes:

Results account for both temporary storm impacts as well as permanent tidal inundation and erosion impacts.

Impacts are not adjusted to account for the probability of the modeled hazards occurring.

No change in impacts is observed for the 2018 modeled conditions because adaptation measures are not implemented until after this point in time.

Results are not adjusted to account for financial discounting.

Due to rounding, results may not add up precisely to the totals presented.

Event-based avoided impacts (or benefits conveyed) for the Retreat/Protect Hybrid scenario (Table 3) were estimated at $496 million and $1.16 billion for 2060 and 2100 modeled conditions, respectively. Under 2060 modeled conditions, a majority of avoided impacts are associated with vulnerable infrastructure assets (~$394 million). For the 2100 modeled conditions, avoided impacts to property increase measurably (~$572 million); these benefits are less pronounced than those estimated for the Protect scenario because of the allowance of bluff erosion up to 25 feet of major roads. The Retreat/Protect scenario provides significant mitigation benefits across all the impact types evaluated except for the non-market recreational value provided by the City's beaches, similar to the Protect scenario.

Table 3: Summary of Avoided Impacts: Retreat/Protect Hybrid Scenario (2018 Dollars, $Millions)

SUMMARY OF IMPACTS AT EACH TIME HORIZON			
Impact Type	**2018 Conditions**	**2060 Conditions**	**2100 Conditions**
Direct Property	No Change	$38.9 M	$572.1 M
Displacement	No Change	$0.7 M	$12.2 M
Business	No Change	$48.3 M	$117.3 M
Infrastructure	No Change	$393.8 M	$431.7 M
Fiscal	No Change	$13.0 M	$21.5 M
Non-Market (Beach Recreation)	No Change	$0.9 M	$5.5 M
TOTAL	**No Change**	**$495.6 M**	**$1160.2 M**

Notes:

Results account for both temporary storm impacts as well as permanent tidal inundation and erosion impacts.

Impacts are not adjusted to account for the probability of the modeled hazards occurring.

No change in impacts is observed for the 2018 modeled conditions because adaptation measures are not implemented until after this point in time.

Results are not adjusted to account for financial discounting.

Due to rounding, results may not add up precisely to the totals presented.

Tables 1 – 3 above, as noted, illustrate the expected impacts if no action is taken to mitigate coastal hazards as well as the expected benefits conveyed by adaptation for the discrete time horizon years evaluated (i.e., 2018, 2060, 2100). However, it's important to acknowledge that the adaptation measures evaluated start to provide benefits once they are implemented, and that these benefits recur, year-over-year into the future provided that appropriate operations, maintenance and renewal actions are taken. To capture the cumulative benefits provided by investments in adaptation, impacts for the No Action scenario were estimated for each year in this study's period of analysis (i.e., 2018 – 2100). These values were then adjusted to account for the likelihood of the modeled hazard occurring[1], and summed to develop an estimate of cumulative impacts. A similar process was undertaken to estimate the impacts expected under the Protect scenario and the Retreat/Protect Hybrid scenario, the results of which are then subtracted from the No Action scenario to develop an estimate of the cumulative impacts avoided as a result of investment in adaptation.

The results of the cumulative impact analysis are presented in Table 4. For the No Action scenario, total impacts are estimated at $4.1 billion, with over half of these impacts associated with changes in business activity. These business losses are primarily associated with buildings

[1] Consider, for example, a 100-year storm event, which has 1% chance of occurring in any given year. If the estimated impacts are $100,000, then this value is multiplied by 0.01 (1% chance), resulting in an expected annual impact of $1,000.

in the Harbor and other low-lying areas of the waterfront that are subject to tidal inundation by 2060 and were assumed to close permanently, resulting in annual, recurring losses. The next most significant impact estimated was for property (~$624 million). Estimated fiscal impacts were also significant (~$620 million) and are linked to property and sales tax revenues associated with residences and businesses exposed to the modeled hazards.

Approximately $3.6 billion and $3.4 billion in impacts were estimated to be avoided through implementation of the Protect and Retreat/Protect Hybrid scenarios, respectively. This is equivalent to the Protect scenario preventing nearly 90% of the impacts that were estimated to occur under the No Action scenario, while the Retreat/Protect Hybrid scenario was estimated at mitigating over 80% of the impacts estimated for the No Action scenario. A majority of the difference in avoided impacts between the Protect scenario and the Retreat/Protect Hybrid scenario are associated with property and associated fiscal impacts. In particular, the Retreat/Protect Hybrid scenario allows for bluff erosion which would result in the removal of vulnerable property overtime. When this occurs, the value of these properties would be lost and they would be removed from the County Assessor's tax roll, resulting in the City no longer securing annual property tax revenues for these impacted parcels. Neither the Protect scenario nor the Retreat/Protect Hybrid scenario were determined to be effective at mitigating non-market impacts associated with the City's beach recreational resources.

Table 4: Summary of Cumulative Impacts and Avoided Impacts (2018 Dollars, $Millions)

SUMMARY OF CUMULATIVE IMPACTS AND IMPACTS AVOIDED FROM 2018 TO 2100			
Impact Type	**No Action Scenario Impacts**	**Protect Scenario Avoided Impacts**	**Retreat/ Protect Hybrid Scenario Avoided Impacts**
Direct Property	$623.8 M	$592.4 M	$375.9 M
Displacement	$1.9 M	$1.7 M	$1.7 M
Business	$2143.8 M	$2010.2 M	$2006.7 M
Infrastructure	$444.3 M	$435.4 M	$431.7 M
Fiscal	$619.5 M	$615.6 M	$535.7 M
Non-Market (Beach Recreation)	$289.1 M	-$13.2 M	$0.4 M
TOTAL	**$4122.3 M**	**$3642.2 M**	**$3352.2 M**

Notes:

Results account for both temporary storm impacts as well as permanent tidal inundation and erosion impacts.

Impacts are adjusted to account for the probability of the modeled storm occurring.

Non-market beach recreation avoided impacts are negative for the Protect scenario because of the armoring of bluffs which will accelerate shoreline erosion and reduce recreational opportunities for both residents and tourists.

Results are not adjusted to account for financial discounting.

Due to rounding, results may not add up precisely to the totals presented.

The estimated costs to implement the Protect and Retreat/Protect Hybrid adaptation scenarios are presented in Table 5 below. Costs were estimated by decade, starting in 2020 and ending in 2100. The costs reported account for the initial investments required for the construction of identified adaptation measures, as well as ongoing maintenance and renewal costs intended to ensure that initial investments can continue to provide effective coastal hazard mitigation benefits. The total Protect scenario costs were estimated at approximately $8.4 billion, while the Retreat/Protect hybrid costs were estimated at roughly $2.4 billion. The significantly higher price tag for the Protect scenario is closely tied to constructing and maintaining bluff faces in the City to prevent erosion.

Table 5: Summary of Cumulative Adaptation Costs (2018 Dollars, $Millions)

ADAPTATION SCENARIO IMPLEMENTATION COSTS BY DECADE		
Year	**Protect Scenario**	**Retreat/Protect Hybrid Scenario**
2020	$0.0 M	$1.1 M
2030	$2089.9 M	$81.7 M
2040	$7.5 M	$7.5 M
2050	$10.7 M	$10.7 M
2060	$2789.5 M	$934.9 M
2070	$34.3 M	$34.3 M
2080	$492.0 M	$359.4 M
2090	$2086.3 M	$93.5 M
2100	$860.9 M	$831.5 M
TOTAL	**$8371.2 M**	**$2354.7 M**

Notes:

A 35% construction mark-up contingency is included in the cost estimates.

Results are not adjusted to account for financial discounting.

Due to rounding, results may not add up precisely to the totals presented.

Standard practice in a benefit-cost analysis (BCA) is to account for the “opportunity cost” or the time value of money. This is done by applying a discount rate to estimated benefits and costs of an identified policy, program or project, which then allows for the comparison of future costs and benefits in present dollars. From a financial perspective, discounting is used to reflect that a dollar today is more valuable than a dollar in the future due to the ability to invest now and create more wealth than a dollar invested in a future year. Or, extended to a social perspective as it relates to this study, the benefits provided by adaptation are more valuable in the near-term than they are in the longer-term.

For the purpose of estimating the cost-effectiveness of the modeled adaptation strategies, the cumulative costs of the modeled adaptation strategies and their estimated cumulative avoided impacts were discounted in future years at a 4% rate, consistent with Federal agency BCA guidelines. The discounted avoided damages associated with the modeled adaptation scenarios were subtracted from the discounted adaptation scenario costs to arrive at an estimate of net (present value) impacts. Benefit-cost ratios (BCRs) were then estimated by dividing the cumulative avoided damages provided by adaptation to the cumulative costs of adaptation.

As shown in Table 6, the Protect scenario has an estimated net present value impact of -$1.7 billion and a BCR of 0.18, while the Retreat/Protect Hybrid scenario was estimated to provide a net impact of $29 million and have a BCR of 1.1. From an economic perspective, a project would be considered justified or cost effective if it has a BCR that is greater 1. As such, only the Retreat/Protect Hybrid scenario would be considered an economically justified project.

Table 6: Summary of Benefit-Cost Analysis Results (Net Present Value, $Millions)

SUMMARY OF ADAPTATION ALTERNATIVES NET IMPACTS AND BENEFIT-COST RATIOS		
Adaptation Scenario	**Net Impacts**	**Benefit-Cost Ratio**
Protect	**-$1,700 M**	**0.18**
Retreat/Protect Hybrid	**$29 M**	**1.10**

Notes:

To avoid double counting impacts, wage losses have not been included as they are assumed to be paid from sales revenues, and business output has been discounted to account for relevant tax payments that are captured in the fiscal impact models.

Results are presented in net present value terms using a 4% discount rate over the period of the analysis from 2018 to 2100.

It is important to note that the assessment of net impacts and BCRs for the modeled adaptation scenarios account for a number of near-term and longer-term projects across the City. This portfolio approach to assessing the costs and benefits of adaptation provides a high-level perspective of the economic returns on investment in adaptation. However, future analysis should be conducted at the project-by-project basis to better design and optimize the benefits that can result from investment in adaptation. Further, it is important to acknowledge that a majority of the cumulative impacts estimated for the No Action scenario are associated with risks posed by tidal inundation and erosion. This does not imply that the City does not face risks from coastal storms now and in the future, but that future efforts should be taken to evaluate ways to keep rising seas at bay. And, as noted above, both the Protect scenario and the Retreat/Protect Hybrid scenario prove highly effective at mitigating future coastal hazard impacts to property, business, and infrastructure. However, these adaptation scenarios, as modeled, are not effective at preserving the City's beaches, which provide significant economic benefits to users and the local economy. As such, the City could evaluate in additional detail management practices that can help to maintain the City's beaches and the broader benefits they convey to residents, visitors, businesses, and the City.

1. Introduction

1.1 Report Purpose

The purpose of this report is to assess the economic and fiscal impacts of sea-level rise (SLR) and coastal hazards as they relate to various alternatives, including a no action scenario and two adaptation scenarios. The methodological framework that underpins this report was shared and vetted by staff from both the City of Santa Barbara and the California Coastal Commission. The results presented in this report are intended to illuminate the type and magnitude of economic and fiscal vulnerability in the City to future coastal hazards, and the costs and benefits conveyed by taking preemptive action through investment in adaptation. Additional discussion of the specific assets evaluated in this report can be found in the project's Vulnerability Assessment (VA).

1.2 Hazard Scenarios

In the Vulnerability Assessment (VA), a total of 6 hazard scenarios (with minor permutations, for example storm impacts and wave impacts) were modeled across three time horizons to inform the economic and fiscal impacts evaluated in this report. More information on these hazard scenarios can be found in the VA. Note that spring tides are expected to occur approximately twice a month.

Existing Conditions (2018) Time Horizon Scenarios: (1) Spring tide; (2) 100-year storm

2060 Time Horizon Scenarios: (1) Spring tide with 2.5 feet of SLR; (2) 100-year coastal storm with 2.5 feet of SLR

2100 Time Horizon Scenarios: (1) Spring tide with 6.6 feet of SLR; (2) 100-year coastal storm with 6.6 feet of SLR

1.3 Adaptation Scenarios Descriptions

The adaptation scenario analysis summarized below are a comparison of approaches to sea-level rise adaptation and the "no action" scenario represented in the Vulnerability Assessment Update (ESA 2018). The "no action" results from the Vulnerability Assessment do not represent a complete adaptation scenario in this analysis, but rather represent the property and infrastructure damages and associated economic impacts that are avoided by the adaptation scenarios. The comparative analysis in this section utilizes the same sea-level rise projections as the rest of this plan, the California Natural Resource Agency & Ocean Protection Council's (2018) medium-high risk sea-level rise scenario that projects 2.5 feet of sea-level rise by 2060 and 6.6 feet sea-level rise by 2100. While the timing (i.e. triggering) of individual adaptation measures in the two theoretical scenarios in the analysis are based on this sea-level rise projection, the actual timing of adaptation actions in the future will depend on monitoring of sea-level rise and erosion that occurs in the future.

Each scenario includes multiple adaptation strategies at multiple timeframes. The adaptation alternatives were developed separately for the western and eastern portions of the City, as described below. The estimated costs and benefits are quantified for 2060 and 2100. Near-term

adaptation (i.e., 2030) was considered in the analysis of costs and benefits over time, but cost benefit results are not separately reported for the near-term.

1.3.1 West City

The west portion of the city is defined for the adaptation scenarios as the area west of Leadbetter Beach to the western City limit, and includes Subareas A through F as defined in the Vulnerability Assessment Update (ESA 2018). These subareas are comprised of bluffs and include Arroyo Burro Beach. Two adaptation scenarios were developed for the west city with the following themes:

1. **Protect**: armor bluffs and build flood control to protect all public and private assets in place.
2. **Retreat/Protect Hybrid**: retreat public and private assets up to major public roads, then armor bluffs to protect major roads in place while also preserving 25-foot wide lateral public access along road/bluff top.

Adaptation strategies included in the West City "Protect Scenario" and "Retreat/Protect Hybrid Scenario" are listed in Table 7.

Table 7: Potential Adaptation Scenarios Analyzed for West City

Timeframe Key vulnerable assets (if do-nothing)	Protect Scenario	Retreat/Protect Hybrid Scenario
Near-term (2030, 0.8 feet SLR) **Parcels**	• Armor existing bluff toe and face at private parcels with shoreline protection devices and maintain vertical access • Allow erosion at bluff-top open spaces to allow beaches to migrate and persist longer	• Retreat parcels at risk of damage from bluff erosion to allow beaches to migrate and persist longer • Where needed before 2060, protect west & east ends of Shoreline Dr. on the bluff by armoring bluff toe • Allow erosion at bluff-top open spaces to allow beaches to migrate and persist longer
2060, 2.5 feet SLR **Parcels** **Shoreline Dr., W&E ends**	• Maintain/upgrade private bluff face armor & maintain access (O&M) • Armor bluff toe along Shoreline Park to preserve a portion of the park after beach at bluff toe is lost. Allow terrestrial erosion of bluff face. • Allow erosion of bluff-top open space at Douglas Family Preserve.	• Retreat parcels at risk of damage from bluff erosion • Maintain/upgrade and extend bluff toe armor at west & east ends of Shoreline Dr. Armor bluff toe along section of Cliff Dr. • Allow erosion of bluff-top open space at Douglas Family Preserve.
2100, 6.6 feet SLR **Parcels** **Shoreline Dr.** **Cliff Dr. erosion** **Cliff Dr. flooding at Arroyo Burro**	• Maintain/upgrade bluff face armor & maintain access (O&M) • Build floodwall to protect Cliff Dr. from storm flooding at Arroyo Burro Creek with reconfiguration of parking • Allow erosion of bluff-top open space at Douglas Family Preserve.	• Retreat parcels at risk of damage from bluff erosion • Maintain/upgrade armor protecting Shoreline Dr. and Cliff Dr. while preserving 25-foot wide seaward area for lateral public access. • Raise Cliff Dr. at Arroyo Burro Ck. on fill and accommodate storm flooding of parking • Allow erosion of bluff-top open space at Douglas Family Preserve.

1.3.2 East City

The eastern portion of the city is defined as lands east of and including Leadbetter Beach to the City's easterly boundary at Belloguardo Estate and is comprised of Subareas G through K defined in the Vulnerability Assessment Update. One adaptation scenario was developed for the east city with the following theme:

1. Protect: maintain and expand coastal structures to mitigate erosion and flooding hazards, increase beach nourishment beyond ongoing sand bypassing, build/upgrade flood protection structures, raise breakwater and lands around harbor, rebuild Stearns Wharf and manage rising groundwater in the low-lying flood area.

Adaptation strategies included in the East City Protect Scenario are listed in Table 8. This adaptation scenario for the east side of the city is used in both the "Protect Scenario" and "Retreat/Protect Hybrid Scenario" analyzed in the rest of this section.

Table 8: Potential Adaptation Scenario Analyzed for East City

Timeframe Key vulnerable assets	Protect Scenario
Near-term (2030, 0.8 feet SLR) **Parcels**	• Continue existing sand bypassing • Laguna Creek tide gate/pump improvements • Additional beach nourishment using imported sand East beach
2060, 2.5 feet SLR **Beach loss** **Storm flooding (e.g., Cabrillo Blvd)**	• Continue sand bypassing • Additional beach nourishment using imported sand at Leadbetter, West, and East beaches • Construct seawall segment along back of beach along bike path from Harbor to East beach public restroom on E Cabrillo Blvd. Relocate wastewater and other infrastructure buried under beach in this area. • Laguna Creek tide gate/pump improvements/maintenance • Raise lands surrounding harbor above tidal inundation, raise bulkheads, groins, and breakwater. Renovate/rebuild marina facilities. • Floodwalls up Mission and Sycamore Creeks • Rebuild and raise Stearns Wharf
2100, 6.6 feet SLR **Beach loss** **Storm flooding** **Tidal flooding (Cabrillo and large low-lying flood areas)**	• Continue sand bypassing • Additional beach nourishment using imported sand at Leadbetter, West, East beaches • Maintain seawall from Harbor to East Beach public restroom on E Cabrillo Blvd • Construct/extend seawall east along East beach to Clark Estate along bike path • Laguna Creek tide gate/pump improvements/ maintenance • Add tide gate and pump station at Andree Clark Bird Refuge • Raise lands around harbor above tidal inundation, raise bulkheads, groins, and breakwater to protect against storm flooding. Renovate/rebuild marina facilities. • Raise Leadbetter Parking lot. • Dewater with groundwater wells and pumps along section of Shoreline Drive behind harbor. • Expand floodwalls up Mission and Sycamore Creeks • Dewatering wells and pumps to manage rising groundwater in low-lying flood areas. • Maintain/upgrade Stearns Wharf

Two city-wide adaptation scenarios were created by combining the approaches for the west and east portions of the city. While the two scenarios differ in their approach on the west side of the City, they employ the same approaches for the east side of the City. The Protect Scenario combines the West City Protect Scenario and the East City Protect Scenario. The Retreat/Protect Hybrid Scenario combines the West City Retreat Scenario with the East City Protect Scenario. Vulnerability reduction and associated economic costs and benefits were evaluated at 2060 and 2100 for both the Protect and Retreat/Protect Hybrid Scenarios. Sea-level rise hazard vulnerability reduction and adaptation cost-benefit analysis are discussed in the following sections.

Note that the feasibility of maintaining a lowered groundwater table through pumping is outside the scope of this Adaptation Plan and would need to be further assessed in terms of the required conveyance, storage and treatment, and disposal of groundwater associated with such a management system.

Note that the feasibility and effectiveness of protecting the bluff face with armoring in both adaptation scenarios described above is uncertain and requires further evaluation of landslide risk. Landslide risk is not addressed by sea-level rise adaptation measures and should be evaluated on a site-by site basis.

1.4 Key Concepts and Assumptions

The following key concepts and assumptions apply to this benefit-cost analysis (BCA):

1. STATIC BUILT ENVIRONMENT: This analysis superimposes potential future physical conditions on the existing built environment. While it is likely that the built environment in the City of Santa Barbara will undergo changes between the present year and the end year of analysis in 2100, modeling such changes was beyond the scope of this analysis.
2. RISK TYPE: There are two primary model types for evaluating hazard risk: deterministic models and probabilistic models. Deterministic risk models generally account for the effects of a single scenario, for example a 100-year storm event in a defined year. Probabilistic risk models, which are very resource intensive, consider a wide range of scenarios, their likelihood, and the related effects. Due to resource constraints, a deterministic model was used to generate results in the discrete time horizon years of 2018, 2060 and 2100. Results in between these years are interpolated.
3. TEMPORARY VS PERMANENT IMPACTS: This analysis assumes that temporary impacts occur when assets are exposed to storm flooding and storm waves and that permanent impacts occur when assets are exposed to tidal inundation or beach or bluff erosion. Permanent impacts can include both one-time impacts, as well as recurring impacts. In this report a one-time impact relates to the market value or real property value at risk, whereas recurring impacts capture the annual income and/or revenues associated with a property at risk.
4. IMPACT ACCOUNTING GEOGRAPHY: This analysis is focused on evaluating economic and fiscal impacts to the City of Santa Barbara and not the broader region, state or nation. It also focuses on direct impacts, rather than secondary or indirect and induced impacts that can occur from changes in economic activity.
5. BURDEN OF PAYMENT: This analysis does not assign the responsibility of payment to any specific entity to recover from modeled impacts or to pay for adaptation. This

determination is dependent on a number of factors and is case-dependent. For example, if a residential property experiences impacts from storm-induced flooding, payments to cover losses to property, contents, and cleanup costs would depend on if the property owner has flood insurance, the type and level of insurance policy (if applicable), as well as any other types of federal, state, or local aid made available. For adaption, considerations of who will pay and how much depends on the availability of funding, the amount of benefit provided by specific actions to specific entities, as well as broader equity considerations.

6. ADAPTATION IMPLEMENTATION AND USEFUL LIFE**:** It is assumed that the projects are designed to mitigate impacts that will occur between 2020 and 2100. The useful or effective life of the adaptation projects proposed vary by type. It is assumed that best infrastructure management practices are implemented, thereby limiting deferred maintenance and the increased costs that are associated with infrastructure that does not function up to design standards. The programming of adaptation projects was provided by ESA.

7. ADAPTATION COSTS. The capital and maintenance costs to implement identified adaptation projects were used to inform the estimate of net impacts. Ongoing operation costs are not incorporated into the analysis. Costs were provided for the economic analysis by ESA.

8. PRICE LEVEL: All costs have been normalized and are presented in 2018 dollars, unless noted otherwise.

9. INFLATION: No general price inflation is included in the analysis.

10. ESCALATION: No escalation is made to account for increases in construction costs and economic growth in the Study Area that may outpace general price inflation given the extended timeframe of the analysis.

11. DISCOUNTING: Federal guidance prescribes that a discount rate ranging from 3% to 7% can be used for analyses of this type to account for the time value of money, which can affect overall considerations of the costs and benefits of taking action at different points in time. The specific determination of what discount rate to use requires consideration of the nature of the project and how it affects private investment and consumption. A 4% discount rate is used in this analysis because of the high level of impacts to public assets.

12. RESULTS REPORTING: Multiple reporting metrics are used to present the findings of the analysis, including:

    - *Event-Based Impacts:* This metric reflects the amount of impacts that could be expected under the if the modeled hazard events were to occur in the Study Area today. Essentially these results reflect the superimposition of future physical conditions on the existing built environment and economy. These results are not adjusted to account for the probability of such an event occurring in the discrete time horizon years.

    - *Avoided Impacts:* This value represents the difference between the estimated impacts under the No Action scenario to the estimated impacts for the modeled adaptation scenarios. Essentially this metric reflects the amount impacts mitigated as a result of investment in adaptation

    - *Cumulative Impacts:* The estimated impacts for each year in the period of analysis, which account for the likelihood of the modeled hazards occurring, are summed to develop an estimate of cumulative impacts.

- *Net Impacts*: The net impacts are calculated by subtracting the cumulative present value costs of adaptation from the cumulative present value of benefits (or impacts avoided) conveyed by investing in adaptation. Financial discounting is used to estimate the expected present value costs and benefits.
- *Benefit-Cost Ratio*: The economic justification for a project scenario is presented in the form of a benefit-cost ratio (BCR) whereby the total present value of benefits conveyed by adaptation are divided by the total present value costs of adaptation. When the ratio of benefits to costs is greater than one, an investment can be considered economically justified. For instance, a project would be considered economically justified if the present value benefits are $100,000 and the present value costs are $90,000. The BCR in this context would be 1.1 ($100,000/$90,000).

1.5 Guidelines for Conducting a Benefit-Cost Analysis

Benefit-cost analysis (BCA) is a common tool to help inform decision-making around the costs and benefits of infrastructure investments. At the Federal level, the Army Corps of Engineers (USACE) and the Federal Emergency Management Agency (FEMA) have developed the most detailed guidance on how to evaluate potential economic outcomes for projects designed to mitigate the risks from natural hazards, such as coastal storms. Other federal institutions like the U.S. Department of Transportation (DOT), the National Oceanic and Atmospheric Administration (NOAA), the Office of Management and Budget (OMB), and the U.S. Department of Housing and Urban Development (HUD) have also established protocols for considering the costs and benefits of infrastructure-related investments. While there are many similarities across these programmatic guidelines, there are also unique differences that reflect the nature of the impact accounting being undertaken. This analysis draws from a variety of methodologies outlined by the Federal agencies discussed above, which could help to better position the City to pursue funding opportunities from these entities in the future.

1.6 Principles of Benefit Cost Analysis Accounting

In any benefit-cost analysis (BCA), it is critical to define the principles of what accounts for an impact and who qualifies as an impacted party. In some cases, a loss to one party results in a gain to another party. In such a context, if the loss to one party is equivalent to the gain of another party, perfect substitution is achieved and there is no net loss or gain. In the real world, perfect substitution of a good(s) or service(s) rarely exists, and even if it does occur, it does not change the fact that one party is a loser, while the other is a winner. This analysis is structured to account for entities in the City of Santa Barbara that are directly and adversely impacted from the modeled coastal hazards. For instance, consider a residential rental property that is damaged by a coastal storm. In such an event, the renter would likely have to relocate to another residence while repairs are undertaken. This analysis assumes that the renter would not be subject to new costs but will transfer their rental expenses to another property owner. However, the owner of the damaged residence is expected to face adverse impacts in the form of rental losses equivalent to the amount of time needed to repair their residence and find a new tenant.

1.7 Categories of Impact Evaluated

The scope of a benefit-cost analysis (BCA) can vary greatly. This is especially the case for the type and number of impacts being considered and the way they are evaluated. These decisions are informed by considerations that include, but are not limited to, time and resources, data quality and availability, and programmatic policies. This BCA is focused on a broad but standard set of economic and fiscal impact types that are often considered in natural hazard risk assessments. The economic and fiscal impact types that were scoped for this BCA are listed in Table 9 below and discussed in more detail in Section 2. Because this BCA assumes that different types of impacts are expected from temporary storm-driven flooding compared to permanent progressive tidal inundation or bluff or shoreline erosion, separate impact assessment methodologies and categories of impact were evaluated.

Table 9: Impact Types Evaluated

SUMMARY OF IMPACT CATEGORIES AND TYPES EVALUATED		
Impact Category	**Temporary Storm Impact Types Evaluated**	**Permanent Tidal and Erosion Impact Types Evaluated**
Direct Property	Structure damage Content loss Cleanup costs	Market value or real property value loss
Displacement	Relocation costs Temporary shelter costs	NA
Business and Employment	Sales loss Wage loss	Sales loss Wage loss
Infrastructure	NE	Full replacement costs
Fiscal	Property tax loss Sales tax loss Transient occupancy tax loss Waterfront Department revenue loss	Property tax loss Sales tax loss Transient occupancy tax loss Waterfront Department revenue loss
Non-Market	NA	Recreational value loss

Notes:
NA = Impacts not applicable based on methodological framework; NE = Impacts not evaluated based on scope of the analysis.

2. Economic and Fiscal Impact Evaluation Methods

This benefit-cost analysis (BCA) draws from commonly-used guidance outlined by the federal agencies discussed in Section 1.5. The BCA also incorporates techniques from relevant academic and technical studies that address principles of accounting for economic and fiscal impacts in the natural hazard context. While standard economic methodologies underpin this BCA, effort was taken to ensure that model inputs reflected local—not national or regional—economic conditions where feasible to more accurately reflect on-the-ground conditions.

A variety of economic and fiscal modeling techniques were used to inform the results presented in this report, including: economic damage, economic impact, economic value, and fiscal impact. Clarifying descriptions of these distinct economic concepts are provided below with some examples of how these concepts relate to this study.

Economic Damage: This measures the degree of land and/or structure value vulnerable to modeled hazards. For instance, the economic damage to a commercial business subject to storm-induced flooding would account for the cost to repair the damaged structure, replace damaged contents, and carryout any required cleanup activities.

Economic Impacts: This measures the flow of spending through an economy and the associated jobs and wages, among other items, associated with this spending. For instance, a commercial business that must close for repairs due to storm-induced flooding will experience sales/output losses until they are able to resume their operations offsite at another location or resume operations onsite. This impact directly affects the jobs and wages of employees supported by such spending. Economic impacts in this analysis focus on direct sales, wages and job losses to impacted businesses, but can also include indirect and induced impacts that reflect losses to business that directly support the impacted business, as well as personal spending of impacted employees, respectively.

Economic Value: This measures the net value that a resource provides to society, which is generally not included in standard economic measures (e.g., gross domestic product) or market pricing (e.g., home sales). Economists use various techniques to evaluate economic value, most notably consumer surplus which is the difference between what a consumer pays for a resource compared to what they are willing to pay for that resource. In the context of this analysis, non-market value estimates are evaluated for beach recreational users who are documented to value their visit to the beach above and beyond what they pay (e.g., parking, sundries) for such an experience.

Fiscal Impacts: This measures the net impact on government from a specific activity, accounting for changes in governmental costs and revenues. This type of analysis is generally conducted for understanding the financial impacts to a governmental entity that is exploring an action like the approval of a residential development. While residential development can bring in new revenues in the form of property and sales taxes as well as other fees, such a project could also necessitate new services or facilities like fire, police, schools, and parks, which come with a cost. This study is primarily focused on changes in revenues to the City of Santa Barbara with an emphasis on City agencies that own and/or manage property along the waterfront and secure revenues from such operations. Additional consideration is given to secondary impacts in the form of sales tax, transient occupancy tax and property tax impacts related to property, business, and beach visitation. No consideration has been made with respect to how City expenditures could change in light of reduced fiscal revenues. For example, lost waterfront parking revenues have not been translated to changes in staffing and associated City expenditures to support wages of parking operations staff.

Note: Different types of impacts are expected from temporary storm-driven flooding compared to permanent progressive tidal inundation or bluff or shoreline erosion. Separate accounting methodologies were used to address these different types of impacts.

2.1 Temporary Storm Impacts

2.1.1 Direct Property Impacts

Storm-induced flooding can cause direct physical damage to structures and their contents as well as result in costs to clean up damaged property. In the context of this analysis, structural damage applies to real property while content damage applies to personal property.

Methodology

Standard procedures outlined by the Army Corps of Engineers (USACE) and the Federal Emergency Management Agency (FEMA) were used to estimate damages to structures and contents. The primary steps of the analysis include:

1. Identifying structures that are at risk to flooding.
2. Determining the depth of flooding for at risk structures.
3. Estimating the replacement value of at risk structures.
4. Estimating content replacement value within at risk structures.
5. Relating depth of flooding and structure and content replacement values to occupancy-specific depth damage functions (DDFs).[2]
6. Inflating structure damages for parcels that are subject to wave hazards.
7. Calculating cleanup costs for the estimated structure damage.

Inputs

A variety of data sources were used to carry out this benefit-cost analysis (BCA). An inventory of parcel lot and structure characteristics was developed using data catalogued by the Santa Barbara County Assessor's office. Depth of flooding was determined by overlaying hazard maps developed by the Project Team on the spatially-explicit parcel and structure inventory. Building replacement values were estimated using local cost per square foot factors developed by RS Means. When local values were not available for specific occupancy types, default values from FEMA were incorporated. The DDFs and content to structure value ratios used in the analysis were developed by the USACE. These outputs were developed from observed coastal storm damages along the Gulf Coast; no coastal DDFs have been developed for the West Coast to date. First floor elevations were assumed to be one foot above grade for a majority of properties. Cleanup costs were estimated on a fixed unit cost for residential parcels and on a fixed percentage basis of the estimated structure damage for non-residential properties per California Department of Water Resources guidance (DWR 2008).

Key Assumptions and Considerations

A number of data processing techniques were required to progress through the methodological steps outlined above. The land use or occupancy types of parcels recorded by the Santa Barbara County Assessor had to be mapped onto the classifications used by RS Means and FEMA to estimate the appropriate replacement values. A similar exercise was also necessary to assign the most appropriate DDFs to each parcel and its structure(s).

[2] Depth damage functions account for the relationship between the depth of flooding within a structure and the extent of damage that could be expected, expressed as a percentage of the total building or content replacement value.

Parcel data catalogued by the County Assessor serves as the building blocks for estimating direct property impacts. In many cases, parcel attribution for relevant lot and or structure characteristics was incomplete. For instance, many parcels had a structure value, but no information on the size of the structure, and vice-versa. Professional judgement was used to fill these data gaps. Generalizable assumptions were applied to populate relevant data gaps across parcels with similar land uses and specific properties were flagged and evaluated if the identified direct property impacts were significant in magnitude (e.g., Santa Barbara City College); it was beyond the scope of this analysis to do a data check on each parcel vulnerable to modeled hazards.

To account for the potential of additional damages at parcels subject to both storm flooding and storm waves, DDFs were adjusted upward by 10%. For parcels subject to storm waves but not subject to storm flooding, damages were modeled at 10% of the structure and content replacement value.

2.1.2 Displacement Impacts

Storm-induced flooding resulting in property damage can displace people and businesses. Displacement can trigger a number of costs, such as one-time relocation costs, additional rental costs for the period of time that a property is being rehabilitated, and temporary shelter costs for impacted entities who cannot immediately return to their residence or business. In addition, businesses that are required to relocate can experience wage and sales losses until they are back in operation at another location. These wage and sales losses are accounted for in the Business and Employment Impacts discussion (Section 2.1.3).

Methodology

Standard procedures outlined by the Federal Emergency Management Agency (FEMA) were used to estimate displacement and relocation costs. The primary steps of the analysis include:

1. Identifying structures that are at risk to flooding.
2. Determining the depth of flooding for at risk structures.
3. Relating the depth of flooding to the degree of structural damage that is expected.
4. Calculating building rehabilitation time by considering the estimated degree of building damage.
5. Applying one-time relocation costs to entities directly impacted by flooding and subject to displacement.
6. Applying additional rental costs to directly impacted entities, accounting for owner and renter occupancy breakdowns, vacancy rates, as well as considerations of what types of occupants would be able to relocate.

Inputs

The required inputs to determine the degree of flooding to buildings are outlined in the Direct Property Impacts discussion (Section 2.1.1). FEMA technical guidance documents outlined the additional information required to relate flood depth to the degree of structural damage. These documents also included values for restoration timelines, one-time relocation costs, and average renter and owner occupancy rates. Percent owner occupied came from FEMA technical

guidance per HAZUS land use code. Vacancy rates, and rental costs for different occupancy classes were identified using current real estate market studies (e.g., CoStar). Shelter costs and meals and incidental costs were calculated based on per diem values provided by the U.S. General Services Administration for Santa Barbara. Average in-residence meal costs were estimated with United States Department of Agriculture data and were subtracted from per diem values to calculate only the additional costs incurred.

Key Assumptions and Considerations

If a structure was assigned with more than one story, and flood depth was less than 10 feet, it was assumed that only the first floor would be directly impacted by flooding and all stories above the first floor would be indirectly impacted by flooding. Occupants indirectly impacted by flooding may be unable to access their residence or business, but these potential impacts were not accounted for in the analysis.

This analysis further assumes that nearly all businesses and residents that experience direct flooding impacts are able to relocate in the City. The few exceptions are for occupancy types where there are fewer substitute locations that could absorb specialized business operations (e.g., hotels) and for occupants of buildings at the Harbor and Stearns Wharf because of the site-specific operations of onsite occupants. The relocation determinations are based on default factors developed by FEMA. More specific information on building occupancy and vacancy rates in the City of Santa Barbara could result in changes to the applied relocation factors. This level of analysis is beyond the scope of this benefit-cost analysis (BCA), and would be highly speculative considering the future time horizons in 2060 and 2100 and changes in land use and economic activity that could occur between now and these future years.

2.1.3 Business and Employment Impacts

Storm-induced flooding can damage structures and result in business losses during building rehabilitation. If a business is closed, sales and wage losses would be expected as well as the potential for lost employment and other associated fiscal impacts. The Fiscal Impacts model (Section 2.1.4) accounts separately for related business revenue losses.

Methodology

Standard procedures outlined by the Federal Emergency Management Agency (FEMA) were used to estimate business and employment impacts. The primary steps of the analysis include:

1. Determining the number of businesses in the study area and associate these businesses with the building data collected in the Direct Property Impact analysis (Section 2.1.1).
2. Identifying the sales, wages, and number of employees for all businesses.
3. Assigning each business to an industry code to determine what percentage of sales and wages can be recaptured at a later date through increased productivity.
4. Using Direct Property Impacts (Section 2.1.1) model outputs to identify how many businesses will be impacted by structure damage and for how long they will experience an economic loss of function (LOF), calculate the associated sales and wage losses that cannot be recaptured, and for occupancy types where there are fewer substitute locations that could absorb operations, assign the LOF timeframe to the total number of days required for the structure to be rehabilitated.

Inputs

Several data sources were used to inform this analysis. Environmental Systems Research Institute's (ESRI's) Business Analyst was used to collect business data for the study area including: number of employees by business, sales volume by business, address, and the North American Industry Classification System (NAICS) code for all businesses. Sales volume estimates are for the full year 2017 for each business and are based on a model that assigns sales estimates per employee, using NAICS codes when specific data is not available. Companies that typically do not generate sales (e.g. educational institutions and government offices) are not assigned sales volumes in the ESRI model. Wage data came from the Santa Barbara County Quarterly Census of Employment and is assigned based on NAICS code. Recapture rates came from FEMA. All businesses were then associated with the Direct Property Impact (Section 2.1.1) information. Loss of function estimates were identified in FEMA technical documentation.

Key Assumptions and Considerations

Business impacts were evaluated using output data on sales revenue/volume. This metric is the broadest measure of economic activity, compared to other measures like personal income or gross domestic product or value added. As such, it results in the largest representation of impacts. Sales volume includes the gross business revenue which in turn pays for several items including the costs of materials and labor. A limitation in using this metric is that it does not differentiate between activities that provide a high or low level of value added in the geography of analysis. The former would result in significant local profit/income while the latter could result in a limited amount of local profit/income from the same sales output. While there are limitations to using sales volume as an indicator of economic activity, this data was most readily available for comparative use in this analysis. While potentially overstating the local economic impact of vulnerable industries, only direct economic impacts from sales were evaluated, rather than the additional indirect and induced impacts of such sales. As such, the use of direct sales may not overstate the full economic impact that could be expected, and the costs and/or benefits of taking action to reduce vulnerability to coastal hazards at the local level would be expected to have broader impacts to the economy beyond Santa Barbara.

The economic LOF time is the amount of time a business is not capable of conducting its operations; it is typically shorter than the rehabilitation time of a damaged property as it assumes that businesses will rent alternative space during repairs and construction. LOF depends on the damage state, as determined by the percent of structure damage compared to the full building replacement value. Determinations on if a business is directly or indirectly impacted by flooding and the relative LOF timeline were made using similar considerations relating to flood depth and the number of stories in a building as described in Displacement Impacts (Section 2.1.2).

Businesses at the Harbor and Stearns Wharf and hotels adjacent the waterfront are assumed to not be able to recapture sales at a later date due to their site-specific operations, resulting in a complete loss of business activity until their facilities can be repaired and assume normal operations.

2.1.4 Fiscal Impacts

Storm-induced flooding that damages property can result in fiscal impacts in the form of reduced sales tax, transient occupancy tax and property tax revenues, as well as a loss of Waterfront

Department revenues. Sales tax and transient occupancy tax losses are a function of the amount of time a business is unable to operate, as well as considerations relating to the ability of a business to recapture some of these earnings at a later date, as determined in the Business and Employment Impacts model (Section 2.1.3). Property tax losses are a result of property being reassessed to account for direct structure impacts. Revenue losses for the Waterfront Department relate to a reduction in tenant sales, as defined in lease agreements. Only fiscal impacts to the City of Santa Barbara are modeled; additional regional, state and national impacts are not captured in this analysis.

Methodology

The primary steps of the analysis include:

Sales Taxes:

1. Multiplying sales losses determined in the Business and Employment Impacts model (Section 2.1.3) by an estimate of percent of total sales that are subject to taxes.
2. Applying estimate of taxable sales losses to the local sales tax rate.

Transient Occupancy Taxes:

1. Multiplying sales losses for hotels and other establishments that provide overnight accommodations determined in the Business and Employment Impacts model (Section 2.1.3) by an estimate of percent of total sales that are subject to transient occupancy taxes.
2. Applying estimate of sales subject to transient occupancy taxes by the local transient occupancy tax rate.

Property Taxes:

1. Multiplying the recorded assessed improvement/structure value of vulnerable property by the percent structure damage determined in the Direct Property Impacts model (Section 2.1.1).
2. Applying the estimate of structure value loss by the local property tax rate.

Harbor and Stearns Wharf Revenues:

1. Multiplying sales losses determined in the Business and Employment Impacts model (Section 2.1.3) by a percentage factor accounting for that of gross sales leaseholders provide to the Waterfront Department.
2. Relating annual marina management revenues to damage assumptions, including the timeframe of operational impacts and extent of operational impacts.

Inputs

Local tax rate data was identified from information published by the California Department of Tax and Fee Administration and the City of Santa Barbara. Local property taxes are estimated at 1% of the net secured value. Sales taxes collected by the City are estimated at 2% and transit occupancy taxes are estimated at 12%. Sales and transient occupancy taxes were applied to the sales data provided by Environmental Systems Research Institute's (ESRI's) Business Analyst tool and the North American Industry Classification System (NAICS) industry code.

Key Assumptions and Considerations

Property tax losses are assumed to be a function of the percent of structure damage recorded. Property tax losses are dependent on the assumption that the property is not rebuilt or fixed in the calendar year that it is damaged, and that no additions are made to the property that would trigger an increased assessment. Additionally, property tax losses modeled are only tied to structure losses. It is possible that land value could also be impacted but modeling this impact would require credible damage functions which were not identified in the review of the literature.

The percent of total sales that are subject to taxes was estimated at 90% for all businesses, and the percent of hotel and overnight lodging sales subject to transient occupancy taxes was assumed to be 95%.

The Waterfront Department provided input on the amount of revenues they secure from tenants at the Harbor and Stearns Wharf. An approximate factor of 10% of gross sales was accounted for in the analysis. The analysis does not account for lost lease payments from other tenants that do not generate sales. Marina-specific infrastructure damage assumptions were informed by conversations with Waterfront Department staff and are outlined in the VA.

Costs relating to emergency operations by City personnel are not included.

No consideration has been made with respect to how City expenditures could change in light of these reduced revenues (e.g. lost waterfront parking revenues have not been translated to changes in staffing and associated City expenditures to support wages of parking operations staff).

2.2 Permanent Tidal Inundation and Erosion Impacts[3]

2.2.1 Direct Property Impacts

Property that is vulnerable to permanent tidal inundation or shoreline or bluff erosion is assumed to be an asset with limited to no market value and income producing potential. Market impacts are for privately owned parcels. For City-owned parcels, impacts were modeled using City records of “total real property” (where available) that represent the insured value of a parcel and its structure(s).

Methodology

The primary steps of the analysis to calculate the market value of parcels at risk include:

1. Identifying parcels that are vulnerable to tidal inundation and/or erosion and that are no longer considered functional assets.
2. Developing market valuation factors that can be applied throughout the City of Santa Barbara for different occupancy types (e.g., commercial, industrial, mixed use, residential, parking) using standard real estate proforma techniques.
3. Applying estimated market factors to at risk parcels, accounting for occupancy class and characteristics of the parcel.

[3] Tidal inundation and erosion impacts for existing conditions were not monetized due to their assumed limited impact.

Inputs

The core inputs incorporated in the market value assessment of property include rents, vacancy, operating expenses and capitalization rates. These data inputs were identified in published real estate market reports (e.g., CoStar).

Key Assumptions and Considerations

If a property is subject to tidal inundation and/or erosion, the market value of this property is assumed to be lost in addition to any future ability to generate income on that property (i.e., business impacts). Because coastal hazards will gradually increase, there would likely be a steady decline in the market value of properties that stand in the path of tidal flooding or erosion, rather than a one-time complete market loss. Impacts were only modeled at the discrete future time horizon years (2060 and 2100), therefore it is possible that some of the properties would become subject to tidal inundation or erosion in an earlier year. Additionally, the market factors reflect average values in the City of Santa Barbara and could understate or overstate the value of an individual property.

Thresholds were used to determine if properties will be subject to market value loss. For vacant land, properties must be impacted by greater than 10% exposure to tidal inundation or erosion before the market value threshold is reached. For properties with structures on them, the market value threshold is reached if there is any tidal or erosion exposure and if the structure footprint makes up greater than 50% of the parcel area. However, for parcels where the structure footprint is less than half the parcel area, tidal or erosion exposure must be greater than 10% for the market value loss threshold to be triggered.

There was limited attribution data (land or structure value and other supporting characteristics like the number of recreational users) recorded by the County Assessor and other City departments to develop a reliable estimate of real property losses for all publicly-owned property, such as parks and other special use facilities that were determined vulnerable to the modeled hazard conditions. Because of these data gaps, real property losses have been not been calculated for some of the vulnerable public parcels. Proxy impacts for public assets like businesses on the Harbor and waterfront parking lots are included in the Business and Employment Impacts model (Section 2.2.2) and the Fiscal Impacts model (Section 2.2.4).

2.2.2 Business and Employment Impacts

Businesses that are vulnerable to permanent tidal inundation or shoreline or bluff erosion are assumed to have limited or no potential to generate business and employment output. Additionally, beach erosion over time can result in fewer beach visitors which in turn can result in a loss of spending and wages for local businesses.

2.2.2.1 Business and Employment Impacts from Direct Property

Methodology

Standard procedures outlined by the Federal Emergency Management Agency (FEMA) were used to estimate business and employment impacts. The primary steps of the analysis include:

1. Identifying what properties are vulnerable to tidal inundation and/or erosion and that are no longer considered functional assets, based on damage thresholds identified in the Direct Property Impacts discussion (Section 2.2.1).

2. Determining sales and wages for identified vulnerable businesses.
3. Calculating the annual losses of sales and wages that cannot be recaptured.

Inputs

The core inputs for this analysis are the same as those used in the temporary storm Business and Employment Impacts model (Section 2.1.3).

Key Assumptions and Considerations

The key assumptions and considerations for this analysis are the same as those listed in the temporary storm Business and Employment Impact discussion (Section 2.1.3). The business and employment impacts are assumed to be equivalent to the sales and wages that would have been expected in a full calendar year. Consideration is given for the potential for these sales to be recaptured elsewhere in the City of Santa Barbara.

2.2.2.2 Business and Employment Impacts from Beach Visitation

Methodology

Standard methodologies outlined in the academic and management literature for estimating beach recreational spending impacts in California were used in this analysis. The primary steps of the analysis include:

1. Estimating total number of annual visitor days.
2. Identifying the amount of beach goer expenditures for day visitors and overnight visitors.
3. Relating annual visitor days to beach goer expenditure, accounting for different spending patterns by day visitors and overnight visitors.
4. Adjusting total annual recreational spending by factors that account for the amount of local spending.
5. Re-computing beach goer expenditures for future scenarios, accounting for how changes in beach width following SLR affects total annual visitation.
6. Reducing beach goer expenditures by assumed percentage of expenditures that may be made elsewhere in the event of not visiting the beach.
7. Relating changes in beach goer expenditures to changes in employment wages.

Inputs

The core inputs for this analysis include beach visitation estimates that were informed by records collected by the City of Santa Barbara and published reports from the region (e.g., BEACON 2009), beach visitor spending profiles from published reports (e.g., King and Symes 2004), and estimates of changes in attendance resulting from beach erosion over time informed by the framework that underpins the Coastal Sediment Benefits Analysis Tool (CSBAT), which is discussed in more detail in the Non-Market Impacts discussion (Section 2.2.5).

Key Assumptions and Considerations

Beach visitation estimates were provided by the City of Santa Barbara for East Beach, West Beach, and Leadbetter Beach, and the County provided visitation estimates for Arroyo Burro Beach. These estimates were reviewed but were not considered representative of the annual visitation at these sites. There are several reasons for the potential lack of accuracy associated with such estimates, including the use of informal sampling plans and outdated algorithms. Given this potential inaccuracy, estimates were used from past studies in the area that

undertook a more comprehensive approach to determining visitation (e.g., King and McGregor 2012).

Trip expenditure estimates derived from past studies were escalated to current price levels using the Consumer Price Index. Beach goer spending contributes to local economic activity, and some of these purchases can represent a transfer of expenditures that may have been made elsewhere. However, a large proportion of this spending would not take place in the absence of a trip to the beach (Pendleton and Kildow 2005). To account for this transfer of spending to other businesses, a conservative assumption was made that for every local dollar that would have been spent by a beach visitor, 75 cents would be recirculated in the local economy, resulting in a loss of 25 cents on the dollar for foregone beach trip expenditures.

Changes in employment wages were estimated at 30% of the expected changes in sales, based on a comparison of data in the Business and Employment impacts model (Section 2.1.3).

2.2.3 Infrastructure Impacts

Permanent tidal inundation or shoreline or bluff erosion can cause damage and/or a loss of function to public works infrastructure assets (e.g., roads, potable water, wastewater, electricity, and natural gas).

Methodology

The primary steps of the analysis include:

1. Identifying what public works assets and critical facilities are vulnerable to tidal inundation and/or erosion.
2. Developing unit cost replacement values for vulnerable assets based on the current design and location.
3. Applying estimated unit cost values to vulnerable assets.

Inputs

The core inputs for this analysis include an inventory of infrastructure assets in the study area and engineering replacement cost estimates.

Key Assumptions and Considerations

In theory, the extent of damage and/or the potential loss of function for infrastructure assets can be accounted for by determining the degree of potential impact and assigning changes in service values where applicable. Given the specialized function of these assets, one would need to develop site-specific damage and/or loss of function thresholds for vulnerable assets and facilities using a degree of rigor that is beyond the scope this analysis. Rather than quantify the degree of impact, the full replacement cost (in place and as currently designed) is reported for infrastructure assets exposes to tidal inundation and/or erosion. These results could understate the potential impacts if there is a need to permit and/or relocate (which would incur additional real estate costs) exposed assets and facilities.

2.2.4 Fiscal Impacts

Property that is vulnerable to permanent tidal inundation or shoreline or bluff erosion, as described in the Direct Property Impacts model (Section 2.2.1) is assumed to be an asset with limited to no market value and income producing potential. When a property loses its market

value and/or operating potential, fiscal impacts could occur in the form of annual lost sales tax, transient occupancy tax, and property tax as well as lost Waterfront Department revenues from parking, tenant payments and slip fees, among others. Shoreline erosion over time can also result in a reduction in beach visitation and associated spending on items like food, sundries, and lodging that are taxable goods or services secured by the City.

2.2.4.1 Fiscal Impacts from Direct Property

Methodology

Standard fiscal impact methodologies were used to assess sales and transient occupancy tax losses. Property tax losses were informed using input from the County Assessor. The primary steps of the analysis include:

Sales Taxes:

1. Multiplying sales losses determined in the Business and Employment Impacts model (Section 2.2.2) by an estimate of percent of total sales that are subject to taxes.
2. Applying estimate of taxable sales losses to the local sales tax rate.

Transient Occupancy Taxes:

1. Multiplying sales losses for hotels and other establishments that provide overnight accommodations determined in the Business and Employment Impacts model (Section 2.2.2) by an estimate of percent of total sales that are subject to transient occupancy taxes.
2. Applying estimate of sales subject to transient occupancy taxes by the local transient occupancy tax rate.

Property Taxes:

1. Identifying the recorded total assessed value (e.g., land and improvements/structures) of vulnerable property as determined in the Direct Property Impacts model (Section 2.2.1).
2. Applying the estimate of total assessed loss by the local property tax rate.

Parking Revenues:

1. Identifying the amount of tidal or erosion exposure at revenue producing parking lots along the waterfront.
2. Multiplying the amount of exposure per lot by the annual revenue per lot.
3. Adjusting estimated revenue exposure by average parking occupancy rates.

Harbor Revenues:

1. Multiplying sales losses determined in the Business and Employment Impacts model (Section 2.2.2) by an estimate of percent of total sales that are subject to taxes.
2. Applying estimate of taxable sales losses to the local sales tax rate.
3. Estimating additional revenue impacts to Waterfront Department from the loss of business tenants and marina slip holder payments.

Inputs

The core inputs to assess lost sales taxes, transient occupancy taxes, and property taxes are the same as those used in the temporary storm fiscal impact description (Section 2.1.4.). The City provided data on revenues and occupancy rates for the 2017 fiscal year, which were used to assess parking revenue losses. Additional lost revenues related to the Harbor were identified using information from ESRI's Business Analyst tool as well as data provided by the Waterfront Department, in particular a past economic impact report (California Economic Forecast 2014), and revenue data from past years.

Key Assumptions and Considerations

The key assumptions and considerations to assess lost sales taxes, transient occupancy taxes, and property taxes differ from those used in the temporary storm Fiscal Impact description (Section 2.1.4) in two distinct ways. For property taxes, the entire assessed value of vulnerable property is used to compute impacts rather than a percentage of the damaged improvement or structure value. The property tax analysis does not account for the potential turnover or sales of homes over the period of analysis, which would result in the reassessment of any sold property and a change in the assessed value if the sale price is greater or less than the currently recorded assessed value. For sales taxes and transient occupancy taxes, the total annual sales subject to these taxes was incorporated into the analysis, accounting for sales that could be recaptured at substitute sites. If impacted businesses are not able to permanently relocate, the magnitude of associated fiscal impacts could be much greater. Parking revenue losses are assumed to be proportional to the amount of exposure modeled, accounting for average occupancy rates.

2.2.4.2 Fiscal Impacts from Beach Visitation

Methodology

Standard fiscal impact methodologies were used to assess beach visitation losses. Beach visitation losses were informed using published reports on beach goer spending and estimates of visitation over the period of the analysis. The primary steps of the analysis include:

Sales Taxes:

1. Estimating the number of annual beach visitors accounting for changes in beach width.
2. Identifying the level of beach goer expenditures for day visitors and overnight visitors.
3. Adjusting total annual recreational spending by factors that account for the amount of spending that occurs locally.
4. Applying local sales tax rate to expenditures subject to sales taxes.

Transient Occupancy Taxes:

1. Estimating the number of annual beach visitors accounting for changes in beach width.
2. Identifying the level of beach goer expenditures for day visitors and overnight visitors.
3. Adjusting total annual recreational spending by factors that account for the amount of spending that occurs locally.
4. Applying local transient occupancy tax rate to expenditures subject to transient occupancy taxes.

Inputs

The core inputs to assess sales and transient occupancy tax impacts from changes in beach visitation include beach visitation estimates provided by the City and in published reports (e.g., BEACON 2009), estimates of beach goer expenditures from published reports (e.g., King and Symes 2004), and published sales and transient occupancy tax rates.

Key Assumptions and Considerations

Assumptions relating to beach visitation estimates are discussed in the Business and Employment Impacts description (Section 2.2.2). Trip expenditure estimates, which were escalated to current price levels using the Consumer Price Index, were derived from past studies in Southern California and may understate the comparative higher cost of goods and services in the Santa Barbara region.

2.2.5 Non-Market Impacts

Santa Barbara's beaches provide significant economic value to users and contribute to spending in the local economy. Over time, as demonstrated in the Vulnerability Assessment (VA), SLR will gradually inundate the City's beaches if no action is taken. As documented in the academic and management literature, the narrowing or eroding of beaches can result in fewer beach goers as well as less utility or economic value to visitors because of preferences related to the beach width and crowding.

Methodology

Standard methodologies for estimating beach recreational value in California were used in this analysis. In particular, the framework that underpins the California Sediment Benefits Analysis Tool (CSBAT) was used to estimate changes in beach recreational value. The primary steps of the analysis include:

1. Developing an index of beach recreational quality by inventorying the amenities of beaches in the study area.
2. Estimating the day use value for beach goers by discounting published "maximum" day use values respective to their recreational quality scores.
3. Applying the calculated day use value to the estimated number of annual visitor days discussed in the Business and Employment Impacts description (Section 2.2.2).
4. Re-computing total recreational value estimates for future scenarios, accounting for how changes in beach width affect the day use values and annual visitation.

Inputs

A number of data sources were used to estimate non-market-impacts. Beach width data was developed by the project team. The CSBAT framework was used to define the parameters of the beach recreational value model. This model was developed by Dr. Philip King for the USACE and State of California and is discussed in detail in a number of reports (see California Coastal Commission 2015). For most beaches evaluated, the index of recreational quality and estimates of annual visitation were informed by past CSBAT model applications in the region (e.g., BEACON 2009).

Key Assumptions and Considerations

Beach visitation estimates were provided by the City of Santa Barbara for East Beach, West Beach, and Leadbetter Beach, and the County provided visitation estimates for Arroyo Burro

Beach. These estimates were reviewed but were not considered representative of the annual visitation at these sites. There are several reasons for the potential lack of accuracy associated with such estimates, including the use of informal sampling plans and outdated algorithms. Given this potential inaccuracy, estimates were used from past studies in the area that undertook a more comprehensive approach to determining visitation (e.g., King and McGregor 2012).

Beaches in the City of Santa Barbara that were not analyzed in previous reports using the CSBAT model include the beaches in front of Shoreline Park and the Douglas Preserve. It was assumed that these beaches are accessed from either Arroyo Burro Beach or the stairs at One Thousand Steps or Mesa Lane stairs. Arroyo Burro Beach was considered the closest proxy beach in terms of amenities, and small adjustments were made to each beach index of recreational quality. No visitation numbers were available for these reaches of beach, and it was assumed that the beach fronting the Douglas Preserve and Shoreline Park had 20 percent and 15 percent, respectively, of the annual visitors estimated for Arroyo Burro Beach.

Beaches also provide a variety of other non-market values, including ecological, cultural and aesthetic values, that were not evaluated in this analysis.

2.3 Other Potential Impacts Not Evaluated

While effort has been made to account for the broad impacts that could result from future coastal hazards, there are several impact types that were not evaluated in this analysis due to data availability and resource constraints. These impacts, if valued, could change the consideration of the cumulative costs and benefits for the project scenarios. Below is a list of impact types that could be evaluated in future analyses:

Damage and loss of function to public works assets and other critical facilities: Storm flooding can result in damage and/or a loss of function to public works assets (e.g., roads, potable water, wastewater, electricity, and natural gas) and other critical facilities (e.g., schools, hospitals, fire stations, and police stations). These assets and facilities are of essential importance to the operation of commercial and industrial operations, and provide utility to residents. In theory, the extent of damage and/or the potential loss of function for these types of assets and facilities can be accounted for by determining the degree of potential impact and assigning changes in service values where applicable. Given the specialized function of these assets, one would need to develop site-specific damage and/or loss of function thresholds for vulnerable assets and facilities using a degree of rigor that is beyond the scope of this analysis.

Transportation and Transit Delays: Storm-induced flooding, and tidal inundation and erosion can cause traffic and transit impacts, which can result in costs to individuals using the transportation network. An initial analysis of transportation impacts, focused on travel delays, was undertaken. It was evident from the analysis that data gaps existed related to travel patterns. The impact results were nominal as they were limited to City roadways and did not include regional infrastructure such as Highway 101 and the rail network, which was beyond the scope of this study. Future analyses would benefit from exploring a more comprehensive analysis of transportation impacts including the upstream and downstream impacts beyond the City of Santa Barbara.

Public Parks: Several public parks and recreational amenities landward of the shoreline are vulnerable to storm flooding, tidal inundation, and erosion. These open space areas provide recreational value to users as well as fiscal revenues for the City; recreational facilities and programs adjacent to the waterfront generate on average nearly $2.5 million in annual revenues. Impacts to current and future recreational users were not modeled because of limited data on the intensity and types of uses but could be considered in future analyses.

Ecology and Habitat: Coastal areas provide ecological functions, goods, and services that provide value to society. No assessment has been undertaken as part of this analysis to understand how the project scenarios could alter these non-market values. As the scientific understanding evolves with respect to methods for evaluating these types impacts, it may be possible to include monetary estimates to view the tradeoffs of proposed adaptation measures.

3. Summary Results

Summary results for temporary storm and permanent tidal inundation or erosion modeled conditions are presented below for each impact type. The tidal inundation and/or erosion impacts account for both the one-time impacts to property as well as annual, recurring impacts to businesses, employment, fiscal revenues, and non-market values. The additional impacts from storm flooding are adjusted to consider the probability of the modeled events occurring in each year over the period of analysis.

While effort was taken account for the broad types of impacts that could result under the modeled scenarios, limited data, time, and resources made a full cost accounting of each and every impact infeasible in the context of this analysis. For instance, there was limited data for many of the public parcels (like parks) to support monetizing future risks without introducing a significant number of limiting assumptions.

Results are presented separately for the no action scenario and the adaptation scenarios. Results are broken out to illustrate:

1. Cumulative results that account for expected results over the period of analysis (Section 3.1);
2. Costs of proposed adaptation strategies (Section 3.2); and
3. Net impacts and benefit-cost ratios of proposed adaptation scenarios (Section 3.3).

Results are organized to not double count losses. To do this, if there is exposure to tidal inundation or erosion conditions, the impact is accounted for in the permanent progressive impacts and is taken out of temporary storm impacts, even if that same parcel or asset may be exposed to storm conditions simultaneously. Additional efforts were taken to account for overlapping or duplicative impacts. For instance, impacts are reported for both wages and sales of vulnerable firms. Both economic measures are relevant to decision-makers and other stakeholders but including both values in the reporting of cumulative results would result in double counting as sales collected are used to pay employees. Similarly, fiscal impacts in the form of sales taxes are relevant to public officials, but these taxes are paid from the sales of firms.

3.1 Cumulative Results

Table 10: Cumulative Impacts: No Action Scenario (2018 Dollars, $Millions)

CUMULATIVE IMPACTS FROM 2018 TO 2100			
Impact Type	**Permanent Tidal + Erosion**	**Temporary 100-Year Storm**	**TOTAL**
Direct Property	$596.7 M	$27.2 M	$623.8 M
Displacement	NA	$1.9 M	$1.9 M
Business Property-Related	$2051.0 M	$1.3 M	$2052.3 M
Business Beach Visitor-Related	$91.5 M	NA	$91.5 M
Total Business	$2142.5 M	$1.3 M	$2143.8 M
Infrastructure	$444.3 M	NE	$444.3 M
Property Taxes	$87.9 M	$0.2 M	$88.1 M
Sales Taxes Property-Related	$36.5 M	$0.0 M	$36.5 M
Sales Taxes Beach Visitor-Related	$0.6 M	NA	$0.6 M
TOT Property-Related	$2.4 M	$0.0 M	$2.4 M
TOT Business Visitor-Related	$2.2 M	NA	$2.2 M
Waterfront Department	$489.5 M	$0.2 M	$489.7 M
Total Fiscal	$619.1 M	$0.4 M	$619.5 M
Non-Market	$289.1 M	NA	$289.1 M
TOTAL	**$4091.5 M**	**$30.8 M**	**$4122.3 M**

Notes:

Lost business sales and associated fiscal impacts attributed to a reduction in beach visitation and associated spending are reported separately from property-related impacts.

Results are not adjusted to account for financial discounting.

NA = Impacts not applicable based on methodological framework; NE = Impacts not evaluated based on scope of the analysis.

Due to rounding, results may not add up precisely to the totals presented.

Table 11: Cumulative Impacts Avoided: Protect Scenario (2018 Dollars, $Millions)

CUMULATIVE IMPACTS AVOIDED FROM 2018 TO 2100			
Impact Type	**Permanent Tidal + Erosion**	**Temporary 100-Year Storm**	**TOTAL**
Direct Property	$568.5 M	$24.0 M	$592.4 M
Displacement	NA	$1.7 M	$1.7 M
Business Property-Related	$2012.4 M	$1.1 M	$2013.5 M
Business Beach Visitor-Related	-$3.2 M	NA	-$3.2 M
Total Business	$2009.2 M	$1.1 M	$2010.2 M
Infrastructure	$435.4 M	NE	$435.4 M
Property Taxes	$87.6 M	$0.2 M	$87.8 M
Sales Taxes Property-Related	$35.8 M	$0.0 M	$35.8 M
Sales Taxes Beach Visitor-Related	$0.0 M	NA	$0.0 M
TOT Property-Related	$2.4 M	$0.0 M	$2.4 M
TOT Business Visitor-Related	$0.0 M	NA	$0.0 M
Waterfront Department	$489.5 M	$0.1 M	$489.6 M
Total Fiscal	$615.3 M	$0.3 M	$615.6 M
Non-Market	-$13.2 M	NA	-$13.2 M
TOTAL	**$3615.1 M**	**$27.1 M**	**$3642.2 M**

Notes:

Lost business sales and associated fiscal impacts attributed to a reduction in beach visitation and associated spending are reported separately from property-related impacts.

Results are not adjusted to account for financial discounting.

NA = Impacts not applicable based on methodological framework; NE = Impacts not evaluated based on scope of the analysis.

Due to rounding, results may not add up precisely to the totals presented.

Table 12: Cumulative Impacts Avoided: Retreat/Protect Hybrid Scenario (2018 Dollars, $Millions)

CUMULATIVE IMPACTS AVOIDED FROM 2018 TO 2100			
Impact Type	**Permanent Tidal + Erosion**	**Temporary 100-Year Storm**	**TOTAL**
Direct Property	$352.0 M	$24.0 M	$375.9 M
Displacement	NA	$1.7 M	$1.7 M
Business Property-Related	$2004.8 M	$1.1 M	$2005.8 M
Business Beach Visitor-Related	$0.9 M	NA	$0.9 M
Total Business	$2005.6 M	$1.1 M	$2006.7 M
Infrastructure	$431.7 M	NE	$431.7 M
Property Taxes	$7.8 M	$0.2 M	$7.9 M
Sales Taxes Property-Related	$35.7 M	$0.0 M	$35.7 M
Sales Taxes Beach Visitor-Related	$0.0 M	NA	$0.0 M
TOT Property-Related	$2.4 M	$0.0 M	$2.4 M
TOT Business Visitor-Related	$0.1 M	NA	$0.1 M
Waterfront Department	$489.5 M	$0.1 M	$489.6 M
Total Fiscal	$535.4 M	$0.3 M	$535.7 M
Non-Market	$0.4 M	NA	$0.4 M
TOTAL	**$3325.1 M**	**$27.1 M**	**$3352.2 M**

Notes:

Lost business sales and associated fiscal impacts attributed to a reduction in beach visitation and associated spending are reported separately from property-related impacts.

Results are not adjusted to account for financial discounting.

NA = Impacts not applicable based on methodological framework; NE = Impacts not evaluated based on scope of the analysis.

Due to rounding, results may not add up precisely to the totals presented.

3.2 Adaptation Scenario Costs

Costs for the implementation and maintenance of the proposed adaptation scenarios were provided by ESA. Table 13 and Table 14 show the breakdown of costs by decade for the Protect scenario and the Retreat/Protect Hybrid scenario, respectively. All costs are assumed to be expended in the assigned year, rather than distributed over multiple years. Further costing detail can be found in the Appendix and Adaptation Plan.

Table 13: Protect Scenario Implementation Costs (2018 Dollars, $Millions)

ADAPTATION STRATEGY IMPLEMENTATION COSTS: CAPITAL AND OTHER COSTS				
Year	**Capital**	**Capital / Maintenance**	**Maintenance**	**TOTAL**
2020	$0.0 M	$0.0 M	$0.0 M	**$0.0 M**
2030	$1955.9 M	$128.3 M	$5.8 M	**$2089.9 M**
2040	$0.0 M	$0.0 M	$7.5 M	**$7.5 M**
2050	$0.0 M	$0.0 M	$10.7 M	**$10.7 M**
2060	$361.3 M	$107.1 M	$2321.1 M	**$2789.5 M**
2070	$0.0 M	$0.0 M	$34.3 M	**$34.3 M**
2080	$0.0 M	$65.8 M	$426.2 M	**$492.0 M**
2090	$0.0 M	$0.0 M	$2086.3 M	**$2086.3 M**
2100	$119.4 M	$162.6 M	$579.0 M	**$860.9 M**
TOTAL	**$2436.6 M**	**$463.7 M**	**$5470.9 M**	**$8371.2 M**

Notes:
A 35% construction mark-up contingency is included in the cost estimates.
Results are not adjusted to account for financial discounting.
Due to rounding, results may not add up precisely to the totals presented.

Table 14: Retreat/Protect Hybrid Scenario Implementation Costs (2018 Dollars, $Millions)

ADAPTATION STRATEGY IMPLEMENTATION COSTS: CAPITAL AND OTHER COSTS				
Year	**Capital**	**Capital / Maintenance**	**Maintenance**	**TOTAL**
2020	$1.0 M	$0.0 M	$0.1 M	**$1.1 M**
2030	$67.8 M	$11.6 M	$2.3 M	**$81.7 M**
2040	$0.0 M	$0.0 M	$7.5 M	**$7.5 M**
2050	$0.0 M	$0.0 M	$10.7 M	**$10.7 M**
2060	$600.5 M	$107.1 M	$227.3 M	**$934.9 M**
2070	$0.0 M	$0.0 M	$34.3 M	**$34.3 M**
2080	$0.0 M	$65.8 M	$293.7 M	**$359.4 M**
2090	$0.0 M	$0.0 M	$93.5 M	**$93.5 M**
2100	$223.5 M	$162.6 M	$445.4 M	**$831.5 M**
TOTAL	**$892.8 M**	**$347.0 M**	**$1114.8 M**	**$2354.7 M**

Notes:
A 35% construction mark-up contingency is included in the cost estimates.
Results are not adjusted to account for financial discounting.
Due to rounding, results may not add up precisely to the totals presented.

3.3 Benefit-Cost Analysis Results

Standard practice in a benefit-cost analysis (BCA) is to account for the "opportunity cost" or the time value of money. This is done by applying a discount rate to estimated benefits and costs of an identified policy, program or project, which then allows for the comparison of future costs and benefits in present dollars. From a financial perspective, discounting is used to reflect that a dollar today is more valuable than a dollar in the future due to the ability to invest now and create more wealth than a dollar invested in a future year. Or, extended to a social perspective as it relates to this study, the benefits provided by adaptation are more valuable in the near-term than they are in the longer-term.

For the purpose of estimating the cost-effectiveness of the modeled adaptation strategies, the cumulative costs of the modeled adaptation strategies and their estimated cumulative avoided impacts were discounted in future years at a 4% rate, consistent with Federal agency BCA guidelines. The discounted avoided damages associated with the modeled adaptation scenarios were subtracted from the discounted adaptation scenario costs to arrive at an estimate of net (present value) impacts. Benefit-cost ratios (BCRs) were then estimated by dividing the cumulative avoided damages provided by adaptation to the cumulative costs of adaptation. From an economic perspective, a project would be considered justified or cost effective if it has a BCR that is greater 1. As shown in Table 15, only the Retreat/Protect Hybrid scenario would be considered an economically justified project.

Table15: Benefit-Cost Analysis Results (Net Present Value, $Millions)

SUMMARY OF ADAPTATION ALTERNATIVES NET IMPACTS AND BENEFIT-COST RATIOS		
Adaptation Scenario	**Net Impacts**	**Benefit-Cost Ratio**
Protect	**-$1,700 M**	**0.18**
Retreat/Protect Hybrid	**$29 M**	**1.10**

Notes:

To avoid double counting impacts, wage losses have not been included as they are assumed to be paid from sales revenues, and business output has been discounted to account for relevant tax payments that are captured in the fiscal impact models.

Results are presented in net present value terms using a 4% discount rate over the period of the analysis from 2018 to 2100.

Due to rounding, results may not add up precisely to the totals presented.

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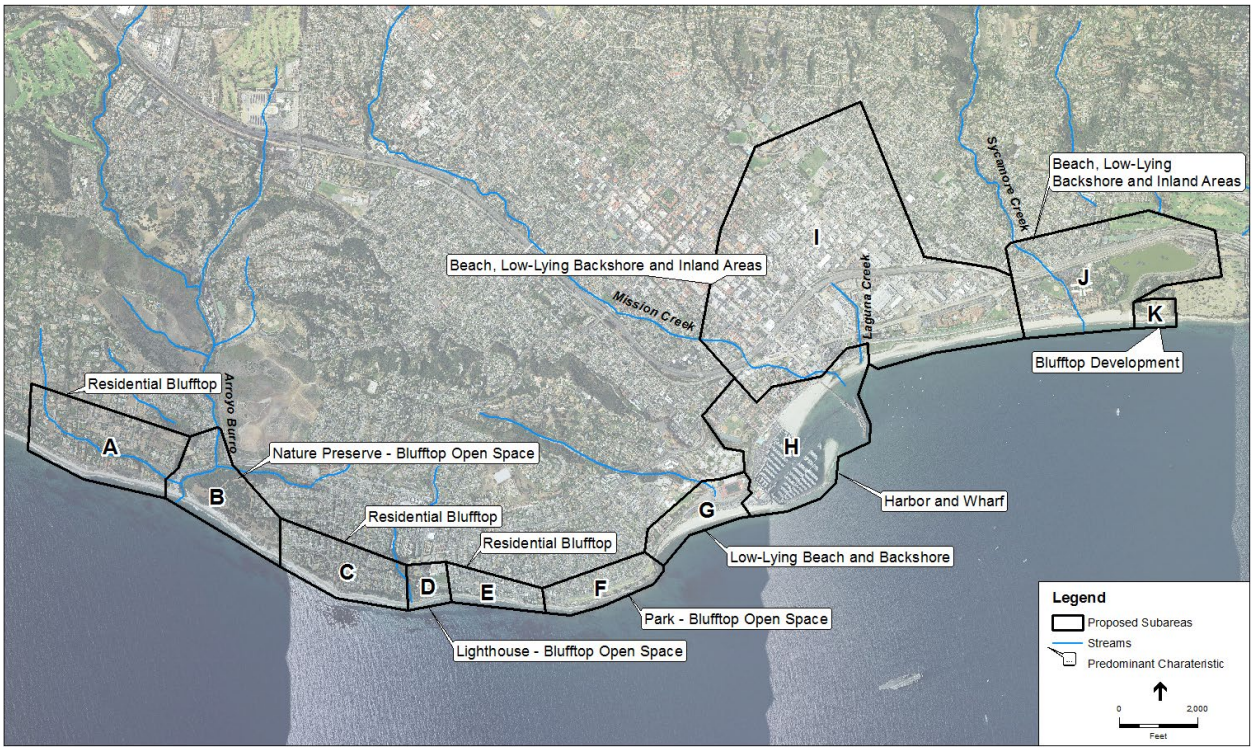
4. Appendix

The results are summarized below by subarea. For reference, a map and descriptions of the subareas is provided below.



Subarea descriptions:

A. Sea Ledge Lane to West Side of Arroyo Burro Beach County Park

B. Arroyo Burro Beach County Park to East Edge of Douglas Family Preserve

C. West end of Medcliff Road to East end of El Camino de la Luz

D. Lighthouse

E. Meigs Road to Shoreline Park

F. Shoreline Park to Santa Barbara Point

G. Leadbetter Beach

H. Harbor to Laguna Tide Gates

I. Chase Palm Park & Downtown

J. South Milpas Street to Andree Clark Bird Refuge

K. Bellosguardo Estate

4.1 Detailed Event-Based Results

The results presented in Tables 16 - 36 below show the estimated event-based impacts of the modeled hazard conditions, broken down by subarea (where applicable). Results are organized to not double count losses. To do this, if there is exposure to tidal inundation or erosion conditions, the impact is accounted for in the permanent progressive impacts and is taken out of temporary storm impacts, even if that same parcel or asset may be exposed to storm conditions simultaneously. The tidal inundation and/or erosion impacts account for one-time damages to property and one calendar year of losses related to business output, fiscal revenues, and non-market beach recreational value. The impacts from storm flooding represent the losses from a *single* storm and are not adjusted to account for probability of the modeled storm occurring. Results for future condition impacts can include assets that are determined to be vulnerable in the prior time horizons.

Table 16: Direct Property Impacts: No Action Scenario (2018 Dollars, $Millions)

DIRECT PROPERTY IMPACTS AT EACH TIME HORIZON

Sub-Area Identifier and Description		2018 Conditions		2060 Conditions		2100 Conditions	
		Permanent Tidal + Erosion	Temporary 100-Year Storm	Permanent Tidal + Erosion	Temporary 100-Year Storm	Permanent Tidal + Erosion	Temporary 100-Year Storm
A	Sea Ledge Lane to West Side of Arroyo Burro Beach County Park	NA	$6.7 M	$56.0 M	$1.8 M	$75.6 M	$1.1 M
B	Arroyo Burro Beach County Park to East Edge of Douglas Family Preserve	NA	$3.5 M	$0.9 M	$4.0 M	$7.1 M	$4.8 M
C	West end of Medcliff Road to East end of El Camino de la Luz	NA	$1.6 M	$65.3 M	$0.0 M	$88.4 M	$0.0 M
D	Lighthouse	NA	$0.0 M	$0.1 M	$0.0 M	$2.0 M	$0.0 M
E	Meigs Road to Shoreline Park	NA	$3.5 M	$40.9 M	$0.0 M	$54.8 M	$0.0 M
F	Shoreline Park to Santa Barbara Point	NA	$0.2 M	$0.1 M	$0.0 M	$0.1 M	$0.0 M
G	Leadbetter Beach	NA	$0.1 M	$10.5 M	$0.0 M	$12.0 M	$0.0 M
H	Harbor to Laguna Tide Gates	NA	$1.5 M	$11.1 M	$0.6 M	$123.7 M	$38.0 M
I	Chase Palm Park & Downtown	NA	$8.1 M	$2.1 M	$7.0 M	$220.5 M	$123.7 M
J	South Milpas Street to Andree Clark Bird Refuge	NA	$0.8 M	$3.8 M	$0.4 M	$12.5 M	$49.0 M
K	Bellosguardo Estate	NA	$0.6 M	$0.0 M	$2.2 M	$0.0 M	$3.4 M
TOTAL		**NA**	**$26.6 M**	**$190.7 M**	**$16.2 M**	**$596.7 M**	**$220.1 M**
Proportion of Impact: Public Assets		NA	68%	92%	55%	96%	76%
Proportion of Impact: Private Assets		NA	32%	8%	45%	4%	24%

Notes:

Temporary storm impacts are shown as the impacts of one storm occurring at each time horizon. These results are not adjusted to account for the probability of the modeled storm occurring.

Tidal and erosion impacts are one-time impacts.

Excludes parking lots, parks, and parcels without structures.

Results are not adjusted to account for financial discounting.

NA = Impacts not applicable based on methodological framework.

Due to rounding, results may not add up precisely to the totals presented.

Table 17: Avoided Direct Property Impacts: Protect Scenario (2018 Dollars, $Millions)

DIRECT PROPERTY IMPACTS AT EACH TIME HORIZON

Sub-Area Identifier and Description		2018 Conditions		2060 Conditions		2100 Conditions	
		Permanent Tidal + Erosion	Temporary 100-Year Storm	Permanent Tidal + Erosion	Temporary 100-Year Storm	Permanent Tidal + Erosion	Temporary 100-Year Storm
A	Sea Ledge Lane to West Side of Arroyo Burro Beach County Park	NA	$0.0 M	$56.0 M	$1.8 M	$75.6 M	$1.1 M
B	Arroyo Burro Beach County Park to East Edge of Douglas Family Preserve	NA	$0.0 M	$0.9 M	$4.0 M	$7.1 M	$4.8 M
C	West end of Medcliff Road to East end of El Camino de la Luz	NA	$0.0 M	$65.3 M	$0.0 M	$88.4 M	$0.0 M
D	Lighthouse	NA	$0.0 M	$0.1 M	$0.0 M	$2.0 M	$0.0 M
E	Meigs Road to Shoreline Park	NA	$0.0 M	$40.9 M	$0.0 M	$54.8 M	$0.0 M
F	Shoreline Park to Santa Barbara Point	NA	$0.0 M	$0.1 M	$0.0 M	$0.0 M	$0.0 M
G	Leadbetter Beach	NA	$0.0 M	$10.3 M	$0.0 M	$11.8 M	$0.0 M
H	Harbor to Laguna Tide Gates	NA	$0.0 M	$11.1 M	$0.6 M	$123.7 M	$38.0 M
I	Chase Palm Park & Downtown	NA	$0.0 M	$1.7 M	$7.0 M	$196.8 M	$123.7 M
J	South Milpas Street to Andree Clark Bird Refuge	NA	$0.0 M	$0.0 M	$0.4 M	$8.2 M	$49.0 M
K	Bellosguardo Estate	NA	$0.0 M	$0.0 M	$2.2 M	$0.0 M	$3.4 M
TOTAL		**NA**	**$0.0 M**	**$186.3 M**	**$16.2 M**	**$568.5 M**	**$220.1 M**

Notes:

Temporary storm impacts avoided are shown as the impacts of one storm occurring at each time horizon. These results are not adjusted to account for the probability of the modeled storm occurring.

Tidal and erosion impacts are one-time impacts.

Excludes parking lots, parks, and parcels without structures.

No change in impacts is observed for the 2018 modeled conditions because adaptation measures are not implemented until after this point in time.

Results are not adjusted to account for financial discounting.

NA = Impacts not applicable based on methodological framework.

Due to rounding, results may not add up precisely to the totals presented.

Table 18: Avoided Direct Property Impacts: Retreat/Protect Hybrid Scenario (2018 Dollars, $Millions)

DIRECT PROPERTY IMPACTS AT EACH TIME HORIZON

Sub-Area Identifier and Description		2018 Conditions		2060 Conditions		2100 Conditions	
		Permanent Tidal + Erosion	Temporary 100-Year Storm	Permanent Tidal + Erosion	Temporary 100-Year Storm	Permanent Tidal + Erosion	Temporary 100-Year Storm
A	Sea Ledge Lane to West Side of Arroyo Burro Beach County Park	NA	$0.0 M	-$1.2 M	$1.8 M	$0.0 M	$1.1 M
B	Arroyo Burro Beach County Park to East Edge of Douglas Family Preserve	NA	$0.0 M	$0.0 M	$4.0 M	$4.4 M	$4.8 M
C	West end of Medcliff Road to East end of El Camino de la Luz	NA	$0.0 M	$0.0 M	$0.0 M	$0.0 M	$0.0 M
D	Lighthouse	NA	$0.0 M	$0.0 M	$0.0 M	$0.0 M	$0.0 M
E	Meigs Road to Shoreline Park	NA	$0.0 M	$0.9 M	$0.0 M	$7.0 M	$0.0 M
F	Shoreline Park to Santa Barbara Point	NA	$0.0 M	$0.0 M	$0.0 M	$0.0 M	$0.0 M
G	Leadbetter Beach	NA	$0.0 M	$10.3 M	$0.0 M	$11.8 M	$0.0 M
H	Harbor to Laguna Tide Gates	NA	$0.0 M	$11.1 M	$0.6 M	$123.7 M	$38.0 M
I	Chase Palm Park & Downtown	NA	$0.0 M	$1.7 M	$7.0 M	$196.8 M	$123.7 M
J	South Milpas Street to Andree Clark Bird Refuge	NA	$0.0 M	$0.0 M	$0.4 M	$8.2 M	$49.0 M
K	Bellosguardo Estate	NA	$0.0 M	$0.0 M	$2.2 M	$0.0 M	$3.4 M
TOTAL		**NA**	**$0.0 M**	**$22.8 M**	**$16.2 M**	**$352.0 M**	**$220.1 M**

Notes:

Temporary storm impacts avoided are shown as the impacts of one storm occurring at each time horizon. These results are not adjusted to account for the probability of the modeled storm occurring.

Tidal and erosion impacts are one-time impacts.

Excludes parking lots, parks, and parcels without structures.

No change in impacts is observed for the 2018 modeled conditions because adaptation measures are not implemented until after this point in time.

Results are not adjusted to account for financial discounting.

NA = Impacts not applicable based on methodological framework.

Due to rounding, results may not add up precisely to the totals presented.

Table 19: Displacement Impacts: No Action Scenario (2018 Dollars, $Millions)

DISPLACEMENT IMPACTS: RELOCATION COSTS AT EACH TIME HORIZON

Sub-Area Identifier and Description		2018 Conditions		2060 Conditions		2100 Conditions	
		Permanent Tidal + Erosion	Temporary 100-Year Storm	Permanent Tidal + Erosion	Temporary 100-Year Storm	Permanent Tidal + Erosion	Temporary 100-Year Storm
A	Sea Ledge Lane to West Side of Arroyo Burro Beach County Park	NA	$0.5 M	NA	$0.3 M	NA	$0.3 M
B	Arroyo Burro Beach County Park to East Edge of Douglas Family Preserve	NA	$0.1 M	NA	$0.1 M	NA	$1.1 M
C	West end of Medcliff Road to East end of El Camino de la Luz	NA	$0.2 M	NA	$0.0 M	NA	$0.0 M
D	Lighthouse	NA	$0.0 M	NA	$0.0 M	NA	$0.0 M
E	Meigs Road to Shoreline Park	NA	$0.2 M	NA	$0.0 M	NA	$0.0 M
F	Shoreline Park to Santa Barbara Point	NA	$0.0 M	NA	$0.0 M	NA	$0.0 M
G	Leadbetter Beach	NA	$0.0 M	NA	$0.0 M	NA	$0.0 M
H	Harbor to Laguna Tide Gates	NA	$0.0 M	NA	$0.0 M	NA	$3.9 M
I	Chase Palm Park & Downtown	NA	$0.1 M	NA	$0.2 M	NA	$2.7 M
J	South Milpas Street to Andree Clark Bird Refuge	NA	$0.0 M	NA	$0.0 M	NA	$3.9 M
K	Bellosguardo Estate	NA	$0.0 M	NA	$0.1 M	NA	$0.2 M
TOTAL		**NA**	**$1.1 M**	**NA**	**$0.7 M**	**NA**	**$12.2 M**

Notes:

Temporary storm impacts are shown as the impacts of one storm occurring at each time horizon. These results are not adjusted to account for the probability of the modeled storm occurring.

Results are not adjusted to account for financial discounting.

NA = Impacts not applicable based on methodological framework.

Due to rounding, results may not add up precisely to the totals presented.

Table 20: Avoided Displacement Impacts: Protect Scenario (2018 Dollars, $Millions)

DISPLACEMENT IMPACTS: RELOCATION COSTS AT EACH TIME HORIZON

Sub-Area Identifier and Description		2018 Conditions		2060 Conditions		2100 Conditions	
		Permanent Tidal + Erosion	Temporary 100-Year Storm	Permanent Tidal + Erosion	Temporary 100-Year Storm	Permanent Tidal + Erosion	Temporary 100-Year Storm
A	Sea Ledge Lane to West Side of Arroyo Burro Beach County Park	NA	$0.0 M	NA	$0.3 M	NA	$0.3 M
B	Arroyo Burro Beach County Park to East Edge of Douglas Family Preserve	NA	$0.0 M	NA	$0.1 M	NA	$1.1 M
C	West end of Medcliff Road to East end of El Camino de la Luz	NA	$0.0 M	NA	$0.0 M	NA	$0.0 M
D	Lighthouse	NA	$0.0 M	NA	$0.0 M	NA	$0.0 M
E	Meigs Road to Shoreline Park	NA	$0.0 M	NA	$0.0 M	NA	$0.0 M
F	Shoreline Park to Santa Barbara Point	NA	$0.0 M	NA	$0.0 M	NA	$0.0 M
G	Leadbetter Beach	NA	$0.0 M	NA	$0.0 M	NA	$0.0 M
H	Harbor to Laguna Tide Gates	NA	$0.0 M	NA	$0.0 M	NA	$3.9 M
I	Chase Palm Park & Downtown	NA	$0.0 M	NA	$0.2 M	NA	$2.7 M
J	South Milpas Street to Andree Clark Bird Refuge	NA	$0.0 M	NA	$0.0 M	NA	$3.9 M
K	Bellosguardo Estate	NA	$0.0 M	NA	$0.1 M	NA	$0.2 M
TOTAL		**NA**	**$0.0 M**	**NA**	**$0.7 M**	**NA**	**$12.2 M**

Notes:

Temporary storm impacts avoided are shown as the impacts of one storm occurring at each time horizon. These results are not adjusted to account for the probability of the modeled storm occurring.

No change in impacts is observed for the 2018 modeled conditions because adaptation measures are not implemented until after this point in time.

Results are not adjusted to account for financial discounting.

NA = Impacts not applicable based on methodological framework.

Due to rounding, results may not add up precisely to the totals presented.

Table 21: Avoided Displacement Impacts: Retreat/Protect Hybrid Scenario (2018 Dollars, $Millions)

DISPLACEMENT IMPACTS: RELOCATION COSTS AT EACH TIME HORIZON

Sub-Area Identifier and Description		2018 Conditions		2060 Conditions		2100 Conditions	
		Permanent Tidal + Erosion	Temporary 100-Year Storm	Permanent Tidal + Erosion	Temporary 100-Year Storm	Permanent Tidal + Erosion	Temporary 100-Year Storm
A	Sea Ledge Lane to West Side of Arroyo Burro Beach County Park	NA	$0.0 M	NA	$0.3 M	NA	$0.3 M
B	Arroyo Burro Beach County Park to East Edge of Douglas Family Preserve	NA	$0.0 M	NA	$0.1 M	NA	$1.1 M
C	West end of Medcliff Road to East end of El Camino de la Luz	NA	$0.0 M	NA	$0.0 M	NA	$0.0 M
D	Lighthouse	NA	$0.0 M	NA	$0.0 M	NA	$0.0 M
E	Meigs Road to Shoreline Park	NA	$0.0 M	NA	$0.0 M	NA	$0.0 M
F	Shoreline Park to Santa Barbara Point	NA	$0.0 M	NA	$0.0 M	NA	$0.0 M
G	Leadbetter Beach	NA	$0.0 M	NA	$0.0 M	NA	$0.0 M
H	Harbor to Laguna Tide Gates	NA	$0.0 M	NA	$0.0 M	NA	$3.9 M
I	Chase Palm Park & Downtown	NA	$0.0 M	NA	$0.2 M	NA	$2.7 M
J	South Milpas Street to Andree Clark Bird Refuge	NA	$0.0 M	NA	$0.0 M	NA	$3.9 M
K	Bellosguardo Estate	NA	$0.0 M	NA	$0.1 M	NA	$0.2 M
TOTAL		**NA**	**$0.0 M**	**NA**	**$0.7 M**	**NA**	**$12.2 M**

Notes:

Temporary storm impacts avoided are shown as the impacts of one storm occurring at each time horizon. These results are not adjusted to account for the probability of the modeled storm occurring.

No change in impacts is observed for the 2018 modeled conditions because adaptation measures are not implemented until after this point in time.

Results are not adjusted to account for financial discounting.

NA = Impacts not applicable based on methodological framework.

Due to rounding, results may not add up precisely to the totals presented.

Table 22: Business Impacts: No Action Scenario (2018 Dollars, $Millions)

BUSINESS IMPACTS: SALES LOSS AT EACH TIME HORIZON

Sub-Area Identifier and Description		2018 Conditions		2060 Conditions		2100 Conditions	
		Permanent Tidal + Erosion	Temporary 100-Year Storm	Permanent Tidal + Erosion	Temporary 100-Year Storm	Permanent Tidal + Erosion	Temporary 100-Year Storm
A	Sea Ledge Lane to West Side of Arroyo Burro Beach County Park	NA	$0.0 M	$0.1 M	$0.0 M	$0.1 M	$0.0 M
B	Arroyo Burro Beach County Park to East Edge of Douglas Family Preserve	NA	$0.0 M	$0.0 M	$0.0 M	$0.0 M	$0.0 M
C	West end of Medcliff Road to East end of El Camino de la Luz	NA	$0.0 M	$0.1 M	$0.0 M	$0.1 M	$0.0 M
D	Lighthouse	NA	$0.0 M	$0.0 M	$0.0 M	$0.0 M	$0.0 M
E	Meigs Road to Shoreline Park	NA	$0.0 M	$0.0 M	$0.0 M	$0.0 M	$0.0 M
F	Shoreline Park to Santa Barbara Point	NA	$0.0 M	$0.0 M	$0.0 M	$0.0 M	$0.0 M
G	Leadbetter Beach	NA	$0.0 M	$0.9 M	$0.0 M	$0.9 M	$0.0 M
H	Harbor to Laguna Tide Gates	NA	$2.4 M	$47.4 M	$0.1 M	$71.8 M	$0.2 M
I	Chase Palm Park & Downtown	NA	$0.0 M	$0.0 M	$0.3 M	$35.9 M	$6.0 M
J	South Milpas Street to Andree Clark Bird Refuge	NA	$0.0 M	$0.1 M	$0.0 M	$0.6 M	$0.4 M
K	Bellosguardo Estate	NA	$0.0 M	$0.0 M	$0.0 M	$0.0 M	$0.0 M
Beach Visitation Areas		NA	NA	$8.7 M	NA	$12.0 M	NA
TOTAL		**NA**	**$2.4 M**	**$57.2 M**	**$0.4 M**	**$121.3 M**	**$6.5 M**

Notes:

Temporary storm impacts are shown as the impacts of one storm occurring at each time horizon. These results are not adjusted to account for the probability of the modeled storm occurring.

Tidal and erosion are annual, recurring impacts.

Lost sales attributed to a reduction in beach visitation and associated spending are reported separately because the beach sub-area profiles can overlap with multiple sub-area for the City analysis. The beach visitation areas account for East Beach, West Beach, Leadbetter Beach, the beach areas fronting Shoreline Park and the Douglas Family Preserve and Arroyo Burro Beach.

Results are not adjusted to account for financial discounting.

NA = Impacts not applicable based on methodological framework.

Due to rounding, results may not add up precisely to the totals presented.

Table 23: Avoided Business Impacts: Protect Scenario (2018 Dollars, $Millions)

BUSINESS IMPACTS: SALES LOSS AT EACH TIME HORIZON

Sub-Area Identifier and Description		2018 Conditions		2060 Conditions		2100 Conditions	
		Permanent Tidal + Erosion	Temporary 100-Year Storm	Permanent Tidal + Erosion	Temporary 100-Year Storm	Permanent Tidal + Erosion	Temporary 100-Year Storm
A	Sea Ledge Lane to West Side of Arroyo Burro Beach County Park	NA	$0.0 M	$0.1 M	$0.0 M	$0.1 M	$0.0 M
B	Arroyo Burro Beach County Park to East Edge of Douglas Family Preserve	NA	$0.0 M	$0.0 M	$0.0 M	$0.0 M	$0.0 M
C	West end of Medcliff Road to East end of El Camino de la Luz	NA	$0.0 M	$0.1 M	$0.0 M	$0.1 M	$0.0 M
D	Lighthouse	NA	$0.0 M	$0.0 M	$0.0 M	$0.0 M	$0.0 M
E	Meigs Road to Shoreline Park	NA	$0.0 M	$0.0 M	$0.0 M	$0.0 M	$0.0 M
F	Shoreline Park to Santa Barbara Point	NA	$0.0 M	$0.0 M	$0.0 M	$0.0 M	$0.0 M
G	Leadbetter Beach	NA	$0.0 M	$0.0 M	$0.0 M	$0.0 M	$0.0 M
H	Harbor to Laguna Tide Gates	NA	$0.0 M	$47.4 M	$0.1 M	$71.8 M	$0.2 M
I	Chase Palm Park & Downtown	NA	$0.0 M	$0.0 M	$0.3 M	$35.9 M	$6.0 M
J	South Milpas Street to Andree Clark Bird Refuge	NA	$0.0 M	$0.0 M	$0.0 M	$0.5 M	$0.4 M
K	Bellosguardo Estate	NA	$0.0 M	$0.0 M	$0.0 M	$0.0 M	$0.0 M
Beach Visitation Areas		NA	NA	$0.0 M	NA	$2.5 M	NA
TOTAL		**NA**	**$0.0 M**	**$47.6 M**	**$0.4 M**	**$110.9 M**	**$6.5 M**

Notes:

Temporary storm impacts avoided are shown as the impacts of one storm occurring at each time horizon. These results are not adjusted to account for the probability of the modeled storm occurring.

Tidal and erosion are annual, recurring impacts.

Lost sales attributed to a reduction in beach visitation and associated spending are reported separately because the beach sub-area profiles can overlap with multiple sub-area for the City analysis. The beach visitation areas account for East Beach, West Beach, Leadbetter Beach, the beach areas fronting Shoreline Park and the Douglas Family Preserve and Arroyo Burro Beach.

No change in impacts is observed for the 2018 modeled conditions because adaptation measures are not implemented until after this point in time.

Results are not adjusted to account for financial discounting.

NA = Impacts not applicable based on methodological framework.

Due to rounding, results may not add up precisely to the totals presented.

Table 24: Avoided Business Impacts: Retreat/Protect Hybrid Scenario (2018 Dollars, $Millions)

BUSINESS IMPACTS: SALES LOSS AT EACH TIME HORIZON

Sub-Area Identifier and Description		2018 Conditions		2060 Conditions		2100 Conditions	
		Permanent Tidal + Erosion	Temporary 100-Year Storm	Permanent Tidal + Erosion	Temporary 100-Year Storm	Permanent Tidal + Erosion	Temporary 100-Year Storm
A	Sea Ledge Lane to West Side of Arroyo Burro Beach County Park	NA	$0.0 M	$0.0 M	$0.0 M	$0.0 M	$0.0 M
B	Arroyo Burro Beach County Park to East Edge of Douglas Family Preserve	NA	$0.0 M	$0.0 M	$0.0 M	$0.0 M	$0.0 M
C	West end of Medcliff Road to East end of El Camino de la Luz	NA	$0.0 M	$0.0 M	$0.0 M	$0.0 M	$0.0 M
D	Lighthouse	NA	$0.0 M	$0.0 M	$0.0 M	$0.0 M	$0.0 M
E	Meigs Road to Shoreline Park	NA	$0.0 M	$0.0 M	$0.0 M	$0.0 M	$0.0 M
F	Shoreline Park to Santa Barbara Point	NA	$0.0 M	$0.0 M	$0.0 M	$0.0 M	$0.0 M
G	Leadbetter Beach	NA	$0.0 M	$0.0 M	$0.0 M	$0.0 M	$0.0 M
H	Harbor to Laguna Tide Gates	NA	$0.0 M	$47.4 M	$0.1 M	$71.8 M	$0.2 M
I	Chase Palm Park & Downtown	NA	$0.0 M	$0.0 M	$0.3 M	$35.9 M	$6.0 M
J	South Milpas Street to Andree Clark Bird Refuge	NA	$0.0 M	$0.1 M	$0.0 M	$0.6 M	$0.4 M
K	Bellosguardo Estate	NA	$0.0 M	$0.0 M	$0.0 M	$0.0 M	$0.0 M
Beach Visitation Areas		NA	NA	$0.4 M	NA	$2.5 M	NA
TOTAL		**NA**	**$0.0 M**	**$47.9 M**	**$0.4 M**	**$110.8 M**	**$6.5 M**

Notes:

Temporary storm impacts avoided are shown as the impacts of one storm occurring at each time horizon. These results are not adjusted to account for the probability of the modeled storm occurring.

Tidal and erosion are annual, recurring impacts.

Lost sales attributed to a reduction in beach visitation and associated spending are reported separately because the beach sub-area profiles can overlap with multiple sub-area for the City analysis. The beach visitation areas account for East Beach, West Beach, Leadbetter Beach, the beach areas fronting Shoreline Park and the Douglas Family Preserve and Arroyo Burro Beach.

No change in impacts is observed for the 2018 modeled conditions because adaptation measures are not implemented until after this point in time.

Results are not adjusted to account for financial discounting.

NA = Impacts not applicable based on methodological framework.

Due to rounding, results may not add up precisely to the totals presented.

Table 25: Employment Impacts: No Action Scenario (2018 Dollars, $Millions)

EMPLOYMENT IMPACTS: WAGE LOSS AT EACH TIME HORIZON

Sub-Area Identifier and Description		2018 Conditions		2060 Conditions		2100 Conditions	
		Permanent Tidal + Erosion	Temporary 100-Year Storm	Permanent Tidal + Erosion	Temporary 100-Year Storm	Permanent Tidal + Erosion	Temporary 100-Year Storm
A	Sea Ledge Lane to West Side of Arroyo Burro Beach County Park	NA	$0.0 M	$0.0 M	$0.0 M	$0.0 M	$0.0 M
B	Arroyo Burro Beach County Park to East Edge of Douglas Family Preserve	NA	$0.0 M	$0.0 M	$0.0 M	$0.0 M	$0.0 M
C	West end of Medcliff Road to East end of El Camino de la Luz	NA	$0.0 M	$0.0 M	$0.0 M	$0.1 M	$0.0 M
D	Lighthouse	NA	$0.0 M	$2.4 M	$0.0 M	$2.4 M	$0.0 M
E	Meigs Road to Shoreline Park	NA	$0.0 M	$0.0 M	$0.0 M	$0.0 M	$0.0 M
F	Shoreline Park to Santa Barbara Point	NA	$0.0 M	$0.0 M	$0.0 M	$0.0 M	$0.0 M
G	Leadbetter Beach	NA	$0.0 M	$0.4 M	$0.0 M	$0.4 M	$0.0 M
H	Harbor to Laguna Tide Gates	NA	$0.8 M	$21.7 M	$0.0 M	$27.0 M	$0.5 M
I	Chase Palm Park & Downtown	NA	$0.0 M	$0.0 M	$0.0 M	$6.4 M	$8.4 M
J	South Milpas Street to Andree Clark Bird Refuge	NA	$0.0 M	$0.6 M	$0.0 M	$0.8 M	$0.2 M
K	Bellosguardo Estate	NA	$0.0 M	$0.0 M	$0.0 M	$0.0 M	$0.0 M
Beach Visitation Areas		NA	NA	$2.6 M	NA	$3.6 M	NA
TOTAL		**NA**	**$0.8 M**	**$27.7 M**	**$0.1 M**	**$40.6 M**	**$9.1 M**

Notes:

Temporary storm impacts are shown as the impacts of one storm occurring at each time horizon. These results are not adjusted to account for the probability of the modeled storm occurring.

Tidal and erosion are annual, recurring impacts.

Lost wages attributed to a reduction in beach visitation and associated spending are reported separately because the beach sub-area profiles can overlap with multiple sub-area for the City analysis. The beach visitation areas account for East Beach, West Beach, Leadbetter Beach, the beach areas fronting Shoreline Park and the Douglas Family Preserve and Arroyo Burro Beach.

Results are not adjusted to account for financial discounting.

NA = Impacts not applicable based on methodological framework.

Due to rounding, results may not add up precisely to the totals presented.

Table 26: Avoided Employment Impacts: Protect Scenario (2018 Dollars, $Millions)

EMPLOYMENT IMPACTS: WAGE LOSS AT EACH TIME HORIZON

Sub-Area Identifier and Description		2018 Conditions		2060 Conditions		2100 Conditions	
		Permanent Tidal + Erosion	Temporary 100-Year Storm	Permanent Tidal + Erosion	Temporary 100-Year Storm	Permanent Tidal + Erosion	Temporary 100-Year Storm
A	Sea Ledge Lane to West Side of Arroyo Burro Beach County Park	NA	$0.0 M	$0.0 M	$0.0 M	$0.0 M	$0.0 M
B	Arroyo Burro Beach County Park to East Edge of Douglas Family Preserve	NA	$0.0 M	$0.0 M	$0.0 M	$0.0 M	$0.0 M
C	West end of Medcliff Road to East end of El Camino de la Luz	NA	$0.0 M	$0.0 M	$0.0 M	$0.1 M	$0.0 M
D	Lighthouse	NA	$0.0 M	$2.4 M	$0.0 M	$2.4 M	$0.0 M
E	Meigs Road to Shoreline Park	NA	$0.0 M	$0.0 M	$0.0 M	$0.0 M	$0.0 M
F	Shoreline Park to Santa Barbara Point	NA	$0.0 M	$0.0 M	$0.0 M	$0.0 M	$0.0 M
G	Leadbetter Beach	NA	$0.0 M	$0.0 M	$0.0 M	$0.0 M	$0.0 M
H	Harbor to Laguna Tide Gates	NA	$0.0 M	$21.7 M	$0.0 M	$27.0 M	$0.5 M
I	Chase Palm Park & Downtown	NA	$0.0 M	$0.0 M	$0.0 M	$6.4 M	$8.4 M
J	South Milpas Street to Andree Clark Bird Refuge	NA	$0.0 M	$0.0 M	$0.0 M	$0.2 M	$0.2 M
K	Bellosguardo Estate	NA	$0.0 M	$0.0 M	$0.0 M	$0.0 M	$0.0 M
Beach Visitation Areas		NA	NA	$0.0 M	NA	$0.8 M	NA
TOTAL		**NA**	**$0.0 M**	**$24.1 M**	**$0.1 M**	**$36.8 M**	**$9.1 M**

Notes:

Temporary storm impacts avoided are shown as the impacts of one storm occurring at each time horizon. These results are not adjusted to account for the probability of the modeled storm occurring.

Tidal and erosion are annual, recurring impacts.

Lost wages attributed to a reduction in beach visitation and associated spending are reported separately because the beach sub-area profiles can overlap with multiple sub-area for the City analysis. The beach visitation areas account for East Beach, West Beach, Leadbetter Beach, the beach areas fronting Shoreline Park and the Douglas Family Preserve and Arroyo Burro Beach.

No change in impacts is observed for the 2018 modeled conditions because adaptation measures are not implemented until after this point in time.

Results are not adjusted to account for financial discounting.

NA = Impacts not applicable based on methodological framework.

Due to rounding, results may not add up precisely to the totals presented.

Table 27: Avoided Employment Impacts: Retreat/Protect Hybrid Scenario (2018 Dollars, $Millions)

EMPLOYMENT IMPACTS: WAGE LOSS AT EACH TIME HORIZON

Sub-Area Identifier and Description		2018 Conditions		2060 Conditions		2100 Conditions	
		Permanent Tidal + Erosion	Temporary 100-Year Storm	Permanent Tidal + Erosion	Temporary 100-Year Storm	Permanent Tidal + Erosion	Temporary 100-Year Storm
A	Sea Ledge Lane to West Side of Arroyo Burro Beach County Park	NA	$0.0 M	$0.0 M	$0.0 M	$0.0 M	$0.0 M
B	Arroyo Burro Beach County Park to East Edge of Douglas Family Preserve	NA	$0.0 M	$0.0 M	$0.0 M	$0.0 M	$0.0 M
C	West end of Medcliff Road to East end of El Camino de la Luz	NA	$0.0 M	$0.0 M	$0.0 M	$0.0 M	$0.0 M
D	Lighthouse	NA	$0.0 M	$2.4 M	$0.0 M	$2.4 M	$0.0 M
E	Meigs Road to Shoreline Park	NA	$0.0 M	$0.0 M	$0.0 M	$0.0 M	$0.0 M
F	Shoreline Park to Santa Barbara Point	NA	$0.0 M	$0.0 M	$0.0 M	$0.0 M	$0.0 M
G	Leadbetter Beach	NA	$0.0 M	$0.0 M	$0.0 M	$0.0 M	$0.0 M
H	Harbor to Laguna Tide Gates	NA	$0.0 M	$21.7 M	$0.0 M	$27.0 M	$0.5 M
I	Chase Palm Park & Downtown	NA	$0.0 M	$0.0 M	$0.0 M	$6.4 M	$8.4 M
J	South Milpas Street to Andree Clark Bird Refuge	NA	$0.0 M	$0.6 M	$0.0 M	$0.8 M	$0.2 M
K	Bellosguardo Estate	NA	$0.0 M	$0.0 M	$0.0 M	$0.0 M	$0.0 M
Beach Visitation Areas		NA	NA	$0.1 M	NA	$0.8 M	NA
TOTAL		**NA**	**$0.0 M**	**$24.8 M**	**$0.1 M**	**$37.3 M**	**$9.1 M**

Notes:

Temporary storm impacts avoided are shown as the impacts of one storm occurring at each time horizon. These results are not adjusted to account for the probability of the modeled storm occurring.

Tidal and erosion are annual, recurring impacts.

Lost wages attributed to a reduction in beach visitation and associated spending are reported separately because the beach sub-area profiles can overlap with multiple sub-area for the City analysis. The beach visitation areas account for East Beach, West Beach, Leadbetter Beach, the beach areas fronting Shoreline Park and the Douglas Family Preserve and Arroyo Burro Beach.

No change in impacts is observed for the 2018 modeled conditions because adaptation measures are not implemented until after this point in time.

Results are not adjusted to account for financial discounting.

NA = Impacts not applicable based on methodological framework.

Due to rounding, results may not add up precisely to the totals presented.

Table 28. Non-Market Impacts: No Action Scenario (2018 Dollars, $Millions)

NON-MARKET IMPACTS: BEACH RECREATIONAL VALUE AT EACH TIME HORIZON

Impact Type	2018 Conditions		2060 Conditions		2100 Conditions	
	Permanent Tidal + Erosion	Temporary 100-Year Storm	Permanent Tidal + Erosion	Temporary 100-Year Storm	Permanent Tidal + Erosion	Temporary 100-Year Storm
Beach Visitation Recreational Value	NA	NA	$27.0 M	NA	$34.9 M	NA

Notes:

Tidal and erosion are annual, recurring impacts.

The beach visitation areas account for East Beach, West Beach, Leadbetter Beach, the beach areas fronting Shoreline Park and the Douglas Family Preserve and Arroyo Burro Beach.

Results are not adjusted to account for financial discounting.

NA = Impacts not applicable based on methodological framework.

Due to rounding, results may not add up precisely to the totals presented.

Table 29: Avoided Non-Market Impacts: Protect Scenario (2018 Dollars, $Millions)

NON-MARKET IMPACTS: BEACH RECREATIONAL VALUE AT EACH TIME HORIZON

Impact Type	2018 Conditions		2060 Conditions		2100 Conditions	
	Permanent Tidal + Erosion	Temporary 100-Year Storm	Permanent Tidal + Erosion	Temporary 100-Year Storm	Permanent Tidal + Erosion	Temporary 100-Year Storm
Beach Visitation Recreational Value	NA	NA	-$0.1 M	NA	$5.5 M	NA

Notes:

Tidal and erosion are annual, recurring impacts avoided.

The beach visitation areas account for East Beach, West Beach, Leadbetter Beach, the beach areas fronting Shoreline Park and the Douglas Family Preserve and Arroyo Burro Beach.

Results are not adjusted to account for financial discounting.

NA = Impacts not applicable based on methodological framework.

Due to rounding, results may not add up precisely to the totals presented.

Table 30: Non-Market Impacts: Retreat/Protect Hybrid Scenario (2018 Dollars, $Millions)

NON-MARKET IMPACTS: BEACH RECREATIONAL VALUE AT EACH TIME HORIZON

Impact Type	2018 Conditions		2060 Conditions		2100 Conditions	
	Permanent Tidal + Erosion	Temporary 100-Year Storm	Permanent Tidal + Erosion	Temporary 100-Year Storm	Permanent Tidal + Erosion	Temporary 100-Year Storm
Beach Recreational Value	NA	NA	$0.9 M	NA	$5.5 M	NA

Notes:

Tidal and erosion are annual, recurring impacts avoided.

The beach visitation areas account for East Beach, West Beach, Leadbetter Beach, the beach areas fronting Shoreline Park and the Douglas Family Preserve and Arroyo Burro Beach.

Results are not adjusted to account for financial discounting.

NA = Impacts not applicable based on methodological framework.

Due to rounding, results may not add up precisely to the totals presented.

Table 31: Fiscal Impacts: No Action Scenario (2018 Dollars, $Millions)

FISCAL IMPACTS: TAXES AND WATERFRONT DEPARTMENT REVENUE AT EACH TIME HORIZON

Impact Type	2018 Conditions		2060 Conditions		2100 Conditions	
	Permanent Tidal + Erosion	Temporary 100-Year Storm	Permanent Tidal + Erosion	Temporary 100-Year Storm	Permanent Tidal + Erosion	Temporary 100-Year Storm
Property Tax Structure Loss	**NA**	**$0.2 M**	**$2.1 M**	**$0.1 M**	**$5.6 M**	**$1.0 M**
Sales Tax Business Loss	NA	$0.0 M	$0.9 M	$0.0 M	$1.6 M	$0.1 M
Sales Tax Beach Recreation Loss	NA	$0.0 M	$0.1 M	$0.0 M	$0.1 M	$0.0 M
Total Sales Tax Loss	**NA**	**$0.0 M**	**$0.9 M**	**$0.0 M**	**$1.6 M**	**$0.1 M**
TOT Business Loss	NA	$0.0 M	$0.0 M	$0.0 M	$2.4 M	$0.2 M
TOT Beach Recreation Loss	NA	$0.0 M	$0.2 M	$0.0 M	$0.3 M	$0.0 M
Total TOT Loss	**NA**	**$0.0 M**	**$0.2 M**	**$0.0 M**	**$2.7 M**	**$0.2 M**
Waterfront Department Loss	**NA**	**$0.5 M**	**$11.9 M**	**$0.0 M**	**$13.1 M**	**$0.0 M**
TOTAL	**NA**	**$0.7 M**	**$15.1 M**	**$0.1 M**	**$23.1 M**	**$1.3 M**

Notes:

Temporary storm impacts are shown as the impacts of one storm occurring at each time horizon. These results are not adjusted to account for the probability of the modeled storm occurring.

Waterfront Department losses include parking impacts.

Results are not adjusted to account for financial discounting.

NA = Impacts not applicable based on methodological framework.

Due to rounding, results may not add up precisely to the totals presented.

Table 32: Avoided Fiscal Impacts: Protect Scenario (2018 Dollars, $Millions)

FISCAL IMPACTS: TAXES AND WATERFRONT DEPARTMENT REVENUE AT EACH TIME HORIZON

Impact Type	2018 Conditions		2060 Conditions		2100 Conditions	
	Permanent Tidal + Erosion	Temporary 100-Year Storm	Permanent Tidal + Erosion	Temporary 100-Year Storm	Permanent Tidal + Erosion	Temporary 100-Year Storm
Property Tax Structure Loss	**NA**	**$0.0 M**	**$2.1 M**	**$0.1 M**	**$5.4 M**	**$1.0 M**
Sales Tax Business Loss	NA	$0.0 M	$0.9 M	$0.0 M	$1.6 M	$0.1 M
Sales Tax Beach Recreation Loss	NA	NA	$0.0 M	NA	$0.0 M	NA
Total Sales Tax Loss	**NA**	**$0.0 M**	**$0.9 M**	**$0.0 M**	**$1.6 M**	**$0.1 M**
TOT Business Loss	NA	$0.0 M	$0.0 M	$0.0 M	$2.4 M	$0.2 M
TOT Beach Recreation Loss	NA	NA	$0.0 M	NA	$0.1 M	NA
Total TOT Loss	**NA**	**$0.0 M**	**$0.0 M**	**$0.0 M**	**$2.5 M**	**$0.2 M**
Waterfront Department Loss	**NA**	**$0.0 M**	**$11.9 M**	**$0.0 M**	**$13.1 M**	**$0.0 M**
TOTAL	**NA**	**$0.0 M**	**$14.8 M**	**$0.1 M**	**$22.5 M**	**$1.3 M**

Notes:

Temporary storm impacts are shown as the impacts of one storm occurring at each time horizon. These results are not adjusted to account for the probability of the modeled storm occurring.

Waterfront Department losses avoided include parking impacts.

No change in impacts is observed for the 2018 modeled conditions because adaptation measures are not implemented until after this point in time.

Results are not adjusted to account for financial discounting.

NA = Impacts not applicable based on methodological framework.

Due to rounding, results may not add up precisely to the totals presented.

Table 33: Avoided Fiscal Impacts: Retreat/Protect Hybrid Scenario (2018 Dollars, $Millions)

FISCAL IMPACTS: TAXES AND WATERFRONT DEPARTMENT REVENUE AT EACH TIME HORIZON

Impact Type	2018 Conditions		2060 Conditions		2100 Conditions	
	Permanent Tidal + Erosion	Temporary 100-Year Storm	Permanent Tidal + Erosion	Temporary 100-Year Storm	Permanent Tidal + Erosion	Temporary 100-Year Storm
Property Tax Structure Loss	**NA**	**$0.0 M**	**$0.1 M**	**$0.1 M**	**$3.1 M**	**$1.0 M**
Sales Tax Business Loss	NA	$0.0 M	$0.9 M	$0.0 M	$1.5 M	$0.1 M
Sales Tax Beach Recreation Loss	NA	NA	$0.0 M	NA	$0.0 M	NA
Total Sales Tax Loss	**NA**	**$0.0 M**	**$0.9 M**	**$0.0 M**	**$1.6 M**	**$0.1 M**
TOT Business Loss	NA	$0.0 M	$0.0 M	$0.0 M	$2.4 M	$0.2 M
TOT Beach Recreation Loss	NA	NA	$0.0 M	NA	$0.1 M	NA
Total TOT Loss	**NA**	**$0.0 M**	**$0.0 M**	**$0.0 M**	**$2.5 M**	**$0.2 M**
Waterfront Department Loss	**NA**	**$0.0 M**	**$11.9 M**	**$0.0 M**	**$13.1 M**	**$0.0 M**
TOTAL	**NA**	**$0.0 M**	**$12.9 M**	**$0.1 M**	**$20.2 M**	**$1.3 M**

Notes:

Temporary storm impacts are shown as the impacts of one storm occurring at each time horizon. These results are not adjusted to account for the probability of the modeled storm occurring.

Waterfront Department losses avoided include parking impacts.

No change in impacts is observed for the 2018 modeled conditions because adaptation measures are not implemented until after this point in time.

Results are not adjusted to account for financial discounting.

NA = Impacts not applicable based on methodological framework.

Due to rounding, results may not add up precisely to the totals presented.

Table 34: Infrastructure Replacement Costs: No Action Scenario (2018 Dollars, $Millions)

FULL REPLACEMENT COSTS IN PLACE AND AS CURRENTLY DESIGNED AT EACH TIME HORIZON

Asset Type Category	2018 Conditions		2060 Conditions		2100 Conditions	
	Permanent Tidal + Erosion	Temporary 100-Year Storm	Permanent Tidal + Erosion	Temporary 100-Year Storm	Permanent Tidal + Erosion	Temporary 100-Year Storm
Critical Facilities / Utilities	NA	NE	$310.0 M	NE	$310.0 M	NE
Transportation	NA	NE	$1.3 M	NE	$15.6 M	NE
Communications	NA	NE	$0.0 M	NE	$1.1 M	NE
Sewer	NA	NE	$1.5 M	NE	$10.2 M	NE
Stormwater	NA	NE	$10.5 M	NE	$19.1 M	NE
Water Supply	NA	NE	$1.1 M	NE	$4.3 M	NE
Harbor Infrastructure	NA	NE	$74.8 M	NE	$74.8 M	NE
Recreation	NA	NE	$3.6 M	NE	$9.2 M	NE
TOTAL	**NA**	**NE**	**$402.7 M**	**NE**	**$444.3 M**	**NE**

Notes:

A detailed list of the type of assets that fall under the asset type categories listed above can be found in the VA.

Results are not adjusted to account for financial discounting.

NA = Impacts not applicable based on methodological framework; NE = Impacts not evaluated based on scope of the analysis.

Due to rounding, results may not add up precisely to the totals presented.

Table 35: Avoided Infrastructure Replacement Costs: Protect Scenario (2018 Dollars, $Millions)

FULL REPLACEMENT COSTS IN PLACE AND AS CURRENTLY DESIGNED AT EACH TIME HORIZON

Asset Type Category	2018 Conditions		2060 Conditions		2100 Conditions	
	Permanent Tidal + Erosion	Temporary 100-Year Storm	Permanent Tidal + Erosion	Temporary 100-Year Storm	Permanent Tidal + Erosion	Temporary 100-Year Storm
Critical Facilities / Utilities	NA	NE	$310.0 M	NE	$310.0 M	NE
Transportation	NA	NE	$0.8 M	NE	$14.9 M	NE
Communications	NA	NE	$0.0 M	NE	$1.1 M	NE
Sewer	NA	NE	$1.5 M	NE	$10.1 M	NE
Stormwater	NA	NE	$5.4 M	NE	$13.9 M	NE
Water Supply	NA	NE	$0.6 M	NE	$3.2 M	NE
Harbor Infrastructure	NA	NE	$74.8 M	NE	$74.8 M	NE
Recreation	NA	NE	$2.4 M	NE	$7.4 M	NE
TOTAL	**NA**	**NE**	**$395.5 M**	**NE**	**$435.4 M**	**NE**

Notes:

A detailed list of the type of assets that fall under the asset type categories listed above can be found in the VA.

Results are not adjusted to account for financial discounting.

NA = Impacts not applicable based on methodological framework; NE = Impacts not evaluated based on scope of the analysis.

Due to rounding, results may not add up precisely to the totals presented.

Table 36: Avoided Infrastructure Replacement Costs: Retreat/Protect Hybrid Scenario (2018 Dollars, $Millions)

FULL REPLACEMENT COSTS IN PLACE AND AS CURRENTLY DESIGNED AT EACH TIME HORIZON						
Asset Type Category	**2018 Conditions**		**2060 Conditions**		**2100 Conditions**	
	Permanent Tidal + Erosion	**Temporary 100-Year Storm**	**Permanent Tidal + Erosion**	**Temporary 100-Year Storm**	**Permanent Tidal + Erosion**	**Temporary 100-Year Storm**
Critical Facilities / Utilities	NA	NE	$310.0 M	NE	$310.0 M	NE
Transportation	NA	NE	$0.4 M	NE	$13.6 M	NE
Communications	NA	NE	$0.0 M	NE	$1.1 M	NE
Sewer	NA	NE	$1.2 M	NE	$9.3 M	NE
Stormwater	NA	NE	$5.2 M	NE	$13.4 M	NE
Water Supply	NA	NE	$0.6 M	NE	$3.2 M	NE
Harbor Infrastructure	NA	NE	$74.8 M	NE	$74.8 M	NE
Recreation	NA	NE	$1.7 M	NE	$6.4 M	NE
TOTAL	**NA**	**NE**	**$393.8 M**	**NE**	**$431.7 M**	**NE**

Notes:

A detailed list of the type of assets that fall under the asset type categories listed above can be found in the VA.

Results are not adjusted to account for financial discounting.

NA = Impacts not applicable based on methodological framework; NE = Impacts not evaluated based on scope of the analysis.

Due to rounding, results may not add up precisely to the totals presented.

4.2 Adaptation Costing Inputs

Table 37 and Table 38 below list the capital and maintenance costs for the Protect scenario and Retreat/Protect Hybrid scenario. Costs are broken down to account for the decade expended, sub area, cost type, adaptation measure and supporting description. Results are rounded and presented in 2018 undiscounted dollars.

Table 9: Protect Scenario Costs (2018 Dollars, $Millions)

CAPITAL AND MAINTENANCE COSTS BY DECADE: PROTECT SCENARIO					
Year	**Sub Area**	**Cost Type**	**Measure**	**Description**	**Cost**
2030	A	Capital	Bluff Face Protection	construct bluff face protection	$698.2 M
2030	A	Capital/Maintenance	Rock Revetment	maintain/expand armor at bluff toe, rock revetment	$37.8 M
2030	B	Maintenance	Rock Revetment	maintain/expand armor at bluff toe, rock revetment	$3.5 M
2030	C	Capital	Bluff Face Protection	construct bluff face protection	$792.3 M
2030	C	Capital/Maintenance	Rock Revetment	maintain/expand armor at bluff toe, rock revetment	$39.6 M
2030	D	Capital	Bluff Face Protection	construct bluff face protection	$172.3 M
2030	D	Capital/Maintenance	Rock Revetment	maintain/expand armor at bluff toe, rock revetment	$11.4 M
2030	E	Capital	Bluff Face Protection	construct bluff face protection	$242.0 M
2030	E	Capital/Maintenance	Rock Revetment	maintain/expand armor at bluff toe, rock revetment	$25.4 M
2030	F	Capital/Maintenance	Rock Revetment	maintain/expand armor at bluff toe, rock revetment	$3.3 M
2030	G	Capital	Bluff Face Protection	construct bluff face protection	$51.2 M
2030	G	Capital/Maintenance	Rock Revetment	maintain/expand armor at Shoreline Dr bluff toe, rock revetment	$10.7 M
2030	I	Maintenance	Beach Nourishment	nourish beach to maintain 20ft ambient dry beach	$1.2 M
2030	K	Maintenance	Beach Nourishment	nourish beach to maintain 20ft ambient dry beach	$1.1 M
2040	I	Maintenance	Beach Nourishment	nourish beach to maintain 20ft ambient dry beach	$6.4 M
2040	K	Maintenance	Beach Nourishment	nourish beach to maintain 20ft ambient dry beach	$1.1 M
2050	G	Maintenance	Beach Nourishment	nourish beach to maintain 20ft ambient dry beach	$1.4 M
2050	I	Maintenance	Beach Nourishment	nourish beach to maintain 20ft ambient dry beach	$8.0 M
2050	K	Maintenance	Beach Nourishment	nourish beach to maintain 20ft ambient dry beach	$1.3 M
2060	A	Maintenance	Bluff Face Protection	maintain and expand bluff face protection	$698.2 M
2060	A	Maintenance	Rock Revetment	maintain armor at bluff toe, rock revetment	$37.8 M
2060	B	Maintenance	Rock Revetment	maintain armor at bluff toe, rock revetment	$3.5 M
2060	C	Maintenance	Bluff Face Protection	maintain and expand bluff face protection	$838.3 M

CAPITAL AND MAINTENANCE COSTS BY DECADE: PROTECT SCENARIO					
Year	**Sub Area**	**Cost Type**	**Measure**	**Description**	**Cost**
2060	C	Maintenance	Rock Revetment	maintain armor at bluff toe, rock revetment	$42.5 M
2060	D	Maintenance	Bluff Face Protection	maintain and expand bluff face protection	$172.3 M
2060	D	Maintenance	Rock Revetment	maintain armor at bluff toe, rock revetment	$11.4 M
2060	E	Maintenance	Bluff Face Protection	maintain and expand bluff face protection	$246.5 M
2060	E	Maintenance	Rock Revetment	maintain armor at bluff toe, rock revetment	$25.4 M
2060	F	Maintenance	Rock Revetment	maintain armor at bluff toe, rock revetment	$35.4 M
2060	G	Capital	Seawall	construct Seawall at Leadbetter parking	$23.8 M
2060	G	Maintenance	Beach Nourishment	nourish beach to maintain 20ft ambient dry beach	$2.0 M
2060	G	Maintenance	Bluff Face Protection	maintain bluff face protection	$51.2 M
2060	G	Maintenance	Rock Revetment	maintain/expand armor at Shoreline Dr bluff toe, rock revetment	$10.7 M
2060	H	Capital	Bulkheads	raise bulkheads in harbor to prevent storm flooding and tidal inundation (along with raising parking)	$15.3 M
2060	H	Capital	Raise Harbor	raise parking & buildings above tidal inundation	$19.4 M
2060	H	Capital	Realign Infrastructure	remove and realign recycled water pipeline when building seawall at Cabrillo	$3.0 M
2060	H	Capital	Realign Infrastructure	remove and realign wastewater pipeline when building seawall at Cabrillo	$0.9 M
2060	H	Capital	Seawall	construct seawall at Ledbetter parking	$23.9 M
2060	H	Capital	Seawall	construct seawall to prevent backshore flooding & erosion at West Beach	$72.1 M
2060	H	Capital/Maintenance	Breakwater	raise/maintain breakwater	$65.8 M
2060	H	Maintenance	Pump Station	upgrade Laguna stormwater pump station	$10.0 M
2060	H	Maintenance	Rebuild Wharf	raise/renovate harbor marina facilities	$60.0 M
2060	H	Maintenance	Rebuild Wharf	rebuild Stearn's wharf	$59.0 M
2060	H	Maintenance	Tide Gates	upgrade Laguna tide gates	$3.0 M
2060	I	Capital	Floodwall	build floodwalls up Mission Creek	$16.1 M
2060	I	Capital	Seawall	construct seawall to prevent backshore flooding, erosion	$100.5 M
2060	I	Capital/Maintenance	Floodwall	raise and extend floodwalls up Mission Creek	$37.5 M
2060	I	Capital/Maintenance	Realign Infrastructure	remove and realign recycled water pipeline when building seawall at Cabrillo	$3.1 M
2060	I	Capital/Maintenance	Realign Infrastructure	remove and realign wastewater pipeline when building seawall at Cabrillo	$0.7 M
2060	I	Maintenance	Beach Nourishment	nourish beach to maintain 20ft ambient dry beach	$9.5 M
2060	J	Capital	Floodwall	build floodwalls up Sycamore Creek	$13.6 M
2060	J	Capital	Seawall	construct seawall to prevent backshore flooding, erosion	$72.7 M
2060	J	Maintenance	Beach Nourishment	nourish beach to maintain 20ft ambient dry beach	$3.0 M

CAPITAL AND MAINTENANCE COSTS BY DECADE: PROTECT SCENARIO					
Year	**Sub Area**	**Cost Type**	**Measure**	**Description**	**Cost**
2060	K	Maintenance	Beach Nourishment	nourish beach to maintain 20ft ambient dry beach	$1.5 M
2070	G	Maintenance	Beach Nourishment	nourish beach to maintain 20ft ambient dry beach	$3.8 M
2070	I	Maintenance	Beach Nourishment	nourish beach to maintain 20ft ambient dry beach	$18.2 M
2070	J	Maintenance	Beach Nourishment	nourish beach to maintain 20ft ambient dry beach	$9.5 M
2070	K	Maintenance	Beach Nourishment	nourish beach to maintain 20ft ambient dry beach	$2.8 M
2080	A	Maintenance	Rock Revetment	maintain armor at bluff toe, rock revetment	$37.8 M
2080	B	Maintenance	Rock Revetment	maintain armor at bluff toe, rock revetment	$3.5 M
2080	C	Maintenance	Rock Revetment	maintain armor at bluff toe, rock revetment	$42.5 M
2080	D	Maintenance	Rock Revetment	maintain armor at bluff toe, rock revetment	$11.4 M
2080	E	Maintenance	Rock Revetment	maintain armor at bluff toe, rock revetment	$25.4 M
2080	F	Maintenance	Rock Revetment	maintain armor at bluff toe, rock revetment	$35.4 M
2080	G	Maintenance	Beach Nourishment	nourish beach to maintain 20ft ambient dry beach	$4.2 M
2080	G	Maintenance	Rock Revetment	maintain/expand armor at Shoreline Dr bluff toe, rock revetment	$10.7 M
2080	G	Maintenance	Seawall	maintain Seawall at Leadbetter parking	$23.8 M
2080	H	Capital/Maintenance	Breakwater	raise/maintain breakwater	$65.8 M
2080	H	Maintenance	Seawall	maintain seawall at Ledbetter parking	$23.9 M
2080	I	Maintenance	Beach Nourishment	nourish beach to maintain 20ft ambient dry beach	$20.5 M
2080	I	Maintenance	Seawall	maintain/raise seawall to prevent blackshore flooding, erosion	$100.5 M
2080	J	Maintenance	Beach Nourishment	nourish beach to maintain 20ft ambient dry beach	$10.7 M
2080	J	Maintenance	Seawall	maintain seawall to prevent backshore flooding, erosion	$72.7 M
2080	K	Maintenance	Beach Nourishment	nourish beach to maintain 20ft ambient dry beach	$3.2 M
2090	A	Maintenance	Bluff Face Protection	maintain and expand bluff face protection	$698.2 M
2090	C	Maintenance	Bluff Face Protection	maintain and expand bluff face protection	$869.3 M
2090	D	Maintenance	Bluff Face Protection	maintain and expand bluff face protection	$172.3 M
2090	E	Maintenance	Bluff Face Protection	maintain and expand bluff face protection	$253.0 M
2090	G	Maintenance	Beach Nourishment	nourish beach to maintain 20ft ambient dry beach	$4.6 M
2090	G	Maintenance	Bluff Face Protection	maintain bluff face protection	$51.2 M
2090	I	Maintenance	Beach Nourishment	nourish beach to maintain 20ft ambient dry beach	$22.5 M
2090	J	Maintenance	Beach Nourishment	nourish beach to maintain 20ft ambient dry beach	$11.7 M
2090	K	Maintenance	Beach Nourishment	nourish beach to maintain 20ft ambient dry beach	$3.5 M

CAPITAL AND MAINTENANCE COSTS BY DECADE: PROTECT SCENARIO					
Year	**Sub Area**	**Cost Type**	**Measure**	**Description**	**Cost**
2100	A	Maintenance	Rock Revetment	maintain armor at bluff toe, rock revetment	$37.8 M
2100	B	Capital	Floodwall	build floodwall to protect Cliff Dr and parking areas	$7.6 M
2100	B	Maintenance	Rock Revetment	maintain armor at bluff toe, rock revetment	$3.5 M
2100	C	Maintenance	Rock Revetment	maintain armor at bluff toe, rock revetment	$43.5 M
2100	D	Maintenance	Rock Revetment	maintain armor at bluff toe, rock revetment	$11.4 M
2100	E	Maintenance	Rock Revetment	maintain armor at bluff toe, rock revetment	$25.4 M
2100	F	Maintenance	Rock Revetment	maintain armor at bluff toe, rock revetment	$35.4 M
2100	G	Capital	Dewatering	wells and pumps to manage groundwater levels	$1.1 M
2100	G	Capital	Raise Parking	raise parking & buildings above tidal inundation	$3.1 M
2100	G	Capital/Maintenance	Seawall	maintain/expand seawall at Leadbetter	$49.0 M
2100	G	Maintenance	Rock Revetment	maintain/expand armor at Shoreline Dr bluff toe, rock revetment	$10.7 M
2100	H	Capital	Dewatering	wells and pumps to manage groundwater levels	$8.5 M
2100	H	Capital	Raise Harbor	raise parking & buildings above tidal inundation	$28.7 M
2100	H	Capital/Maintenance	Breakwater	raise/maintain breakwater	$65.8 M
2100	H	Capital/Maintenance	Bulkheads	extend and raise bulkheads in harbor to prevent storm flooding and tidal inundation (along with raising parking)	$17.3 M
2100	H	Maintenance	Pump Station	upgrade Laguna stormwater pump station (add'l pump to manage storm runoff and groundwater)	$20.0 M
2100	H	Maintenance	Rebuild Wharf	raise/renovate harbor marina facilities	$60.0 M
2100	H	Maintenance	Rebuild Wharf	rebuild Stearn's wharf	$59.0 M
2100	H	Maintenance	Seawall	maintain seawall at Ledbetter parking	$23.9 M
2100	H	Maintenance	Seawall	maintain/raise seawall to prevent backshore flooding & erosion at West Beach	$72.1 M
2100	H	Maintenance	Tide Gates	upgrade Laguna tide gates	$3.0 M
2100	I	Capital	Dewatering	wells and pumps to manage groundwater levels	$57.4 M
2100	I	Maintenance	Seawall	maintain/raise seawall to prevent blackshore flooding, erosion	$100.5 M
2100	J	Capital	Pump Station	stormwater pump station at Andree Clark Bird Refuge	$10.0 M
2100	J	Capital	Tide Gates	tide gates at Andree Clark Bird Refuge	$3.0 M
2100	J	Capital/Maintenance	Floodwall	raise and extend floodwalls up Sycamore Creek	$30.6 M
2100	J	Maintenance	Seawall	maintain seawall to prevent backshore flooding, erosion	$72.7 M
TOTAL					**$8371.2 M**

Table 10: Retreat/Protect Hybrid Scenario Costs (2018 Dollars, $Millions)

CAPITAL AND MAINTENANCE COSTS BY DECADE: RETREAT/PROTECT HYBRID SCENARIO					
Year	**Sub Area**	**Cost Type**	**Measure**	**Description**	**Cost**
2020	A	Capital	Deconstruction	remove existing armoring structures to allow erosion of bluff	$0.7 M
2020	B	Capital	Deconstruction	remove existing armoring structures to allow erosion of bluff	$0.2 M
2020	C	Capital	Deconstruction	remove existing armoring structures to allow erosion of bluff	$0.1 M
2020	E	Maintenance	Deconstruction	remove existing armoring structures to allow erosion of bluff	$0.1 M
2020	F	Maintenance	Deconstruction	remove existing armoring structures to allow erosion of bluff	$0.0 M
2030	D	Capital	Rock Revetment	construct bluff toe revetment to protect Shoreline Dr	$5.8 M
2030	E	Capital	Rock Revetment	construct bluff toe revetment to protect Shoreline Dr	$10.8 M
2030	F	Capital/Maintenance	Rock Revetment	maintain/expand armor at bluff toe, rock revetment	$0.9 M
2030	G	Capital	Bluff Face Protection	construct bluff face protection	$51.2 M
2030	G	Capital/Maintenance	Rock Revetment	maintain/expand armor at Shoreline Dr bluff toe, rock revetment	$10.7 M
2030	I	Maintenance	Beach Nourishment	nourish beach to maintain 20ft ambient dry beach	$1.2 M
2030	K	Maintenance	Beach Nourishment	nourish beach to maintain 20ft ambient dry beach	$1.1 M
2040	I	Maintenance	Beach Nourishment	nourish beach to maintain 20ft ambient dry beach	$6.4 M
2040	K	Maintenance	Beach Nourishment	nourish beach to maintain 20ft ambient dry beach	$1.1 M
2050	G	Maintenance	Beach Nourishment	nourish beach to maintain 20ft ambient dry beach	$1.4 M
2050	I	Maintenance	Beach Nourishment	nourish beach to maintain 20ft ambient dry beach	$8.0 M
2050	K	Maintenance	Beach Nourishment	nourish beach to maintain 20ft ambient dry beach	$1.3 M
2060	A	Capital	Demo & move for retreat	demolish & move property for allowance of retreat	$79.1 M
2060	A	Capital	Rock Revetment	construct revetment to protect Cliff Dr	$5.9 M
2060	B	Capital	Demo & move for retreat	demolish & move property for allowance of retreat	$1.2 M
2060	C	Capital	Demo & move for retreat	demolish & move property for allowance of retreat	$90.7 M
2060	D	Capital	Demo & move for retreat	demolish & move property for allowance of retreat	$0.1 M
2060	D	Maintenance	Rock Revetment	maintain bluff toe revetment to protect Shoreline Dr	$5.8 M
2060	E	Capital	Demo & move for retreat	demolish & move property for allowance of retreat	$55.4 M
2060	E	Maintenance	Rock Revetment	maintain bluff toe revetment to protect Shoreline Dr	$10.8 M
2060	F	Capital	Demo & move for retreat	demolish & move property for allowance of retreat	$0.2 M
2060	F	Maintenance	Rock Revetment	maintain armor at bluff toe, rock revetment	$0.9 M
2060	G	Capital	Demo & move for retreat	demolish & move property for allowance of retreat	$0.4 M
2060	G	Capital	Seawall	construct Seawall at Leadbetter parking	$23.8 M

CAPITAL AND MAINTENANCE COSTS BY DECADE: RETREAT/PROTECT HYBRID SCENARIO					
Year	**Sub Area**	**Cost Type**	**Measure**	**Description**	**Cost**
2060	G	Maintenance	Beach Nourishment	nourish beach to maintain 20ft ambient dry beach	$2.0 M
2060	G	Maintenance	Bluff Face Protection	maintain bluff face protection	$51.2 M
2060	G	Maintenance	Rock Revetment	maintain/expand armor at Shoreline Dr bluff toe, rock revetment	$10.7 M
2060	H	Capital	Bulkheads	raise bulkheads in harbor to prevent storm flooding and tidal inundation (along with raising parking)	$15.3 M
2060	H	Capital	Raise Harbor	raise parking & buildings above tidal inundation	$19.4 M
2060	H	Capital	Realign Infrastructure	remove and realign recycled water pipeline when building seawall at Cabrillo	$3.0 M
2060	H	Capital	Realign Infrastructure	remove and realign wastewater pipeline when building seawall at Cabrillo	$0.9 M
2060	H	Capital	Seawall	construct seawall at Ledbetter parking	$23.9 M
2060	H	Capital	Seawall	construct seawall to prevent backshore flooding & erosion at West Beach	$72.1 M
2060	H	Capital/Maintenance	Breakwater	raise/maintain breakwater	$65.8 M
2060	H	Maintenance	Pump Station	upgrade Laguna stormwater pump station	$10.0 M
2060	H	Maintenance	Rebuild Wharf	raise/renovate harbor marina facilities	$60.0 M
2060	H	Maintenance	Rebuild Wharf	rebuild Stearn's wharf	$59.0 M
2060	H	Maintenance	Tide Gates	upgrade Laguna tide gates	$3.0 M
2060	I	Capital	Demo & move for retreat	demolish & move property for allowance of retreat	$0.6 M
2060	I	Capital	Floodwall	build floodwalls up Mission Creek	$16.1 M
2060	I	Capital	Seawall	construct seawall to prevent backshore flooding, erosion	$100.5 M
2060	I	Capital/Maintenance	Floodwall	raise and extend floodwalls up Mission Creek	$37.5 M
2060	I	Capital/Maintenance	Realign Infrastructure	remove and realign recycled water pipeline when building seawall at Cabrillo	$3.1 M
2060	I	Capital/Maintenance	Realign Infrastructure	remove and realign wastewater pipeline when building seawall at Cabrillo	$0.7 M
2060	I	Maintenance	Beach Nourishment	nourish beach to maintain 20ft ambient dry beach	$9.5 M
2060	J	Capital	Demo & move for retreat	demolish & move property for allowance of retreat	$5.6 M
2060	J	Capital	Floodwall	build floodwalls up Sycamore Creek	$13.6 M
2060	J	Capital	Seawall	construct seawall to prevent backshore flooding, erosion	$72.7 M
2060	J	Maintenance	Beach Nourishment	nourish beach to maintain 20ft ambient dry beach	$3.0 M
2060	K	Maintenance	Beach Nourishment	nourish beach to maintain 20ft ambient dry beach	$1.5 M
2070	G	Maintenance	Beach Nourishment	nourish beach to maintain 20ft ambient dry beach	$3.8 M
2070	I	Maintenance	Beach Nourishment	nourish beach to maintain 20ft ambient dry beach	$18.2 M
2070	J	Maintenance	Beach Nourishment	nourish beach to maintain 20ft ambient dry beach	$9.5 M
2070	K	Maintenance	Beach Nourishment	nourish beach to maintain 20ft ambient dry beach	$2.8 M

CAPITAL AND MAINTENANCE COSTS BY DECADE: RETREAT/PROTECT HYBRID SCENARIO					
Year	**Sub Area**	**Cost Type**	**Measure**	**Description**	**Cost**
2080	A	Maintenance	Rock Revetment	maintain revetment to protect Cliff Dr	$5.9 M
2080	D	Maintenance	Rock Revetment	maintain bluff toe revetment to protect Shoreline Dr	$5.8 M
2080	E	Maintenance	Rock Revetment	maintain bluff toe revetment to protect Shoreline Dr	$10.8 M
2080	F	Maintenance	Rock Revetment	maintain armor at bluff toe, rock revetment	$0.9 M
2080	G	Maintenance	Beach Nourishment	nourish beach to maintain 20ft ambient dry beach	$4.2 M
2080	G	Maintenance	Rock Revetment	maintain/expand armor at Shoreline Dr bluff toe, rock revetment	$10.7 M
2080	G	Maintenance	Seawall	maintain Seawall at Leadbetter parking	$23.8 M
2080	H	Capital/Maintenance	Breakwater	raise/maintain breakwater	$65.8 M
2080	H	Maintenance	Seawall	maintain seawall at Ledbetter parking	$23.9 M
2080	I	Maintenance	Beach Nourishment	nourish beach to maintain 20ft ambient dry beach	$20.5 M
2080	I	Maintenance	Seawall	maintain/raise seawall to prevent blackshore flooding, erosion	$100.5 M
2080	J	Maintenance	Beach Nourishment	nourish beach to maintain 20ft ambient dry beach	$10.7 M
2080	J	Maintenance	Seawall	maintain seawall to prevent backshore flooding, erosion	$72.7 M
2080	K	Maintenance	Beach Nourishment	nourish beach to maintain 20ft ambient dry beach	$3.2 M
2090	G	Maintenance	Beach Nourishment	nourish beach to maintain 20ft ambient dry beach	$4.6 M
2090	G	Maintenance	Bluff Face Protection	maintain bluff face protection	$51.2 M
2090	I	Maintenance	Beach Nourishment	nourish beach to maintain 20ft ambient dry beach	$22.5 M
2090	J	Maintenance	Beach Nourishment	nourish beach to maintain 20ft ambient dry beach	$11.7 M
2090	K	Maintenance	Beach Nourishment	nourish beach to maintain 20ft ambient dry beach	$3.5 M
2100	A	Capital	Demo & move for retreat	demolish & move property for allowance of retreat	$25.2 M
2100	A	Maintenance	Rock Revetment	maintain revetment to protect Cliff Dr	$5.9 M
2100	B	Capital	Demo & move for retreat	demolish & move property for allowance of retreat	$2.6 M
2100	B	Capital	Raise Road	demo and raise Cliff Drive segement crossing Arroyo Burro canyon	$6.5 M
2100	C	Capital	Demo & move for retreat	demolish & move property for allowance of retreat	$32.0 M
2100	D	Capital	Demo & move for retreat	demolish & move property for allowance of retreat	$2.7 M
2100	D	Maintenance	Rock Revetment	maintain bluff toe revetment to protect Shoreline Dr	$5.8 M
2100	E	Capital	Demo & move for retreat	demolish & move property for allowance of retreat	$10.9 M
2100	E	Maintenance	Rock Revetment	maintain bluff toe revetment to protect Shoreline Dr	$10.8 M
2100	F	Maintenance	Rock Revetment	maintain armor at bluff toe, rock revetment	$0.9 M
2100	G	Capital	Dewatering	wells and pumps to manage groundwater levels	$1.1 M

CAPITAL AND MAINTENANCE COSTS BY DECADE: RETREAT/PROTECT HYBRID SCENARIO					
Year	**Sub Area**	**Cost Type**	**Measure**	**Description**	**Cost**
2100	G	Capital	Raise Parking	raise parking & buildings above tidal inundation	$3.1 M
2100	G	Capital/Maintenance	Seawall	maintain/expand seawall at Leadbetter	$49.0 M
2100	G	Maintenance	Rock Revetment	maintain/expand armor at Shoreline Dr bluff toe, rock revetment	$10.7 M
2100	H	Capital	Dewatering	wells and pumps to manage groundwater levels	$8.5 M
2100	H	Capital	Raise Harbor	raise parking & buildings above tidal inundation	$28.7 M
2100	H	Capital/Maintenance	Breakwater	raise/maintain breakwater	$65.8 M
2100	H	Capital/Maintenance	Bulkheads	extend and raise bulkheads in harbor to prevent storm flooding and tidal inundation (along with raising parking)	$17.3 M
2100	H	Maintenance	Pump Station	upgrade Laguna stormwater pump station (add'l pump to manage storm runoff and groundwater)	$20.0 M
2100	H	Maintenance	Rebuild Wharf	raise/renovate harbor marina facilities	$60.0 M
2100	H	Maintenance	Rebuild Wharf	rebuild Stearn's wharf	$59.0 M
2100	H	Maintenance	Seawall	maintain seawall at Ledbetter parking	$23.9 M
2100	H	Maintenance	Seawall	maintain/raise seawall to prevent backshore flooding & erosion at West Beach	$72.1 M
2100	H	Maintenance	Tide Gates	upgrade Laguna tide gates	$3.0 M
2100	I	Capital	Demo & move for retreat	demolish & move property for allowance of retreat	$31.4 M
2100	I	Capital	Dewatering	wells and pumps to manage groundwater levels	$57.4 M
2100	I	Maintenance	Seawall	maintain/raise seawall to prevent blackshore flooding, erosion	$100.5 M
2100	J	Capital	Demo & move for retreat	demolish & move property for allowance of retreat	$0.6 M
2100	J	Capital	Pump Station	stormwater pump station at Andree Clark Bird Refuge	$10.0 M
2100	J	Capital	Tide Gates	tide gates at Andree Clark Bird Refuge	$3.0 M
2100	J	Capital/Maintenance	Floodwall	raise and extend floodwalls up Sycamore Creek	$30.6 M
2100	J	Maintenance	Seawall	maintain seawall to prevent backshore flooding, erosion	$72.7 M
TOTAL					**$2354.7 M**

4.3 Asset Exposure Results

Table 39 – Table 41 below show the results of the GIS asset exposure analysis for the No Action scenario as well as the Protect and Retreat/Protect Hybrid adaptation scenarios.

Table 39: Asset Exposure Results: No Action Scenario

Hazard	Subarea	Railroads	Downtown Parking Lots	Road Centerlines	Public Parking SLRS	Sewer Lift Stations	Sewer Laterals	Sewer Mains Force	Sewer Mains Gravity	Storm Water Drainage Pipes	Storm Water Drain Channels	WCS ESA2018	Fiber Optic Cabinets	Fiber Optic Cables	Groundwater Wells	Monitoring Wells	Production Wells	Water Pumps	Raw Water Mains	Water Mains	Recycled Mains	Recycled Laterals	Fire Stations	Police Stations	Wildland Fire Evacuation Zones	CA Coastal Trail	Recreation Rank BREN	Assessor Parcels	Breakwater	Breakwater Rip Rap Merge	Launch Ramps	Rock Groin	Rock Groin Rip Rap	Waterfront Parking Street
Existing_Conditions_Storm_Inundation_OutputTable_ Areas	A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2925.869385	126925.3417	0	0	0	0	0	0
Existing_Conditions_Tidal_Inundation_OutputTable_ Areas	A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2738.195801	13968.42911	0	0	0	0	0	0
Existing_Conditions_Wave_Hazard_OutputTable_ Areas	A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	10251.88574	10251.86914	0	0	0	0	0	0
T2060_LIG_Hazards_Cliff_Bluff_Erosion_OutputTable_ Areas	A	0	0	517.8775635	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	982851.3589	0	0	0	0	0	0
T2060_LIG_Hazards_Shoreline_Erosion_OutputTable_ Areas	A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	13961.07617	22533.90869	0	0	0	0	0	0
T2060_LIG_Hazards_Storm_Inundation_OutputTable_ Areas	A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	199.8178253	334.0817909	0	0	0	0	0	0
T2060_LIG_Hazards_Tidal_Inundation_OutputTable_ Areas	A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1766.589966	2082.018169	0	0	0	0	0	0
T2060_LIG_Hazards_Wave_Hazard_OutputTable_ Areas	A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1087.27124	1087.286743	0	0	0	0	0	0
T2060_LIG_Storm_LowLying_OutputTable_ Areas	A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	10926.32	0	0	0	0	0	0
T2060_LIG_Tidal_LowLying_OutputTable_ Areas	A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3613.422226	0	0	0	0	0	0
T2100_Cliff_Erosion_OutputTable_ Areas	A	0	0	1527.243408	0	0	0	0	0	0	534.8012333	0	0	0	0	0	0	0	0	0	0	0	0	0	257.4848328	273.0788269	0	1284662.111	0	0	0	0	0	0
T2100_Shoreline_Erosion_OutputTable_ Areas	A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	42438.875	70021.74902	0	0	0	0	0	0
T2100_Storm_LowLying_OutputTable_ Areas	A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4129.637079	0	0	0	0	0	0
T2100_Tidal_LowLying_OutputTable_ Areas	A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1376.547718	0	0	0	0	0	0
T2100_Tidal_OutputTable_ Areas	A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	53.64178085	0	0	0	0	0	0
Existing_Conditions_Storm_Inundation_OutputTable_ Areas	B	0	0	0	0	0	0	0	0	8.363593817	713.160511	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	103281.1094	132909.192	0	0	0	0	0	0
Existing_Conditions_Tidal_Inundation_OutputTable_ Areas	B	0	0	0	0	0	0	0	0	0	295.5852356	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	41066.18896	71762.35284	0	0	0	0	0	0
Existing_Conditions_Wave_Hazard_OutputTable_ Areas	B	0	0	0	0	0	0	0	0	0	130.5444489	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	44958.69727	44958.87305	0	0	0	0	0	0
T2060_LIG_Hazards_Cliff_Bluff_Erosion_OutputTable_ Areas	B	0	0	60.84835434	0	0	0	0	56.50337219	0	98.67448425	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2279.822838	640439.75	720849.6896	0	0	0	0	0	0
T2060_LIG_Hazards_Shoreline_Erosion_OutputTable_ Areas	B	0	0	0	0	0	0	0	0	0	147.9013977	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	19219.21826	19219.38672	0	0	0	0	0	0
T2060_LIG_Hazards_Storm_Inundation_OutputTable_ Areas	B	0	0	0	0	0	0	0	0	15.17903066	1299.418449	0	0	0	0	0	0	0	0	0	0	0	0	0	0	13.73395443	89749.51762	97878.36133	0	0	0	0	0	0
T2060_LIG_Hazards_Tidal_Inundation_OutputTable_ Areas	B	0	0	0	0	0	0	0	0	0	431.1484985	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	64337.48438	66321.05078	0	0	0	0	0	0
T2060_LIG_Hazards_Wave_Hazard_OutputTable_ Areas	B	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	12749.63525	12749.67163	0	0	0	0	0	0
T2060_LIG_Storm_LowLying_OutputTable_ Areas	B	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	7348.544434	8668.19104	0	0	0	0	0	0
T2060_LIG_Tidal_LowLying_OutputTable_ Areas	B	0	0	0	0	0	0	0	0	0	1.482176542	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	17163.96704	18583.53259	0	0	0	0	0	0
T2100_Cliff_Erosion_OutputTable_ Areas	B	0	0	60.84835434	0	0	0	0	56.50337219	0	202.1518097	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2416.166344	834089	920737.7201	0	0	0	0	0	0
T2100_Shoreline_Erosion_OutputTable_ Areas	B	0	0	0	0	0	0	0	0	0	455.3569641	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	134358.1641	134358.4922	0	0	0	0	0	0
T2100_Storm_LowLying_OutputTable_ Areas	B	0	0	0	0	0	0	0	1.194696307	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	129.049469	129.0500814	0	0	0	0	0	0
T2100_Storm_OutputTable_ Areas	B	0	0	1463.758026	72690.75	1	167.2519293	432.417	1806.591043	825.8214626	1389.08066	0	0	0	0	0	0	0	0	0	792.9091473	179.6492805	0	0	1161.895935	1273.799942	172157.5586	484079.5114	0	0	0	0	0	0
T2100_Tidal_LowLying_OutputTable_ Areas	B	0	0	250.5073547	9536.614258	0	47.23930168	0	257.8207779	170.5582962	291.2898502	0	0	0	0	0	0	0	0	0	37.64397812	46.35313416	0	0	242.8607941	280.6529846	12634.66406	20926.79842	0	0	0	0	0	0
T2100_Tidal_OutputTable_ Areas	B	0	0	0	702.0350342	0	0	0	0	39.4075079	1253.539766	0	0	0	0	0	0	0	0	0	0	0	0	0	0	37.27103043	103707.7461	117873.2637	0	0	0	0	0	0
T2100_Wave_Hazard_OutputTable_ Areas	B	0	0	0	19542.83984	0	0	0	0	0	246.2772675	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	64524.37305	64524.34277	0	0	0	0	0	0
Existing_Conditions_Storm_Inundation_OutputTable_ Areas	C	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	14529.65832	0	0	0	0	0	0
Existing_Conditions_Tidal_Inundation_OutputTable_ Areas	C	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	26516.24622	0	0	0	0	0	0
T2060_LIG_Hazards_Cliff_Bluff_Erosion_OutputTable_ Areas	C	0	0	382.7619286	0	0	218.9073777	0	1266.909969	1048.969759	137.3109436	0	0	0	0	0	0	0	0	0	0	0	0	0	0	480.1573181	4387.798828	969983.8836	0	0	0	0	0	0
T2060_LIG_Hazards_Tidal_Inundation_OutputTable_ Areas	C	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	28.40369034	0	0	0	0	0	0
T2060_LIG_Storm_LowLying_OutputTable_ Areas	C	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	16.95583725	10759.43393	0	0	0	0	0	0
T2060_LIG_Tidal_LowLying_OutputTable_ Areas	C	0	0	0	0	0	0	0	0	3.996484518	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	10896.63549	0	0	0	0	0	0
T2100_Cliff_Erosion_OutputTable_ Areas	C	0	0	1955.007004	0	0	933.2769886	0	2937.532043	2034.993071	137.3109436	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1339.260742	4387.798828	1234443.347	0	0	0	0	0	0
T2100_Tidal_LowLying_OutputTable_ Areas	C	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8831.772869	0	0	0	0	0	0
T2100_Tidal_OutputTable_ Areas	C	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	441.8653946	0	0	0	0	0	0
Existing_Conditions_Storm_Inundation_OutputTable_ Areas	D	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3969.613579	0	0	0	0	0	0
Existing_Conditions_Tidal_Inundation_OutputTable_ Areas	D	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	764.8851929	0	0	0	0	0	0

Table 39: Asset Exposure Results: No Action Scenario

Hazard	Subarea	Railroads	Downtown Parking Lots	Road Centerlines	Public Parking SLRS	Sewer Lift Stations	Sewer Laterals	Sewer Mains Force	Sewer Mains Gravity	Storm Water Drainage Pipes	Storm Water Drain Channels	WCS ESA2018	Fiber Optic Cabinets	Fiber Optic Cables	Groundwater Wells	Monitoring Wells	Production Wells	Water Pumps	Raw Water Mains	Water Mains	Recycled Mains	Recycled Laterals	Fire Stations	Police Stations	Wildland Fire Evacuation Zones	CA Coastal Trail	Recreation Rank BREN	Assessor Parcels	Breakwater	Breakwater Rip Rap Merge	Launch Ramps	Rock Groin	Rock Groin Rip Rap	Waterfront Parking Street
T2060_LIG_Hazards_Cliff_Bluff_Erosion_OutputTable_ Areas	D	0	0	281.4171371	0	0	0	0	605.0067291	200.3668289	0	0	0	0	0	0	0	0	0	0	298.3582611	0	0	0	0	322.480835	0	297549.6542	0	0	0	0	0	0
T2060_LIG_Storm_LowLying_OutputTable_ Areas	D	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3262.686035	0	0	0	0	0	0
T2060_LIG_Tidal_LowLying_OutputTable_ Areas	D	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1376.593262	0	0	0	0	0	0
T2100_Cliff_Erosion_OutputTable_ Areas	D	0	0	1057.873398	0	0	72.10633564	0	1580.533199	396.2495041	0	0	0	0	0	0	0	0	0	0	590.680191	0	0	0	0	602.989502	0	444556.3438	0	0	0	0	0	0
T2100_Storm_LowLying_OutputTable_ Areas	D	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2064.88623	0	0	0	0	0	0
T2100_Tidal_LowLying_OutputTable_ Areas	D	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	516.2193604	0	0	0	0	0	0
Existing_Conditions_Storm_Inundation_OutputTable_ Areas	E	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8.733184814	16703.71061	0	0	0	0	0	0
Existing_Conditions_Tidal_Inundation_OutputTable_ Areas	E	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	9907.708154	0	0	0	0	0	0
T2060_LIG_Hazards_Cliff_Bluff_Erosion_OutputTable_ Areas	E	0	0	272.8084717	0	0	186.0019655	0	705.2070913	483.8479004	0	0	0	0	0	0	0	0	0	0	268.1192932	0	0	0	0	327.8241577	1254.701904	391899.999	0	0	0	0	0	0
T2060_LIG_Storm_LowLying_OutputTable_ Areas	E	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5642.139177	0	0	0	0	0	0
T2060_LIG_Tidal_LowLying_OutputTable_ Areas	E	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1677.726377	0	0	0	0	0	0
T2100_Cliff_Erosion_OutputTable_ Areas	E	0	0	1180.495636	0	0	948.0354526	0	1887.666847	661.8466988	0	0	0	0	0	0	0	0	0	0	1067.331421	0	0	0	0	1080.727173	1254.701904	526161.9573	0	0	0	0	0	0
T2100_Tidal_LowLying_OutputTable_ Areas	E	0	0	0	0	0	0	0	0	13.34581566	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4231.00516	0	0	0	0	0	0
Existing_Conditions_Storm_Inundation_OutputTable_ Areas	F	0	0	0	0	0	0	0	0	3.977565289	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2505.939073	7939.203125	0	0	0	0	0	0
Existing_Conditions_Tidal_Inundation_OutputTable_ Areas	F	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	999.215332	3110.124512	0	0	0	0	0	0
Existing_Conditions_Wave_Hazard_OutputTable_ Areas	F	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	792.7517548	490.4735718	0	0	0	0	0	0
T2060_LIG_Hazards_Cliff_Bluff_Erosion_OutputTable_ Areas	F	0	0	9.021473885	817.4683228	0	0	0	8.933161736	339.3261876	0	0	0	0	0	0	0	0	0	0	29.59588242	6.19766283	0	0	0	1969.006104	228469.5518	284113.3055	0	0	0	0	0	0
T2060_LIG_Hazards_Storm_Inundation_OutputTable_ Areas	F	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	329.8919373	143.3130188	0	0	0	0	0	0
T2060_LIG_Hazards_Tidal_Inundation_OutputTable_ Areas	F	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1097.276367	938.5471802	0	0	0	0	0	0
T2060_LIG_Storm_LowLying_OutputTable_ Areas	F	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	645.2860718	645.2860718	0	0	0	0	0	0
T2060_LIG_Tidal_LowLying_OutputTable_ Areas	F	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	344.1534424	387.1667519	0	0	0	0	0	0
T2100_Cliff_Erosion_OutputTable_ Areas	F	0	0	67.54810286	13521.58057	0	0	0	99.49999809	591.5970888	0	0	0	0	0	0	0	0	0	0	76.12406158	25.88476753	0	0	0	3198.503906	361415.0792	419113.5229	0	0	0	0	0	0
T2100_Storm_OutputTable_ Areas	F	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	21.66298485	2083.154541	1768.512573	0	0	0	0	0	0
T2100_Tidal_LowLying_OutputTable_ Areas	F	0	0	0	0	0	0	0	0	64.53799248	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	232.9678192	20845.24805	25885.66235	0	0	0	0	0	0
T2100_Tidal_OutputTable_ Areas	F	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1399.114136	1114.205566	0	0	0	0	0	0
Existing_Conditions_Tidal_Inundation_OutputTable_ Areas	G	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	55210.66016	3202.550293	0	0	0	0	0	0
Existing_Conditions_Wave_Hazard_OutputTable_ Areas	G	0	0	0	47548.65723	0	52.9205308	0	222.860508	291.6522148	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	822.0324707	454925.0465	393220.701	0	0	0	0	0	0
T2060_LIG_Hazards_Cliff_Bluff_Erosion_OutputTable_ Areas	G	0	0	460.7311096	0	0	271.0468817	0	635.8341522	403.9853249	0	0	0	0	0	0	0	0	0	0	1045.19873	0	0	0	0	1045.3302	119372.3257	169267.5999	0	0	0	0	0	0
T2060_LIG_Hazards_Shoreline_Erosion_OutputTable_ Areas	G	0	0	0	0	0	0	0	0	44.71135139	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	331.520874	231189.6094	126395.5928	0	0	0	0	0	0
T2060_LIG_Hazards_Storm_Inundation_OutputTable_ Areas	G	0	0	33.90594101	0	0	0	0	32.70747757	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	903.3901367	0	0	0	0	0	0
T2060_LIG_Hazards_Tidal_Inundation_OutputTable_ Areas	G	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	44.75683594	3730.712646	3706.862061	0	0	0	0	0	0
T2060_LIG_Hazards_Wave_Hazard_OutputTable_ Areas	G	0	0	99.11619568	89049.41406	0	70.6517067	0	289.9563751	424.3599987	0	0	0	465.4471169	0	0	0	0	0	0	760.05266	0	0	0	0	966.9268799	253520.9063	253884.7021	0	0	0	0	0	0
T2060_LIG_Storm_LowLying_OutputTable_ Areas	G	0	0	97.73588085	142.7274933	0	0	0	73.72718859	135.9065647	1.631507039	0	0	0	0	0	0	0	0	0	12.40091419	6.778927803	0	0	0	0	731.3287964	1142.840973	0	0	0	0	0	0
T2060_LIG_Tidal_LowLying_OutputTable_ Areas	G	0	0	0	234.1483917	0	0	0	0	20.1422925	95.89849091	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T2100_Cliff_Erosion_OutputTable_ Areas	G	0	0	1038.898438	0	0	350.7900419	0	1389.071926	614.1063423	0	0	0	0	0	0	0	0	0	0	1034.289795	0	0	0	0	1034.304077	118108.7944	175326.1913	0	0	0	0	0	0
T2100_Shoreline_Erosion_OutputTable_ Areas	G	0	0	0	66260.58398	0	70.6517067	0	262.8926163	320.5410728	0	0	0	158.1051636	0	0	0	0	0	0	431.6929626	0	0	0	0	1039.11084	435631.9063	330760.3008	0	0	0	0	0	0
T2100_Storm_OutputTable_ Areas	G	0	0	1246.539466	91546.7136	0	72.89890671	0	1541.565612	737.1971274	0	0	1	190.5044231	0	0	0	0	0	0	498.3604741	34.30663347	0	0	0	0	27318.42383	340729.9146	0	0	0	0	0	0
T2100_Tidal_LowLying_OutputTable_ Areas	G	0	0	0	14.59158707	0	0	0	0	7.901947975	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	258.1150818	387.1710205	0	0	0	0	0	0
T2100_Tidal_OutputTable_ Areas	G	0	0	1204.076019	108218.9507	0	0	0	875.9323907	525.5555749	105.0062447	0	1	505.208313	0	0	0	0	0	0	606.2528992	120.4857025	0	0	0	5.148985386	40682.64637	114837.0174	0	0	0	0	0	0
T2100_Wave_Hazard_OutputTable_ Areas	G	0	0	201.6221046	37770.5824	0	0	0	208.8202286	363.6015902	0	0	0	331.7330213	0	0	0	0	0	0	453.1095233	4.826093555	0	0	0	941.4451294	79146.44531	79038.24328	0	0	0	0	0	0
Existing_Conditions_Storm_Inundation_OutputTable_ Areas	H	0	56.347076	0	1770.601732	0	0	0	0	23.813721	312.6422424	1	0	0	0	0	0	0	0	0	27.26135826	0	0	0	0	66.98149109	62318.56553	42761.33992	1048.741167	297.7680435	6.3172601	16.96666	227.346732	0
Existing_Conditions_Tidal_Inundation_OutputTable_ Areas	H	0	35045.06	1360.476196	66282.42634	0	0	0	0	25.68131351	116.240406	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	554607.1424	214832.4587	1297.827372	5400.736541	452.13302	0	658.396202	0
Existing_Conditions_Wave_Hazard_OutputTable_ Areas	H	0	13599.894	276.7345543	50990.05618	0	89.20436811	0	533.6524735	81.56713581	788.4302406	1	0	0	0	0	0	0	0	0	1057.897315	0	0	0	0	35.46490479	1077546.366	792316.6787	571.5330394	60.97747564	0	316.3482	60.7248973	0

Table 39: Asset Exposure Results: No Action Scenario

Hazard	Subarea	Railroads	Downtown Parking Lots	Road Centerlines	Public Parking SLRS	Sewer Lift Stations	Sewer Laterals	Sewer Mains Force	Sewer Mains Gravity	Storm Water Drainage Pipes	Storm Water Drain Channels	WCS ESA2018	Fiber Optic Cabinets	Fiber Optic Cables	Groundwater Wells	Monitoring Wells	Production Wells	Water Pumps	Raw Water Mains	Water Mains	Recycled Mains	Recycled Laterals	Fire Stations	Police Stations	Wildland Fire Evacuation Zones	CA Coastal Trail	Recreation Rank BREN	Assessor Parcels	Breakwater	Breakwater Rip Rap Merge	Launch Ramps	Rock Groin	Rock Groin Rip Rap	Waterfront Parking Street
T2060_LIG_Hazards_Shoreline_Erosion_OutputTable_ Areas	H	0	691.36676	0	5527.35791	0	0	0	0	58.25879669	272.6928921	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	202647.7666	96404.70264	0	0	0	0	0	0
T2060_LIG_Hazards_Storm_Inundation_OutputTable_ Areas	H	0	21271.713	450.4857299	95898.26855	0	646.0704317	0	3260.010268	650.9914389	0	0	0	1106.859802	0	0	0	0	0	0	535.9158258	47.10199165	0	0	0	563.0093994	248336.6704	246316.5795	731.5157387	88.67039263	0	482.2326	52.9958052	1737.31736
T2060_LIG_Hazards_Tidal_Inundation_OutputTable_ Areas	H	0	35522.466	1432.240845	250954.9004	0	252.5233927	0	931.3403244	538.4602678	879.0290833	1	0	0	0	0	0	0	0	0	900.3526802	0	0	0	0	1798.463745	1418208.9	921957.967	3752.546051	6067.314564	458.45029	480.2811	1178.34782	0
T2060_LIG_Hazards_Wave_Hazard_OutputTable_ Areas	H	0	21368.622	1243.314867	135675.9231	0	236.5145981	0	2928.64843	1088.861378	65.59085846	0	0	314.4884224	0	0	0	0	0	24.725607	2587.14856	102.9903755	0	0	15.35077763	1858.625977	737604.144	639564.7695	551.2462186	23.07730341	0	395.5014	65.955132	28.8933792
T2060_LIG_Storm_LowLying_OutputTable_ Areas	H	0	0	0	43.02082062	0	7.90751791	0	6.71085453	129.381855	127.1686401	0	1	101.9413006	0	0	0	0	0	0	72.11603546	0	0	0	0	0	11963.58477	9873.422716	0	0	0	0	0	21.862805
T2060_LIG_Tidal_LowLying_OutputTable_ Areas	H	0	3702.0667	266.7609253	18472.63831	0	127.2783198	0	570.7744417	411.1212771	20.10355186	0	0	0	0	0	0	0	0	0	65.47511292	0.227357745	0	0	0	28.81364632	47450.74963	47340.78944	0	0	0	0	0	0
T2100_Shoreline_Erosion_OutputTable_ Areas	H	0	8670.126	0	65256.62567	0	5.385449409	0	30.0442028	203.7185669	406.3338928	1	0	0	0	0	0	0	0	0	750.4025726	30.99843407	0	0	0	739.2819824	376028.2613	254707.7471	0	0	0	0	0	0
T2100_Storm_LowLying_OutputTable_ Areas	H	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	86.03622437	0	0	0	0	0	0
T2100_Storm_OutputTable_ Areas	H	0	0	1783.577377	88124.87073	0	562.2994821	0	1845.388281	678.2080138	365.262049	0	0	802.7961044	0	0	0	0	0	0	161.2414875	135.4151196	0	0	0	0	216454.2261	450080.1236	0	0	0	0	0	939.063524
T2100_Tidal_LowLying_OutputTable_ Areas	H	0	0	0	0	0	0	0	0	3.672078133	38.65784073	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	43.01865005	1247.56736	0	0	0	0	0	0
T2100_Tidal_OutputTable_ Areas	H	0	73673.962	8922.214879	536285.563	0	3257.530799	0	11898.30346	3450.100746	1311.633194	1	3	3947.663682	0	0	0	0	0	24.725607	4822.902904	353.9363365	0	0	27.39950371	4554.408691	3019731.001	2783542.12	9517.861826	6337.616945	458.45029	1361.145	1297.29876	4753.29849
T2100_Wave_Hazard_OutputTable_ Areas	H	0	0	0	0	0	0	0	49.76015472	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	10454.22791	6072.361618	2.954213619	0	0	0	0	0
Existing_Conditions_Storm_Inundation_OutputTable_ Areas	I	176.1636	0	73.32658386	0	0	0	0	167.8618298	169.8176653	1332.805977	0	0	67.27902985	0	0	0	0	0	0	0	0	0	0	0	0	7250.303436	45370.37695	0	0	0	0	0	0
Existing_Conditions_Tidal_Inundation_OutputTable_ Areas	I	0	0	0	0	0	0	0	546.3436584	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	74392.00781	0	0	0	0	0	0	0
Existing_Conditions_Wave_Hazard_OutputTable_ Areas	I	0	0	0	184.7812805	0	0	0	1295.054199	163.797533	0	0	0	0	0	0	0	0	0	0	2457.850586	21.11863518	0	0	0	2733.807861	905590.0938	475580.6445	0	0	0	0	0	0
T2060_LIG_Hazards_Shoreline_Erosion_OutputTable_ Areas	I	0	0	0	0	0	0	0	1334.80069	90.20048523	0	0	0	0	0	0	0	0	0	0	1429.802816	14.9243412	0	0	0	770.2623901	708258.8789	339015.8557	0	0	0	0	0	0
T2060_LIG_Hazards_Storm_Inundation_OutputTable_ Areas	I	43.17883	0	49.09741402	0	0	0	0	171.9995413	193.246057	2151.46324	0	0	12.86873817	0	0	0	0	0	0	34.57548904	0	0	0	0	0	1977.097347	119442.9548	0	0	0	0	0	0
T2060_LIG_Hazards_Tidal_Inundation_OutputTable_ Areas	I	176.1636	0	73.32620239	0	0	0	0	472.8140268	177.6222098	1264.810524	0	0	67.27902985	0	0	0	0	0	0	416.139924	6.193972111	0	0	0	24.10902214	56087.21365	64589.21017	0	0	0	0	0	0
T2060_LIG_Hazards_Wave_Hazard_OutputTable_ Areas	I	0	0	609.6621077	1232.243408	0	14.05733585	0	1215.281659	563.8973482	0	0	1	2695.684917	0	2	0	0	0	0	1611.868703	17.38295555	0	0	0	3543.080078	734044.4688	343939.1738	0	0	0	0	0	1186.00031
T2060_LIG_StormLowLying_Potential_OutputTable_ Areas	I	0	0	9357.175095	0	0	6434.314668	0	8388.129465	9264.068264	2.195329189	0	1	1224.334964	0	3	0	0	0	0	314.2523193	37.90799713	0	0	0	0	8637.767578	1124582.79	0	0	0	0	0	141.146984
T2060_LIG_Storm_LowLying_OutputTable_ Areas	I	1480.098	0	3913.583515	16540.50403	0	1525.017756	0	2905.238858	3433.669365	633.2000563	0	1	768.2688845	0	0	0	0	0	0	1209.284386	21.98897552	0	0	11.76102734	0	118576.6816	530833.6704	0	0	0	0	0	1785.32118
T2060_LIG_Tidal_LowLying_OutputTable_ Areas	I	0	0	907.8124962	0	0	35.97794153	0	74.7737546	834.0563512	1430.904149	0	0	217.3283405	0	2	0	0	0	0	13.78084564	0	0	0	0	0	112068.2435	200584.7384	0	0	0	0	0	60.1825123
T2060_LIG_Tidal_LowLying_Potential_OutputTable_ Areas	I	0	0	2396.849754	0	0	1608.78442	0	1976.118897	3049.369024	0	0	0	0	0	0	0	0	0	0	0	27.10504532	0	0	0	0	0	17491.10489	0	0	0	0	0	0
T2100_Shoreline_Erosion_OutputTable_ Areas	I	0	0	0	0	0	21.70064735	0	2669.176544	267.1614757	0	0	0	1262.416412	0	2	0	0	0	0	3123.15786	38.50159073	0	0	0	2819.026855	1353367.781	641346.123	0	0	0	0	0	471.115223
T2100_Storm_LowLying_OutputTable_ Areas	I	270.1769	859.62384	128.6740021	296.6810913	0	43.26619911	0	21.36288062	283.7609792	1034.096792	0	0	0	0	0	0	0	0	0	4.262429237	0	0	0	0	0	0	60970.7202	0	0	0	0	0	0	0
T2100_Storm_OutputTable_ Areas	I	9059.669	46880.252	38878.43088	13540.22784	1	23600.90593	41.34713	40985.84901	36820.10475	32.10935116	0	6	5154.141205	1	6	1	0	1571.422765	0	3301.013381	1083.872485	1	0	1058.58371	0	261053.5513	7503607.995	0	0	0	0	0	7833.78838
T2100_Tidal_LowLying_OutputTable_ Areas	I	0	0	20.1337204	331.4075928	0	6.562401295	0	47.87255037	85.69323421	0	0	0	22.56133938	0	0	0	0	0	0	0	0	0	0	0	0	3859.0513	62369.35968	0	0	0	0	0	28.5140448
T2100_Tidal_OutputTable_ Areas	I	23454.4	0	19137.71836	117868.8958	0	6639.052817	0	15060.21573	14943.07835	5823.170372	0	5	5292.829921	0	5	0	0	0	0	3394.604814	248.5040239	0	0	800.0543213	1393.99292	934682.7422	3680357.87	0	0	0	0	0	10165.6899
T2100_Wave_Hazard_OutputTable_ Areas	I	0	0	504.0937042	1232.243408	0	0	0	162.8354263	204.5260503	0	0	0	306.7610125	0	0	0	0	0	0	48.32943344	0	0	0	0	124.4293823	44851.62988	21635.63198	0	0	0	0	0	251.392578
Existing_Conditions_Tidal_Inundation_OutputTable_ Areas	J	0	0	0	0	0	0	0	0	0	87.45875549	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	53138.66016	43869.73676	0	0	0	0	0	0
Existing_Conditions_Wave_Hazard_OutputTable_ Areas	J	0	0	200.8571472	24256.38086	0	0	0	0	297.7136612	390.0827637	1	0	0	0	0	0	0	0	0	0	0	0	0	0	472.2994385	844027.25	666467.3545	0	0	0	0	0	532.651726
T2060_LIG_Hazards_Shoreline_Erosion_OutputTable_ Areas	J	0	0	0	0	0	0	0	0	0	298.2401123	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	326161.125	205374.1354	0	0	0	0	0	0
T2060_LIG_Hazards_Tidal_Inundation_OutputTable_ Areas	J	0	0	0	0	0	0	0	0	0	32.01634979	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	64986.73828	48060.23047	0	0	0	0	0	0
T2060_LIG_Hazards_Wave_Hazard_OutputTable_ Areas	J	0	0	1456.899414	86491.87891	0	0	0	43.02881622	833.4835851	209.0667152	1	0	362.827301	0	0	0	0	0	0	0	0	0	0	0	1884.577148	641099.6077	590200.8882	0	0	0	0	0	1110.53165
T2060_LIG_Storm_LowLying_OutputTable_ Areas	J	0	0	0	0	0	0	0	0	413.2300931	556.0194802	0	0	0	0	0	0	0	0	0	0	0	0	0	0	306.125885	164279.3162	182154.0024	0	0	0	0	0	0
T2060_LIG_Tidal_LowLying_OutputTable_ Areas	J	0	0	0	0	0	0	0	0	23.00517821	47.54855728	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.18228595	1177911.519	1175337.582	0	0	0	0	0	0
T2100_Shoreline_Erosion_OutputTable_ Areas	J	0	0	0	0	0	0	0	0	0	382.5922241	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	590410.0625	430811.259	0	0	0	0	0	0
T2100_Storm_LowLying_OutputTable_ Areas	J	0	0	0	0	0	0	0	0	23.20601654	752.3222198	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1184.817383	10971.22361	0	0	0	0	0	0
T2100_Storm_OutputTable_ Areas	J	4423.218	0	14566.2251	45134.81723	0	3595.085751	0	10279.61829	3717.888941	3811.618399	0	0	537.1814377	0	0	0	0	0	0	4300.496915	296.1755973	0	0	0	263.6026306	399134.9941	2483653.196	0	0	0	0	0	2430.16421
T2100_Tidal_LowLying_OutputTable_ Areas	J	0	0	0	916.1964722	0	8.4828825	0	153.9782343	73.74985027	444.4757233	0	0	0	0	0	0	0	0	0	27.61845016	0	0	0	0	0	134959.4944	138887.9054	0	0	0	0	0	0
T2100_Tidal_OutputTable_ Areas	J	672.3875	0	6654.318245	31140.15234	0	322.5142307	0	1890.024136	3349.362328	2372.13524	1	0	0	0	0	0	0	0	0	633.890512	45.10792267	0	0	0	3770.721191	1938957.081	2257733.457	0	0	0	0	0	1110.53165
T2100_Wave_Hazard_OutputTable_ Areas	J	0	0	1098.999264	72731.70508	0	279.4448919	0	698.424962	313.8652208	0	0	1	629.5850558	0	0	0	0	0	0	0	0	0	0	0	731.0421753	230447.0574	261977.3861	0	0	0	0	0	0
Existing_Conditions_Storm_Inundation_OutputTable_ Areas	K	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8514.723633	8514.782326	0	0	0	0	0	0

Table 39: Asset Exposure Results: No Action Scenario

Hazard	Subarea	Railroads	Downtown Parking Lots	Road Centerlines	Public Parking SLRS	Sewer Lift Stations	Sewer Laterals	Sewer Mains Force	Sewer Mains Gravity	Storm Water Drainage Pipes	Storm Water Drain Channels	WCS ESA2018	Fiber Optic Cabinets	Fiber Optic Cables	Groundwater Wells	Monitoring Wells	Production Wells	Water Pumps	Raw Water Mains	Water Mains	Recycled Mains	Recycled Laterals	Fire Stations	Police Stations	Wildland Fire Evacuation Zones	CA Coastal Trail	Recreation Rank BREN	Assessor Parcels	Breakwater	Breakwater Rip Rap Merge	Launch Ramps	Rock Groin	Rock Groin Rip Rap	Waterfront Parking Street
Existing_Conditions_Tidal_Inundation_OutputTable_ Areas	K	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	20931.60938	12311.21693	0	0	0	0	0	0
Existing_Conditions_Wave_Hazard_OutputTable_ Areas	K	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	45541.99219	45944.72656	0	0	0	0	0	0
T2060_LIG_Hazards_Cliff_Bluff_Erosion_OutputTable_ Areas	K	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	42702.89063	119036.0248	0	0	0	0	0	0
T2060_LIG_Hazards_Shoreline_Erosion_OutputTable_ Areas	K	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	33867.14844	29951.10156	0	0	0	0	0	0
T2060_LIG_Hazards_Wave_Hazard_OutputTable_ Areas	K	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	20181.54883	25734.45313	0	0	0	0	0	0
T2100_Cliff_Erosion_OutputTable_ Areas	K	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	51124.20313	165044.3574	0	0	0	0	0	0
T2100_Shoreline_Erosion_OutputTable_ Areas	K	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	51886.47656	62670.96484	0	0	0	0	0	0
T2100_Storm_OutputTable_ Areas	K	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4626.346191	0	0	0	0	0	0
T2100_Tidal_LowLying_OutputTable_ Areas	K	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	156.7661285	1647.310242	0	0	0	0	0	0
T2100_Tidal_OutputTable_ Areas	K	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2339.988281	0	0	0	0	0	0
T2100_Wave_Hazard_OutputTable_ Areas	K	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3415.453857	0	0	0	0	0	0

Table 40: Asset Exposure Results: Protect Scenario

Hazard	Subarea	Railroads	Downtown Parking Lots	Road Centerlines	Public Parking SLRS	Sewer Lift Stations	Sewer Laterals	Sewer Mains Force	Sewer Mains Gravity	Storm Water Drainage Pipes	Storm Water Drain Channels	WCS ESA2018	Fiber Optic Cabinets	Fiber Optic Cables	Groundwater Wells	Monitoring Wells	Production Wells	Water Pumps	Raw Water Mains	Water Mains	Recycled Mains	Recycled Laterals	Fire Stations	Police Stations	Wildland Fire Evacuation Zones	CA Coastal Trail	Recreation Rank BREN	Assessor Parcels	Breakwater	Breakwater Rip Rap Merge	Launch Ramps	Rock Groin	Rock Groin Rip Rap	Waterfront Parking Street
Existing_Conditions_Bluff_Output Table_Areas	A	0.0	0.0	6.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	33014.7	738758.8	0.0	0.0	0.0	0.0	0.0	0.0
Existing_Conditions_Tidal_ Inundation_OutputTable _Areas	A	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2738.2	13968.4	0.0	0.0	0.0	0.0	0.0	0.0
T2060_AP_Hazards_Cliff_Bluff_Erosion_Out putTable _Areas	A	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	127799.6	0.0	0.0	0.0	0.0	0.0	0.0
T2060_AP_Hazards_ Shoreline_ Erosion_Output Table_Areas	A	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	12559.0	20537.8	0.0	0.0	0.0	0.0	0.0	0.0
T2060_AP_Hazards_ Storm_ Inundation_Output Table_Areas	A	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	30.4	0.0	0.0	0.0	0.0	0.0	0.0
T2060_AP_Hazards_Tidal_ Inundation_OutputTable _Areas	A	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	282.9	369.5	0.0	0.0	0.0	0.0	0.0	0.0
T2100_AP_Hazards_Cliff_ Bluff_ Erosion_OutputTable _ Areas	A	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	127455.9	0.0	0.0	0.0	0.0	0.0	0.0
T2100_AP_Hazards_Shoreline_ Erosion_OutputTable _ Areas	A	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	12841.9	20895.0	0.0	0.0	0.0	0.0	0.0	0.0
T2100_AP_Tidal_Low Lying_OutputTable_Areas	A	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1462.6	0.0	0.0	0.0	0.0	0.0	0.0
Existing_Conditions_Bluff_OutputTable_ Areas	B	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	662.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	224.8	558666.2	634750.4	0.0	0.0	0.0	0.0	0.0	0.0
Existing_Conditions_Tidal_Inundation_ OutputTable _Areas	B	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	295.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	41066.2	71762.4	0.0	0.0	0.0	0.0	0.0	0.0
T2060_AP_Hazards_Cliff_Bluff_Erosion_Out putTable _Areas	B	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1972.1	565727.8	624323.4	0.0	0.0	0.0	0.0	0.0	0.0
T2060_AP_Hazards_Shoreline_ Erosion_OutputTable_Areas	B	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	147.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	19219.2	19219.4	0.0	0.0	0.0	0.0	0.0	0.0
T2060_AP_Hazards_Storm_ Inundation_Output Table_Areas	B	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	15.2	1299.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	13.7	89742.0	97870.8	0.0	0.0	0.0	0.0	0.0	0.0
T2060_AP_Hazards_Tidal_ Inundation_OutputTable _Areas	B	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	431.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	64034.2	66017.8	0.0	0.0	0.0	0.0	0.0	0.0
T2060_AP_Hazards_Wave_ Hazard_Output Table _Areas	B	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	10280.4	10280.4	0.0	0.0	0.0	0.0	0.0	0.0
T2060_AP_Storm_Low Lying_ OutputTable_Areas	B	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	7348.5	8668.2	0.0	0.0	0.0	0.0	0.0	0.0
T2100_AP_Hazards_Cliff_Bluff_Erosion_Out putTable _Areas	B	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2105.8	736981.4	795371.2	0.0	0.0	0.0	0.0	0.0	0.0
T2100_AP_Hazards_Shoreline_ Erosion_OutputTable _Areas	B	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	428.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	96144.6	96144.8	0.0	0.0	0.0	0.0	0.0	0.0
T2100_AP_Hazards_ Storm_ Inundation_Output Table _Areas	B	0.0	0.0	0.0	42.1	0.0	0.0	4.5	0.0	140.9	52.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	20.6	107380.8	116080.4	0.0	0.0	0.0	0.0	0.0	0.0
T2100_AP_Hazards_Tidal_ Inundation_OutputTable _Areas	B	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	24.2	1253.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	27.5	86766.5	98814.0	0.0	0.0	0.0	0.0	0.0	0.0
T2100_AP_Hazards_ Wave_ Hazard_Output Table_Areas	B	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	263.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	28993.7	28993.7	0.0	0.0	0.0	0.0	0.0	0.0
T2100_AP_Tidal_Low Lying_OutputTable_Areas	B	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4420.8	4420.8	0.0	0.0	0.0	0.0	0.0	0.0
Existing_Conditions_Bluff_OutputTable_ Areas	C	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	397.5	137.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3044.2	624521.3	0.0	0.0	0.0	0.0	0.0	0.0
Existing_Conditions_Tidal_ Inundation_OutputTable _Areas	C	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	26516.2	0.0	0.0	0.0	0.0	0.0	0.0
T2060_AP_Hazards_Cliff_Bluff_ Erosion_OutputTable_Areas	C	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	35369.2	0.0	0.0	0.0	0.0	0.0	0.0
T2060_AP_Hazards_Tidal_ Inundation_OutputTable_Areas	C	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	28.4	0.0	0.0	0.0	0.0	0.0	0.0
T2060_AP_Storm_Low Lying_OutputTable_Areas	C	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	17.0	10759.4	0.0	0.0	0.0	0.0	0.0	0.0
T2100_AP_Hazards_Cliff_Bluff_Erosion_Out putTable_Areas	C	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	32906.0	0.0	0.0	0.0	0.0	0.0	0.0
T2100_AP_Hazards_Tidal_Inundation_ OutputTable_Areas	C	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	441.9	0.0	0.0	0.0	0.0	0.0	0.0
Existing_Conditions_Bluff_OutputTable_ Areas	D	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	45.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	148769.4	0.0	0.0	0.0	0.0	0.0	0.0
Existing_Conditions_Tidal_Inundation_ OutputTable _Areas	D	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	764.9	0.0	0.0	0.0	0.0	0.0	0.0
T2060_AP_Hazards_Cliff_Bluff_Erosion_Out putTable_Areas	D	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	7838.0	0.0	0.0	0.0	0.0	0.0	0.0
T2060_AP_Storm_Low Lying_OutputTable_Areas	D	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3262.7	0.0	0.0	0.0	0.0	0.0	0.0

Table 40: Asset Exposure Results: Protect Scenario

Hazard	Subarea	Railroads	Downtown Parking Lots	Road Centerlines	Public Parking SLRS	Sewer Lift Stations	Sewer Laterals	Sewer Mains Force	Sewer Mains Gravity	Storm Water Drainage Pipes	Storm Water Drain Channels	WCS ESA2018	Fiber Optic Cabinets	Fiber Optic Cables	Groundwater Wells	Monitoring Wells	Production Wells	Water Pumps	Raw Water Mains	Water Mains	Recycled Mains	Recycled Laterals	Fire Stations	Police Stations	Wildland Fire Evacuation Zones	CA Coastal Trail	Recreation Rank BREN	Assessor Parcels	Breakwater	Breakwater Rip Rap Merge	Launch Ramps	Rock Groin	Rock Groin Rip Rap	Waterfront Parking Street
T2100_AP_Hazards_Cliff_Bluff_Erosion_OutputTable _Areas	D	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	7497.9	0.0	0.0	0.0	0.0	0.0	0.0
Existing_Conditions_Bluff_Output Table_Areas	E	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	153.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1129.6	215511.2	0.0	0.0	0.0	0.0	0.0	0.0
Existing_Conditions_Tidal_Inundation_ OutputTable _Areas	E	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	9907.7	0.0	0.0	0.0	0.0	0.0	0.0
T2060_AP_Hazards_Cliff_Bluff_ Erosion_OutputTable _Areas	E	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	27324.7	0.0	0.0	0.0	0.0	0.0	0.0
T2060_AP_Storm_Low Lying_ OutputTable_Areas	E	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5642.1	0.0	0.0	0.0	0.0	0.0	0.0
T2100_AP_Hazards_Cliff_Bluff_Erosion_ OutputTable _Areas	E	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	26000.1	0.0	0.0	0.0	0.0	0.0	0.0
Existing_Conditions_Bluff_Output Table_Areas	F	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	121.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	218.9	103530.2	143207.9	0.0	0.0	0.0	0.0	0.0	0.0
Existing_Conditions_Tidal_Inundation_ OutputTable _Areas	F	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	999.2	3110.1	0.0	0.0	0.0	0.0	0.0	0.0
T2060_AP_Hazards_Cliff_Bluff_Erosion_ OutputTable _Areas	F	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	130.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	708.0	136223.7	180836.1	0.0	0.0	0.0	0.0	0.0	0.0
T2060_AP_Hazards_ Storm_ Inundation_Output Table _Areas	F	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	329.9	143.3	0.0	0.0	0.0	0.0	0.0	0.0
T2060_AP_Hazards_Tidal_Inundation_ OutputTable _Areas	F	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1097.3	938.5	0.0	0.0	0.0	0.0	0.0	0.0
T2060_AP_Storm_Low Lying_OutputTable_Areas	F	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	645.3	645.3	0.0	0.0	0.0	0.0	0.0	0.0
T2100_AP_Hazards_Cliff_Bluff_Erosion_OutputTable _Areas	F	0.0	0.0	0.0	817.5	0.0	0.0	0.0	0.0	242.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1918.0	216403.0	269357.7	0.0	0.0	0.0	0.0	0.0	0.0
T2100_AP_Hazards_ Storm_ Inundation_Output Table_Areas	F	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	889.5	624.1	0.0	0.0	0.0	0.0	0.0	0.0
T2100_AP_Hazards_Tidal_Inundation_ OutputTable _Areas	F	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1313.1	1071.2	0.0	0.0	0.0	0.0	0.0	0.0
T2100_AP_Tidal_Low Lying_OutputTable_Areas	F	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	25.8	860.4	1591.7	0.0	0.0	0.0	0.0	0.0	0.0
Existing_Conditions_Bluff_Output Table_Areas	G	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	127.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	119271.2	123609.2	0.0	0.0	0.0	0.0	0.0	0.0
Existing_Conditions_Tidal_ Inundation_OutputTable _Areas	G	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	55210.7	3202.6	0.0	0.0	0.0	0.0	0.0	0.0
T2060_AP_Hazards_Cliff_Bluff_Erosion_OutputTable _Areas	G	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	51.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	113607.7	104015.8	0.0	0.0	0.0	0.0	0.0	0.0
T2060_AP_Hazards_Shoreline_Erosion_OutputTable _Areas	G	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	278.0	228495.5	123701.5	0.0	0.0	0.0	0.0	0.0	0.0
T2060_AP_Hazards_Tidal_Inundation_ OutputTable _Areas	G	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	42.8	3357.4	3333.5	0.0	0.0	0.0	0.0	0.0	0.0
T2060_AP_Hazards_ Wave_ Hazard_ Output Table_Areas	G	0.0	0.0	0.0	2813.4	0.0	0.0	0.0	0.0	27.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	189.8	119987.6	119975.9	0.0	0.0	0.0	0.0	0.0	0.0
T2060_AP_Storm_Low Lying_ OutputTable_Areas	G	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	731.3	731.3	0.0	0.0	0.0	0.0	0.0	0.0
T2100_AP_Hazards_Cliff_Bluff_Erosion_OutputTable _Areas	G	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	53.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	113991.6	104662.5	0.0	0.0	0.0	0.0	0.0	0.0
T2100_AP_Hazards_Shoreline _Erosion_OutputTable _Areas	G	0.0	0.0	0.0	70.9	0.0	0.0	0.0	0.0	19.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	450.0	320448.2	215690.4	0.0	0.0	0.0	0.0	0.0	0.0
T2100_AP_Hazards_Tidal_ Inundation_OutputTable _Areas	G	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0
T2100_AP_Hazards_ Wave_ Hazard_Output Table_Areas	G	0.0	0.0	0.0	4934.0	0.0	0.0	0.0	0.0	12.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	108.9	34458.8	34451.1	0.0	0.0	0.0	0.0	0.0	0.0
T2100_AP_Storm_Low Lying_OutputTable_Areas	G	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	51.9	0.0	0.0	0.0	0.0	0.0	0.0
T2100_AP_Tidal_Low Lying_OutputTable_Areas	G	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	7.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	129.1	129.1	0.0	0.0	0.0	0.0	0.0	0.0
Existing_Conditions_Tidal_Inundation_ OutputTable _Areas	H	0.0	35045.1	1360.5	66282.4	0.0	0.0	0.0	0.0	25.7	116.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	554607.1	214832.5	1297.8	5400.7	452.1	0.0	658.4	0.0
T2060_AP_Hazards_ Shoreline_Erosion_OutputTable _Areas	H	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	58.3	272.7	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	182578.6	77397.6	0.0	0.0	0.0	0.0	0.0	0.0
T2060_AP_Hazards_ Storm_Inundation_Output Table_Areas	H	0.0	5.3	0.0	0.0	0.0	41.4	0.0	0.0	52.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	314.3	19.6	0.0	0.0	0.0	97.8	54425.8	53632.2	731.5	88.7	0.0	482.2	43.6	0.0
T2060_AP_Hazards_Tidal_Inundation_ OutputTable _Areas	H	0.0	35146.6	1432.2	66280.1	0.0	28.2	0.0	0.0	76.7	607.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	433.8	0.0	0.0	0.0	0.0	25.8	1159815.4	665630.5	3752.5	6067.3	377.9	480.3	1126.2	0.0
T2060_AP_Hazards_ Wave_ Hazard_Output Table_Areas	H	0.0	0.0	218.5	0.0	0.0	76.3	0.0	0.0	198.9	65.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	24.7	1633.7	53.8	0.0	0.0	0.0	0.0	401397.1	349085.6	382.7	23.1	0.0	395.5	66.0	0.0
T2100_AP_Hazards_ Shoreline_ Erosion_Output Table_Areas	H	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	130.4	339.7	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	459.8	6.6	0.0	0.0	0.0	0.0	220079.4	114926.4	0.0	0.0	0.0	0.0	0.0	0.0
T2100_AP_Hazards_ Storm_ Inundation_Output Table_Areas	H	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5173.5	5172.0	323.3	0.4	0.0	0.0	0.0	0.0

Table 40: Asset Exposure Results: Protect Scenario

Hazard	Subarea	Railroads	Downtown Parking Lots	Road Centerlines	Public Parking SLRS	Sewer Lift Stations	Sewer Laterals	Sewer Mains Force	Sewer Mains Gravity	Storm Water Drainage Pipes	Storm Water Drain Channels	WCS ESA2018	Fiber Optic Cabinets	Fiber Optic Cables	Groundwater Wells	Monitoring Wells	Production Wells	Water Pumps	Raw Water Mains	Water Mains	Recycled Mains	Recycled Laterals	Fire Stations	Police Stations	Wildland Fire Evacuation Zones	CA Coastal Trail	Recreation Rank BREN	Assessor Parcels	Breakwater	Breakwater Rip Rap Merge	Launch Ramps	Rock Groin	Rock Groin Rip Rap	Waterfront Parking Street
T2100_AP_Hazards_Tidal_ Inundation_OutputTable _Areas	H	0.0	35152.0	1642.1	66280.1	0.0	145.5	0.0	0.0	288.7	605.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	24.7	1922.1	33.2	0.0	0.0	0.0	125.2	1599828.0	1052858.0	9011.3	6337.2	377.9	1361.1	1235.8	0.0
T2100_AP_Hazards_Wave_ Hazard_OutputTable _Areas	H	0.0	0.0	8.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	114.2	33.5	0.0	0.0	0.0	0.0	18196.0	10195.6	17.6	0.0	0.0	0.0	0.0	0.0
Existing_Conditions_Tidal_ Inundation_OutputTable _Areas	I	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	74392.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
T2060_AP_Hazards_Shoreline_ Erosion_OutputTable _Areas	I	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	90.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1124.4	14.9	0.0	0.0	0.0	0.0	675609.8	317551.1	0.0	0.0	0.0	0.0	0.0	0.0
T2060_AP_Hazards_Tidal_ Inundation_OutputTable _Areas	I	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	7.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	388.7	6.2	0.0	0.0	0.0	0.0	48245.4	19202.0	0.0	0.0	0.0	0.0	0.0	0.0
T2060_AP_Hazards_ Wave_ Hazard_Output Table_Areas	I	0.0	0.0	93.6	0.0	0.0	0.0	0.0	0.0	200.1	0.0	0.0	0.0	103.3	0.0	0.0	0.0	0.0	0.0	0.0	478.3	14.5	0.0	0.0	0.0	100.5	164903.8	88618.8	0.0	0.0	0.0	0.0	0.0	0.0
T2060_AP_Storm_Low Lying_OutputTable_Areas	I	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	160.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	7862.6	0.0	0.0	0.0	0.0	0.0	0.0
T2100_AP_Hazards_Shoreline_Erosion_Out putTable _Areas	I	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	97.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1897.6	34.9	0.0	0.0	0.0	0.0	840949.1	388620.7	0.0	0.0	0.0	0.0	0.0	0.0
T2100_AP_Hazards_Storm_Inundation_Out putTable _Areas	I	0.0	0.0	16.6	0.0	0.0	0.0	0.0	0.0	74.5	4.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.3	0.0	0.0	0.0	0.0	0.0	3045.6	0.0	0.0	0.0	0.0	0.0	40.9
T2100_AP_Hazards_Tidal_Inundation_ OutputTable _Areas	I	0.0	0.0	170.1	0.0	0.0	0.0	0.0	0.0	408.9	1006.5	0.0	0.0	153.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	39.2	0.0	0.0	51.1	99.7	17148.6	44964.7	0.0	0.0	0.0	0.0	0.0	1.1
T2100_AP_Hazards_Wave_Hazard_ OutputTable _Areas	I	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	13.4	14.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	29634.6	27853.8	0.0	0.0	0.0	0.0	0.0	0.0
T2100_AP_Storm_Low Lying_OutputTable_Areas	I	47.8	657.4	63.1	296.7	0.0	0.0	0.0	0.0	164.0	983.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	29870.9	0.0	0.0	0.0	0.0	0.0	0.0
T2100_AP_Tidal_Low Lying_OutputTable_Areas	I	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0
Existing_Conditions_Tidal_ Inundation_OutputTable _Areas	J	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	87.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	53138.7	43869.7	0.0	0.0	0.0	0.0	0.0	0.0
T2060_AP_Hazards_ Shoreline_ Erosion_Output Table_Areas	J	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	298.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	326161.1	205374.1	0.0	0.0	0.0	0.0	0.0	0.0
T2060_AP_Hazards_Tidal_Inundation_ OutputTable _Areas	J	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	32.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	64986.7	48060.2	0.0	0.0	0.0	0.0	0.0	0.0
T2060_AP_Hazards_ Wave_ Hazard_Output Table_Areas	J	0.0	0.0	101.9	222.3	0.0	0.0	0.0	0.0	319.8	209.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	92.9	502679.2	452021.7	0.0	0.0	0.0	0.0	0.0	670.0
T2060_AP_Storm_Low Lying_OutputTable_Areas	J	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	65.2	551.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	17402.0	0.0	0.0	0.0	0.0	0.0	0.0
T2100_AP_Hazards_ Shoreline_ Erosion_Output Table_Areas	J	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	383.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	594714.5	435543.9	0.0	0.0	0.0	0.0	0.0	0.0
T2100_AP_Hazards_ Storm_ Inundation_Output Table_Areas	J	85.4	0.0	110.3	0.0	0.0	0.0	0.0	187.6	219.0	829.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	41.4	7.5	0.0	0.0	0.0	0.0	0.0	24008.8	0.0	0.0	0.0	0.0	0.0	0.0
T2100_AP_Hazards_Tidal_Inundation_ OutputTable _Areas	J	0.0	0.0	66.6	62.3	0.0	0.0	0.0	0.0	353.2	703.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	7.8	0.0	0.0	0.0	72.6	126370.3	116945.3	0.0	0.0	0.0	0.0	0.0	543.7
T2100_AP_Hazards_ Wave_ Hazard_Output Table _Areas	J	0.0	0.0	55.9	160.0	0.0	0.0	0.0	0.0	121.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	18.9	172595.8	182421.2	0.0	0.0	0.0	0.0	0.0	0.0
T2100_AP_Storm_Low Lying_OutputTable_Areas	J	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6.1	395.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	972.5	0.0	0.0	0.0	0.0	0.0	0.0
T2100_AP_Tidal_Low Lying_OutputTable_Areas	J	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	353.1	1032.5	0.0	0.0	0.0	0.0	0.0	0.0
Existing_Conditions_Bluff_Output Table_Areas	K	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	84396.2	169027.8	0.0	0.0	0.0	0.0	0.0	0.0
Existing_Conditions_Tidal_ Inundation_OutputTable _Areas	K	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	20931.6	12311.2	0.0	0.0	0.0	0.0	0.0	0.0
T2060_AP_Hazards_Cliff_Bluff_Erosion_Out putTable _Areas	K	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	42702.9	119036.0	0.0	0.0	0.0	0.0	0.0	0.0
T2060_AP_Hazards_Shoreline_ Erosion_OutputTable _Areas	K	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	33867.1	29951.1	0.0	0.0	0.0	0.0	0.0	0.0
T2060_AP_Hazards_ Wave_ Hazard_Output Table_Areas	K	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	20181.5	25734.5	0.0	0.0	0.0	0.0	0.0	0.0
T2100_AP_Hazards_Cliff_Bluff_Erosion_Out putTable _Areas	K	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	51115.1	141763.5	0.0	0.0	0.0	0.0	0.0	0.0
T2100_AP_Hazards_Shoreline_ Erosion_Output Table_Areas	K	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	46280.8	56405.8	0.0	0.0	0.0	0.0	0.0	0.0
T2100_AP_Hazards_ Storm_ Inundation_Output Table_Areas	K	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	1048.3	0.0	0.0	0.0	0.0	0.0	0.0
T2100_AP_Hazards_Tidal_ Inundation_Output Table_Areas	K	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	8.1	0.0	0.0	0.0	0.0	0.0	0.0
T2100_AP_Hazards_ Wave_ Hazard_ Output Table_Areas	K	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4563.5	0.0	0.0	0.0	0.0	0.0	0.0

Table 41: Asset Exposure Results: Retreat/Protect Hybrid Scenario

Hazard	Subarea	Railroads	Downtown Parking Lots	Road Centerlines	Public Parking SLRS	Sewer Lift Stations	Sewer Laterals	Sewer Mains Force	Sewer Mains Gravity	Storm Water Drainage Pipes	Storm Water Drain Channels	WCS ESA2018	Fiber Optic Cabinets	Fiber Optic Cables	Groundwater Wells	Monitoring Wells	Production Wells	Water Pumps	Raw Water Mains	Water Mains	Recycled Mains	Recycled Laterals	Fire Stations	Police Stations	Wildland Fire Evacuation Zones	CA Coastal Trail	Recreation Rank BREN	Assessor Parcels	Breakwater	Breakwater Rip Rap Merge	Launch Ramps	Rock Groin	Rock Groin Rip Rap	Waterfront Parking Street
Existing_Conditions_Bluff_OutputTable_Areas	A	0.0	0.0	6.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	33014.7	738758.8	0.0	0.0	0.0	0.0	0.0	0.0
Existing_Conditions_Tidal_Inundation_Output Table_Areas	A	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2738.2	13968.4	0.0	0.0	0.0	0.0	0.0	0.0
T2060_AP_Hazards_Cliff_Bluff_Erosion_Output Table_Areas	A	0.0	0.0	517.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	982851.4	0.0	0.0	0.0	0.0	0.0	0.0
T2060_AP_Hazards_ Shoreline_Erosion_Output Table_Areas	A	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	12559.0	20537.8	0.0	0.0	0.0	0.0	0.0	0.0
T2060_AP_Hazards_ Storm_Inundation_Output Table_Areas	A	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	30.4	0.0	0.0	0.0	0.0	0.0	0.0
T2060_AP_Hazards_Tidal_Inundation_OutputTable_Areas	A	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	282.9	369.5	0.0	0.0	0.0	0.0	0.0	0.0
T2100_AP_Hazards_Cliff_Bluff_Erosion_Output Table_Areas	A	0.0	0.0	1202.4	0.0	0.0	0.0	0.0	0.0	0.0	60.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1236869.2	0.0	0.0	0.0	0.0	0.0	0.0
T2100_AP_Hazards_Shoreline_Erosion_Output Table_Areas	A	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	12841.9	20895.0	0.0	0.0	0.0	0.0	0.0	0.0
T2100_AP_Tidal_Low Lying_ Output Table_Areas	A	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1462.6	0.0	0.0	0.0	0.0	0.0	0.0
Existing_Conditions_Bluff_OutputTable_Areas	B	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	662.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	224.8	558666.2	634750.4	0.0	0.0	0.0	0.0	0.0	0.0
Existing_Conditions_Tidal_Inundation_Output Table_Areas	B	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	295.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	41066.2	71762.4	0.0	0.0	0.0	0.0	0.0	0.0
T2060_AP_Hazards_Cliff_Bluff_Erosion_Output Table _Areas	B	0.0	0.0	60.8	0.0	0.0	0.0	0.0	56.5	0.0	98.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2279.8	640439.7	720849.6	0.0	0.0	0.0	0.0	0.0	0.0
T2060_AP_Hazards_Shoreline_Erosion_Output Table_Areas	B	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	147.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	19219.2	19219.4	0.0	0.0	0.0	0.0	0.0	0.0
T2060_AP_Hazards_Storm_Inundation_Output Table _Areas	B	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	15.2	1299.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	13.7	89742.0	97870.8	0.0	0.0	0.0	0.0	0.0	0.0
T2060_AP_Hazards_Tidal_Inundation_Output Table _Areas	B	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	431.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	64034.2	66017.8	0.0	0.0	0.0	0.0	0.0	0.0
T2060_AP_Hazards_Wave_Hazard_OutputTable _Areas	B	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	10280.4	10280.4	0.0	0.0	0.0	0.0	0.0	0.0
T2060_AP_Storm_Low Lying_OutputTable_Areas	B	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	7348.5	8668.2	0.0	0.0	0.0	0.0	0.0	0.0
T2100_AP_Hazards_Cliff_Bluff_Erosion_Output Table_Areas	B	0.0	0.0	60.8	0.0	0.0	0.0	0.0	56.5	0.0	200.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2414.9	831092.1	917658.2	0.0	0.0	0.0	0.0	0.0	0.0
T2100_AP_Hazards_Shoreline_Erosion_Output Table_Areas	B	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	428.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	96144.6	96144.8	0.0	0.0	0.0	0.0	0.0	0.0
T2100_AP_Hazards_Storm_Inundation_Output Table_Areas	B	0.0	0.0	0.0	42.1	0.0	0.0	4.5	0.0	140.9	52.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	20.6	107380.8	116080.4	0.0	0.0	0.0	0.0	0.0	0.0
T2100_AP_Hazards_Tidal_Inundation_Output Table_Areas	B	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	24.2	1253.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	27.5	86766.5	98814.0	0.0	0.0	0.0	0.0	0.0	0.0
T2100_AP_Hazards_Wave_Hazard_OutputTable _Areas	B	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	263.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	28993.7	28993.7	0.0	0.0	0.0	0.0	0.0	0.0
T2100_AP_Tidal_LowLying_OutputTable _Areas	B	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4420.8	4420.8	0.0	0.0	0.0	0.0	0.0	0.0
Existing_Conditions_Bluff_OutputTable_Areas	C	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	397.5	137.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3044.2	624521.3	0.0	0.0	0.0	0.0	0.0	0.0
Existing_Conditions_Tidal_Inundation_OutputTable_Areas	C	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	26516.2	0.0	0.0	0.0	0.0	0.0	0.0
T2060_AP_Hazards_Cliff_Bluff_Erosion_Output Table_Areas	C	0.0	0.0	382.8	0.0	0.0	218.9	0.0	1266.9	1049.0	137.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	480.2	4387.8	969983.9	0.0	0.0	0.0	0.0	0.0	0.0
T2060_AP_Hazards_Tidal_Inundation_Output Table_Areas	C	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	28.4	0.0	0.0	0.0	0.0	0.0	0.0
T2060_AP_Storm_Low Lying_OutputTable_Areas	C	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	17.0	10759.4	0.0	0.0	0.0	0.0	0.0	0.0
T2100_AP_Hazards_Cliff_Bluff_Erosion_Output Table_Areas	C	0.0	0.0	1943.7	0.0	0.0	924.2	0.0	2924.7	2025.8	137.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1325.0	4387.8	1231208.2	0.0	0.0	0.0	0.0	0.0	0.0
T2100_AP_Hazards_Tidal_Inundation_Output Table_Areas	C	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	441.9	0.0	0.0	0.0	0.0	0.0	0.0
Existing_Conditions_Bluff_OutputTable_Areas	D	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	45.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	148769.4	0.0	0.0	0.0	0.0	0.0	0.0
Existing_Conditions_Tidal_Inundation_OutputTable_Areas	D	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	764.9	0.0	0.0	0.0	0.0	0.0	0.0
T2060_AP_Hazards_Cliff_Bluff_Erosion_Output Table_Areas	D	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	135.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	275210.9	0.0	0.0	0.0	0.0	0.0	0.0
T2060_AP_Storm_Low Lying_OutputTable_Areas	D	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3262.7	0.0	0.0	0.0	0.0	0.0	0.0
T2100_AP_Hazards_Cliff_Bluff_Erosion_Output Table_Areas	D	0.0	0.0	443.5	0.0	0.0	16.0	0.0	497.6	266.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	377254.0	0.0	0.0	0.0	0.0	0.0	0.0

Table 41: Asset Exposure Results: Retreat/Protect Hybrid Scenario

Hazard	Subarea	Railroads	Downtown Parking Lots	Road Centerlines	Public Parking SLRS	Sewer Lift Stations	Sewer Laterals	Sewer Mains Force	Sewer Mains Gravity	Storm Water Drainage Pipes	Storm Water Drain Channels	WCS ESA2018	Fiber Optic Cabinets	Fiber Optic Cables	Groundwater Wells	Monitoring Wells	Production Wells	Water Pumps	Raw Water Mains	Water Mains	Recycled Mains	Recycled Laterals	Fire Stations	Police Stations	Wildland Fire Evacuation Zones	CA Coastal Trail	Recreation Rank BREN	Assessor Parcels	Breakwater	Breakwater Rip Rap Merge	Launch Ramps	Rock Groin	Rock Groin Rip Rap	Waterfront Parking Street
Existing_Conditions_Bluff_OutputTable_Areas	E	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	153.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1129.6	215511.2	0.0	0.0	0.0	0.0	0.0	0.0
Existing_Conditions_Tidal_Inundation_OutputTable_Areas	E	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	9907.7	0.0	0.0	0.0	0.0	0.0	0.0
T2060_AP_Hazards_Cliff_Bluff_Erosion_Output Table_Areas	E	0.0	0.0	22.9	0.0	0.0	0.8	0.0	0.0	391.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1254.7	358304.4	0.0	0.0	0.0	0.0	0.0	0.0
T2060_AP_Storm_Low Lying_OutputTable_Areas	E	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5642.1	0.0	0.0	0.0	0.0	0.0	0.0
T2100_AP_Hazards_Cliff_Bluff_Erosion_Output Table_Areas	E	0.0	0.0	76.2	0.0	0.0	0.1	0.0	0.0	483.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1254.7	450206.9	0.0	0.0	0.0	0.0	0.0	0.0
Existing_Conditions_Bluff_OutputTable_Areas	F	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	121.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	218.9	103530.2	143207.9	0.0	0.0	0.0	0.0	0.0	0.0
Existing_Conditions_Tidal_Inundation_Output Table_Areas	F	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	999.2	3110.1	0.0	0.0	0.0	0.0	0.0	0.0
T2060_AP_Hazards_Cliff_Bluff_Erosion_Output Table_Areas	F	0.0	0.0	0.0	817.5	0.0	0.0	0.0	0.0	339.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1939.0	223946.0	278461.5	0.0	0.0	0.0	0.0	0.0	0.0
T2060_AP_Hazards_Storm_Inundation_Output Table_Areas	F	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	329.9	143.3	0.0	0.0	0.0	0.0	0.0	0.0
T2060_AP_Hazards_Tidal_Inundation_Output Table_Areas	F	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1097.3	938.5	0.0	0.0	0.0	0.0	0.0	0.0
T2060_AP_Storm_Low Lying_OutputTable_Areas	F	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	645.3	645.3	0.0	0.0	0.0	0.0	0.0	0.0
T2100_AP_Hazards_Cliff_Bluff_Erosion_Output Table_Areas	F	0.0	0.0	0.0	13217.1	0.0	0.0	0.0	0.0	589.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3052.2	354460.2	409491.4	0.0	0.0	0.0	0.0	0.0	0.0
T2100_AP_Hazards_Storm_Inundation_Output Table_Areas	F	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	889.5	624.1	0.0	0.0	0.0	0.0	0.0	0.0
T2100_AP_Hazards_Tidal_Inundation_Output Table_Areas	F	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1313.1	1071.2	0.0	0.0	0.0	0.0	0.0	0.0
T2100_AP_Tidal_Low Lying_OutputTable_Areas	F	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	25.8	860.4	1591.7	0.0	0.0	0.0	0.0	0.0	0.0
Existing_Conditions_Bluff_OutputTable_Areas	G	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	127.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	119271.2	123609.2	0.0	0.0	0.0	0.0	0.0	0.0
Existing_Conditions_Tidal_Inundation_Output Table_Areas	G	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	55210.7	3202.6	0.0	0.0	0.0	0.0	0.0	0.0
T2060_AP_Hazards_Cliff_Bluff_Erosion_Output Table_Areas	G	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	51.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	113607.7	104015.8	0.0	0.0	0.0	0.0	0.0	0.0
T2060_AP_Hazards_Shoreline_Erosion_Output Table_Areas	G	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	278.0	228495.5	123701.5	0.0	0.0	0.0	0.0	0.0	0.0
T2060_AP_Hazards_Tidal_Inundation_Output Table_Areas	G	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	42.8	3357.4	3333.5	0.0	0.0	0.0	0.0	0.0	0.0
T2060_AP_Hazards_Wave_Hazard_Output Table_Areas	G	0.0	0.0	0.0	2813.4	0.0	0.0	0.0	0.0	27.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	189.8	119987.6	119975.9	0.0	0.0	0.0	0.0	0.0	0.0
T2060_AP_Storm_Low Lying_OutputTable_Areas	G	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	731.3	731.3	0.0	0.0	0.0	0.0	0.0	0.0
T2100_AP_Hazards_Cliff_Bluff_Erosion_Output Table_Areas	G	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	53.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	113991.6	104662.5	0.0	0.0	0.0	0.0	0.0	0.0
T2100_AP_Hazards_Shoreline_Erosion_Output Table_Areas	G	0.0	0.0	0.0	70.9	0.0	0.0	0.0	0.0	19.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	450.0	320448.2	215690.4	0.0	0.0	0.0	0.0	0.0	0.0
T2100_AP_Hazards_Tidal_Inundation_Output Table_Areas	G	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0
T2100_AP_Hazards_Wave_Hazard_Output Table_Areas	G	0.0	0.0	0.0	4879.0	0.0	0.0	0.0	0.0	12.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	104.9	34437.6	34429.9	0.0	0.0	0.0	0.0	0.0	0.0
T2100_AP_Storm_Low Lying_OutputTable_Areas	G	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	51.9	0.0	0.0	0.0	0.0	0.0	0.0
T2100_AP_Tidal_Low Lying_OutputTable_Areas	G	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	7.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	129.1	129.1	0.0	0.0	0.0	0.0	0.0	0.0
Existing_Conditions_Tidal_Inundation_Output Table_Areas	H	0.0	35045.1	1360.5	66282.4	0.0	0.0	0.0	0.0	25.7	116.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	554607.1	214832.5	1297.8	5400.7	452.1	0.0	658.4	0.0
T2060_AP_Hazards_Shoreline_Erosion_Output Table_Areas	H	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	58.3	272.7	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	182578.6	77397.6	0.0	0.0	0.0	0.0	0.0	0.0
T2060_AP_Hazards_Storm_Inundation_Output Table_Areas	H	0.0	5.3	0.0	0.0	0.0	41.0	0.0	0.0	52.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	312.9	19.6	0.0	0.0	0.0	66.8	54179.9	53412.8	731.5	88.7	0.0	482.2	43.6	0.0
T2060_AP_Hazards_Tidal_Inundation_Output Table_Areas	H	0.0	35146.6	1432.2	66280.1	0.0	28.2	0.0	0.0	76.7	607.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	433.8	0.0	0.0	0.0	0.0	25.8	1159815.3	665630.5	3752.5	6067.3	377.9	480.3	1126.2	0.0
T2060_AP_Hazards_Wave_Hazard_Output Table_Areas	H	0.0	0.0	218.5	0.0	0.0	76.3	0.0	0.0	198.9	65.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	24.7	1633.7	53.8	0.0	0.0	0.0	0.0	401397.1	349085.6	382.7	23.1	0.0	395.5	66.0	0.0
T2100_AP_Hazards_Shoreline_Erosion_Output Table_Areas	H	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	130.4	339.7	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	459.8	6.6	0.0	0.0	0.0	0.0	220079.4	114926.4	0.0	0.0	0.0	0.0	0.0	0.0
T2100_AP_Hazards_Storm_Inundation_Output Table_Areas	H	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5173.5	5172.0	323.3	0.4	0.0	0.0	0.0	0.0

Table 41: Asset Exposure Results: Retreat/Protect Hybrid Scenario

Hazard	Subarea	Railroads	Downtown Parking Lots	Road Centerlines	Public Parking SLRS	Sewer Lift Stations	Sewer Laterals	Sewer Mains Force	Sewer Mains Gravity	Storm Water Drainage Pipes	Storm Water Drain Channels	WCS ESA2018	Fiber Optic Cabinets	Fiber Optic Cables	Groundwater Wells	Monitoring Wells	Production Wells	Water Pumps	Raw Water Mains	Water Mains	Recycled Mains	Recycled Laterals	Fire Stations	Police Stations	Wildland Fire Evacuation Zones	CA Coastal Trail	Recreation Rank BREN	Assessor Parcels	Breakwater	Breakwater Rip Rap Merge	Launch Ramps	Rock Groin	Rock Groin Rip Rap	Waterfront Parking Street
T2100_AP_Hazards_Tidal_Inundation_Output Table_Areas	H	0.0	35152.0	1642.1	66280.1	0.0	145.5	0.0	0.0	288.7	605.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	24.7	1922.1	33.2	0.0	0.0	0.0	125.2	1599828.0	1052858.1	9011.3	6337.2	377.9	1361.1	1235.8	0.0
T2100_AP_Hazards_Wave_Hazard_Output Table_Areas	H	0.0	0.0	8.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	114.2	33.5	0.0	0.0	0.0	0.0	18264.5	10264.1	17.6	0.0	0.0	0.0	0.0	0.0
Existing_Conditions_Tidal_Inundation_Output Table_Areas	I	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	74392.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
T2060_AP_Hazards_Shoreline_Erosion_Output Table_Areas	I	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	90.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1124.4	14.9	0.0	0.0	0.0	0.0	675609.8	317551.1	0.0	0.0	0.0	0.0	0.0	0.0
T2060_AP_Hazards_Tidal_Inundation_Output Table_Areas	I	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	7.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	388.7	6.2	0.0	0.0	0.0	0.0	48245.3	19202.0	0.0	0.0	0.0	0.0	0.0	0.0
T2060_AP_Hazards_Wave_Hazard_Output Table_Areas	I	0.0	0.0	93.6	0.0	0.0	0.0	0.0	0.0	200.1	0.0	0.0	0.0	103.3	0.0	0.0	0.0	0.0	0.0	0.0	478.3	14.5	0.0	0.0	0.0	100.5	164903.8	88618.8	0.0	0.0	0.0	0.0	0.0	0.0
T2060_AP_Storm_LowLying_Output Table_Areas	I	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	160.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	7862.6	0.0	0.0	0.0	0.0	0.0	0.0
T2100_AP_Hazards_Shoreline_Erosion_Output Table_Areas	I	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	97.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1897.6	34.9	0.0	0.0	0.0	0.0	840949.1	388620.7	0.0	0.0	0.0	0.0	0.0	0.0
T2100_AP_Hazards_Storm_Inundation_Output Table_Areas	I	0.0	0.0	16.6	0.0	0.0	0.0	0.0	0.0	74.5	4.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.3	0.0	0.0	0.0	0.0	0.0	3045.5	0.0	0.0	0.0	0.0	0.0	40.9
T2100_AP_Hazards_Tidal_Inundation_Output Table_Areas	I	0.0	0.0	170.1	0.0	0.0	0.0	0.0	0.0	408.9	1006.5	0.0	0.0	153.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	39.2	0.0	0.0	51.1	99.7	17148.7	44964.7	0.0	0.0	0.0	0.0	0.0	1.1
T2100_AP_Hazards_Wave_Hazard_Output Table_Areas	I	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	13.4	14.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	29634.6	27853.8	0.0	0.0	0.0	0.0	0.0	0.0
T2100_AP_Storm_Low Lying_OutputTable_Areas	I	47.8	657.4	63.1	296.7	0.0	0.0	0.0	0.0	164.0	983.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	29871.0	0.0	0.0	0.0	0.0	0.0	0.0
T2100_AP_Tidal_Low Lying_OutputTable_Areas	I	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0
Existing_Conditions_Tidal_Inundation_Output Table_Areas	J	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	87.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	53138.7	43869.7	0.0	0.0	0.0	0.0	0.0	0.0
T2060_AP_Hazards_ Shoreline_Erosion_OutputTable_Areas	J	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	298.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	326161.1	205374.1	0.0	0.0	0.0	0.0	0.0	0.0
T2060_AP_Hazards_Tidal_Inundation_Output Table_Areas	J	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	32.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	64986.8	48060.2	0.0	0.0	0.0	0.0	0.0	0.0
T2060_AP_Hazards_Wave_Hazard_Output Table_Areas	J	0.0	0.0	101.9	222.3	0.0	0.0	0.0	0.0	319.8	209.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	92.9	502679.2	452021.7	0.0	0.0	0.0	0.0	0.0	670.0
T2060_AP_Storm_Low Lying_OutputTable_Areas	J	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	65.2	551.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	17402.0	0.0	0.0	0.0	0.0	0.0	0.0
T2100_AP_Hazards_ Shoreline_Erosion_OutputTable_Areas	J	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	383.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	594714.5	435543.9	0.0	0.0	0.0	0.0	0.0	0.0
T2100_AP_Hazards_Storm_Inundation_Output Table_Areas	J	85.4	0.0	110.3	0.0	0.0	0.0	0.0	187.6	219.0	829.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	41.4	7.5	0.0	0.0	0.0	0.0	0.0	24008.8	0.0	0.0	0.0	0.0	0.0	0.0
T2100_AP_Hazards_Tidal_Inundation_Output Table_Areas	J	0.0	0.0	66.6	62.3	0.0	0.0	0.0	0.0	353.2	703.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	7.8	0.0	0.0	0.0	72.6	126370.5	116945.4	0.0	0.0	0.0	0.0	0.0	543.7
T2100_AP_Hazards_Wave_Hazard_Output Table_Areas	J	0.0	0.0	55.9	160.0	0.0	0.0	0.0	0.0	121.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	18.9	172595.8	182421.2	0.0	0.0	0.0	0.0	0.0	0.0
T2100_AP_Storm_LowLying_Output Table_Areas	J	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6.1	395.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	972.5	0.0	0.0	0.0	0.0	0.0	0.0
T2100_AP_Tidal_LowLying_Output Table_Areas	J	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	353.1	1032.5	0.0	0.0	0.0	0.0	0.0	0.0
Existing_Conditions_Bluff_OutputTable_Areas	K	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	84396.2	169027.8	0.0	0.0	0.0	0.0	0.0	0.0
Existing_Conditions_Tidal_Inundation_Output Table_Areas	K	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	20931.6	12311.2	0.0	0.0	0.0	0.0	0.0	0.0
T2060_AP_Hazards_Cliff_Bluff_Erosion_Output Table_Areas	K	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	42702.9	119036.0	0.0	0.0	0.0	0.0	0.0	0.0
T2060_AP_Hazards_Shoreline_Erosion_Output Table_Areas	K	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	33867.1	29951.1	0.0	0.0	0.0	0.0	0.0	0.0
T2060_AP_Hazards_Wave_Hazard_Output Table_Areas	K	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	20181.5	25734.5	0.0	0.0	0.0	0.0	0.0	0.0
T2100_AP_Hazards_Cliff_Bluff_Erosion_Output Table_Areas	K	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	51115.1	141763.5	0.0	0.0	0.0	0.0	0.0	0.0
T2100_AP_Hazards_Shoreline_Erosion_Output Table_Areas	K	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	46280.8	56405.8	0.0	0.0	0.0	0.0	0.0	0.0
T2100_AP_Hazards_Storm_Inundation_Output Table_Areas	K	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	1048.3	0.0	0.0	0.0	0.0	0.0	0.0
T2100_AP_Hazards_Tidal_Inundation_Output Table_Areas	K	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	8.1	0.0	0.0	0.0	0.0	0.0	0.0
T2100_AP_Hazards_Wave_Hazard_Output Table_Areas	K	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4563.5	0.0	0.0	0.0	0.0	0.0	0.0

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