Harris & Associates

SEA-LEVEL RISE TECHNICAL MEMORANDUM

To: Megan Hamilton, Senior Planner, San Diego Unified Port District
From: Sydnie Margallo, Sea-Level Rise Technical Analyst, Harris & Associates
Subject: **Sea-Level Rise Analysis for the East Harbor Island Redevelopment/Topgolf and Waterfront Park Project**
Date: April 29, 2026
CC: Ryan Binns, Vice President, and Kelsey Hawkins, Project Manager, Harris & Associates
Att: Figures

Introduction

As part of the San Diego Unified Port District's (District's) East Harbor Island Redevelopment/Topgolf and Waterfront Park Project (Project), Harris & Associates reviewed the best available sea-level rise (SLR) data and evaluated potential SLR inundation and temporary flooding impacts in the Project area in this Project-specific Sea-Level Rise Technical Memorandum (SLR Memo).

This SLR Memo follows applicable SLR guidance, including the California Coastal Commission (CCC) 2018 SLR Policy Guidance document (CCC 2018) and recently adopted Ocean Protection Council (OPC) State of California Sea-Level Rise Guidance: 2024 Science and Policy Update (OPC 2024). Chapter 6 of the CCC 2018 SLR Policy Guidance document describes the steps for addressing SLR in projects requiring Coastal Development Permits. The OPC 2024 SLR Guidance updates existing guidance for SLR vulnerability assessments. This SLR Memo also uses SLR projections consistent with OPC's 2018 and 2024 SLR Guidance (refer to Project-Specific Sea-Level Rise Vulnerability section; OPC 2018; 2024).

Project Location

The Project area is approximately 38 acres of land generally bounded to the north by North Harbor Drive and the San Diego International Airport (SDIA), to the west by Harbor Island Drive, to the south by Liberator Way and the Harbor Island East Basin portion of San Diego Bay, and to the east by the Convair Lagoon portion of San Diego Bay. The Project is within the East Basin Industrial Subarea of Harbor Island Planning District 2 of the Port Master Plan (PMP).

Existing Conditions

The Project area is currently developed with a mix of commercial uses including the San Diego Harbor Police headquarters; The Hertz Corporation (Hertz), Enterprise Mobility (Enterprise), and Avis Rent A Car System, LLC (Avis), rental car facilities; and the SDIA temporary construction staging facilities (Figure 1, Existing Project Area). Existing structures include several one- and two-story buildings, various shade structures, parking lots, fencing, and walkway pavement. Much of the Project area shoreline is covered with riprap.

Topographically, the Project area is relatively level, with a gentle gradient down to San Diego Bay. Site elevations range between −0.75 and 22.58 feet (NAVD 88).

Project Summary

The Project would redevelop portions of the Project area (East Harbor Island redevelopment area). Project components include demolition and removal of existing structures and improvements, realignment of Liberator Way, redevelopment of approximately 9.8 acres for the Topgolf visitor-serving attraction, and development of approximately 10.1 acres for a new waterfront park and promenade. The improvements would include a waterside promenade that would offer public coastal access along the waterfront. Other recreational features could include a step-down area to offer direct, physical access to the water, a pavilion, health and wellness features, and a restroom. Vehicular access to the Topgolf visitor-serving attraction and waterfront park would be via Liberator Way from either North Harbor Drive or Harbor Island Drive. The existing San Diego Harbor Police headquarters on the western side of East Harbor Island would remain in place. A Port Master Plan Amendment (PMPA) would be required to change the land use designation of the site from Industrial Business Park, Open Space, and Harbor Services to Commercial Recreation, Park/Plaza, Street, and Specialized Berthing (Figure 2, Proposed Project Area).

The anticipated lease term for Topgolf, USA (Topgolf), is 20 years with four 5-year options to extend to a maximum of 40 years.

OPC 2018 SLR Guidance and CCC 2018 SLR Policy Guidance

The OPC 2018 SLR Guidance was based on Rising Seas in California: An Update on Sea-Level Rise Science (Rising Seas 2017), which synthesized recent evolving research on SLR science. Rising Seas 2017 provided SLR projections for specific locations along the California coastline, covering the time period from 2020 to 2150. Rising Seas 2017 addressed scientific uncertainties associated with the physical processes of SLR by providing probabilistic projection. The OPC 2018 SLR Guidance then created SLR scenarios by selecting certain projections and assigning levels of risk aversion associated with each (Table 1, OPC 2018 SLR Projections for the San Diego Tide Gauge [Feet]). Three different probabilistic projections tied to representative concentration pathways were provided alongside an extreme SLR scenario with unknown probability, referred to as H++. The CCC 2018 SLR Policy Guidance recommends using the SLR projections from the OPC Rising Seas 2017 and the CCC 2018 SLR Policy Guidance as best available science to inform planning decisions and project design.

Table 1. OPC 2018 SLR Projections for the San Diego Tide Gauge (Feet)

Year	Probabilistic Projections		H++ Scenario
	Low Risk Aversion Upper Limit of "Likely Range"[1]	Medium-High Risk Aversion 1 in 200 chance[2]	Extreme Risk Aversion Single Scenario[3]
2030	0.6	0.9	1.1
2040	0.9	1.3	1.8
2050	1.2	2.0	2.8
2060	1.6	2.7	3.9
2070	2.0	3.6	5.2
2080	2.5	4.6	6.7
2090	3.0	5.7	8.3
2100	3.6	7.0	10.2
2110	3.7	7.5	12.0
2120	4.3	8.8	14.3
2130	4.9	10.2	16.6
2140	5.4	11.7	19.2
2150	6.1	13.3	22.0

Sources: CCC 2018; OPC 2018.
Notes: Most of the available climate model experiments do not extend beyond 2100. The resulting reduction in model

availability causes a small dip in projections between 2100 and 2110, as well as a shift in uncertainty estimates (refer to Kopp et al. 2014). Use of 2110 projections should be done with caution and acknowledgement of increased uncertainty around these projections.

[1] ~17 percent probability SLR exceeds…
[2] 0.5 percent probability SLR exceeds…
[3] No associated probability

In addition to presenting best available science related to SLR projections, the CCC 2018 SLR Policy Guidance also provided guidance on addressing SLR in Local Coastal Programs and Coastal Development Permits and provided a menu of adaptation strategy options. According to the CCC 2018 SLR Policy Guidance, the three key components of an SLR vulnerability assessment are evaluation of exposure, sensitivity, and adaptive capacity (CCC 2018):

- **Exposure:** The degree to which habitats, people, private property, critical infrastructure, and public access will be affected by SLR.
- **Sensitivity:** The extent to which these natural and built assets will be damaged or destroyed by that exposure.
- **Adaptive capacity:** The ability of natural systems and infrastructure to respond or adapt to rising sea levels to minimize harm.

OPC 2024 SLR Guidance

Since the release of Rising Seas 2017, the scientific community has significantly improved its ability to understand and project future SLR. Specifically, observational and modeling studies have provided more clarity on when and how much the physical processes causing SLR (i.e., ice sheet and glacial melt) will contribute to future SLR. This improved scientific understanding has been reflected in updated global probabilistic SLR projections provided by the Intergovernmental Panel on Climate Change 6th Assessment Report (IPCC AR6). This best available science was incorporated into a set of five California SLR scenarios from 2020 to 2150 in the OPC 2024 SLR Guidance. Like the 2018 probabilistic projections, the SLR scenarios in the OPC 2024 SLR Guidance address uncertainties in the physical processes causing SLR and in the ability to model and project future timing and magnitudes of SLR. The OPC 2024 SLR Guidance differs from the 2018 SLR Guidance in that it provides SLR scenarios spanning a range of emissions pathways rather than several sets of probabilistic projections each linked to a different emissions pathway (representative concentration pathway).

An important change in the IPCC AR6 projections resulted from an update in the understanding of when low confidence processes (e.g., rapid ice sheet melt) could come into play. The physical processes that could lead to much higher increases in sea level are now viewed by the scientific community as less plausible in the coming decades before potentially becoming a factor toward the end of the 21st century and beyond. Additionally, at lower future warming levels (less than 2 degrees Celsius [°C] by 2100), significant contributions from these processes are not expected until beyond 2100, if at all. As a result, when compared to past reports, such as Rising Seas 2017, there is less acceleration of sea level before 2050 and the possibility of greater acceleration only toward the end of the 21st century and beyond.

The OPC 2024 SLR Guidance scenarios show greater certainty in the amount of SLR expected in the near-term (next 30 years), when compared to the 2018 SLR projections, and demonstrate a narrow range across all possible emissions scenarios. In the mid-term (2050–2100), the range of possible SLR expands due to more uncertainty in projected future warming from different emissions pathways and certain physical processes (e.g., rapid ice sheet melt). Over the long-term (2100 and beyond), the range of SLR becomes increasingly large due to uncertainties associated with physical processes, such as earlier-than-expected ice sheet loss and resulting future SLR.

Additionally, new scientific consensus represented in the IPCC AR6 is that the H++ scenario, in Rising Seas 2017, is not physically plausible as it incorporates too much SLR in the near-term and a consequent ongoing high rate of SLR throughout the rest of the 21st century. Therefore, the H++ scenario was not included in the 2024 update because it is now considered to be very unlikely to occur.

Five SLR scenarios are presented in the OPC 2024 SLR Guidance (Table 2, OPC 2024 SLR Projections for San Diego [Feet]). Each scenario is defined according to the target value of global mean SLR in 2100:

- **Low:** 0.3 meter or 1.0 foot by 2100
- **Intermediate-Low:** 0.5 meter or 1.6 feet by 2100
- **Intermediate:** 1.0 meter or 3.3 feet by 2100
- **Intermediate-High:** 1.5 meters or 4.9 feet by 2100
- **High:** 2.0 meters or 6.6 feet by 2100

Table 2. OPC 2024 SLR Projections for San Diego (Feet)

Year	Low	Int-Low	Intermediate	Int-High	High
2020	0.2	0.2	0.3	0.3	0.3
2030	0.3	0.4	0.4	0.5	0.5
2040	0.4	0.5	0.6	0.7	0.8
2050	0.5	0.7	0.8	1.1	1.3
2060	0.6	0.9	1.1	1.6	2.0
2070	0.7	1.0	1.4	2.3	3.0
2080	0.8	1.2	1.9	3.1	4.1
2090	0.9	1.4	2.5	3.9	5.4
2100	1.0	1.6	3.2	4.9	6.7
2110	1.1	1.8	3.9	5.7	8.0
2120	1.2	2.1	4.5	6.5	9.1
2130	1.3	2.3	5.0	7.1	10.0
2140	1.3	2.5	5.6	7.7	11.0
2150	1.4	2.7	6.1	8.3	11.9

Source: OPC 2024.
Notes: Median values of SLR scenarios (in feet) for each decade from 2020 to 2150, with a baseline of 2000. All median scenario values incorporate the local estimate of vertical land motion.

Like the CCC 2018 SLR Policy Guidance, the OPC 2024 SLR Guidance also describes evaluation of exposure, sensitivity, and adaptive capacity as the three key components of an SLR vulnerability assessment (OPC 2024).

2019 Sea-Level Rise Vulnerability Assessment & Coastal Resiliency Report

The District's 2019 Sea-Level Rise Vulnerability Assessment & Coastal Resiliency Report (2019 Vulnerability Assessment) was developed in compliance with Assembly Bill 691 to complete the following objectives:

- Use best available science to assess the vulnerability of projected SLR on the District's jurisdiction, including the updated the OPC State of California Sea-Level Rise Guidance: 2018 Update, as required by Assembly Bill 691
- Provide maps of areas that may be potentially impacted by projected SLR for the years 2030, 2050, and 2100
- Estimate the potential impacts and financial costs associated with those potential impacts on granted trust lands in the District
- Describe how the District proposes to address projected SLR to protect and preserve natural and built environment resources and facilities on trust lands

The 2019 Vulnerability Assessment also provides an opportunity to update the District's inventory of assets and/or changes to geography or topography. By using the best available science and updated

assets and topography, the projected SLR mapping in the 2019 Vulnerability Assessment reflects changes in risk associated with exposure, sensitivity, or adaptive capacity over time.

Methodology and Assumptions

The methodology and approach of the 2019 Vulnerability Assessment were informed by state-projected SLR guidance documents, such as the CCC 2018 SLR Policy Guidance and OPC 2018 SLR Guidance (CCC 2018; OPC 2018). The CCC 2018 SLR Policy Guidance recommends using the SLR projections from the OPC 2018 SLR Guidance as best available science to inform planning decisions and project design. SLR projections used in the 2019 Vulnerability Assessment and this SLR Memo are consistent with the OPC 2018 SLR Guidance that represents the 95th percentile (1 in 20 chance) for the years 2030, 2050, and 2100. Given the uncertainty of climate science and the variability in projections toward the end of the century, the District also chose to analyze projected SLR impacts using the 50th percentile projection for 2100. Therefore, the SLR projections in the 2019 Vulnerability Assessment include the following scenarios:

- 2030 (0.7 Foot) SLR Scenario
- 2050 (1.4 Feet) SLR Scenario
- 2100 low (2.6 Feet) SLR Scenario
- 2100 high (4.5 Feet) SLR Scenario

The District assessed projected SLR impacts using the four different projections without, then with, 100-year storm events in accordance with Assembly Bill 691.

To assess exposure to projected SLR, the District used the U.S. Geological Survey Coastal Storm Modeling System (CoSMoS) 3.0 as the best available modeling data to prepare a quantitative geospatial assessment of future projected SLR and storm surge impacts to District assets for 2030, 2050, and 2100 (USGS 2019). CoSMoS is a publicly available, federally supported system and the primary model used by coastal jurisdictions and agencies along the California coast to assess vulnerabilities from potential inundation and temporary coastal flooding from a 100-year storm event. CoSMoS flood maps illustrate the potential extent of inundation and/or temporary coastal flooding from a 100-year storm event resulting from projected SLR for specific water elevations to measure impacts to assets and operations.

For each CoSMoS mapping increment, both potential daily inundation layers and temporary coastal flooding from a 100-year storm event (storm surge) are included in the analysis. The 2019 Vulnerability Assessment included exposure maps that overlay CoSMoS scenarios on District lands. Similarly, exposure maps were created for this SLR Memo by overlaying the CoSMoS scenarios in the Project area. Buildings and other assets within the extent of projected SLR inundation or temporary coastal flooding from a 100-year storm event were determined to be exposed unless specific elevation data for the asset demonstrated that it was not within projected water elevations for each projected SLR scenario.

Because the projected water level is calculated from mean sea level, the depth of flooding on land may be less than the projected water elevation and may also vary by location based on topography. The District developed a local model using specific ground elevations to assess impacts to buildings. Because the District's ground elevations may differ from those used in CoSMoS, buildings may appear potentially impacted on the CoSMoS flood maps that were not identified as potentially impacted in the District's local building model. Additionally, potential flood extents represented in CoSMoS were derived from elevation data established between 2009 and 2011. As such, the maps illustrate potential flooding on current conditions without the implementation of any adaptation strategies or new development.

Alignment with OPC SLR Projections and Guidance

As previously described, the District, in consultation with stakeholders, chose SLR projections consistent with the OPC 2018 SLR Guidance, which serves as the best available science for the 2019 Vulnerability Assessment and this SLR Memo. Since SLR projections from the OPC were provided in feet and CoSMoS operates using the metric system (i.e., in fixed 0.8-foot increments of projected SLR), the OPC SLR projections (with associated time frames) were matched to the closest SLR projections in CoSMoS for use in the 2019 Vulnerability Assessment. Additionally, the U.S. Geological Survey presents this modeled data

independent of any projected analysis time frame (i.e., they do not indicate when any projected SLR increment will occur). As a result, the scenario elevations from CoSMoS may differ slightly from the OPC projections. The selected CoSMoS SLR scenarios and the corresponding OPC projections are listed in Table 3, Alignment of OPC Recommended SLR Projections with CoSMoS Projected SLR Scenarios.

Table 3. Alignment of OPC Recommended SLR Projections with CoSMoS Projected SLR Scenarios

2018 OPC Recommended SLR Probabilistic Projections		Nearest CoSMoS SLR Projections
Increase above Current Levels	**Emissions Scenario**	
0.7 foot (0.21 meter)	2030 (1 in 20 chance)[1]	0.8 feet (0.25 meters)
1.4 feet (0.43 meter)	2050 (1 in 20 chance)	1.6 feet (0.5 meters)
2.6 feet (0.79 meter)	2100 (median)[2]	2.5 feet (0.75 meters)
4.5 feet (1.4 meters)	2100 (1 in 20 chance)	4.9 feet (1.5 meters)

Source: OPC 2018; District 2019.
Note: CoSMoS = Coastal Storm Modeling System; OPC = Ocean Protection Council; SLR = sea-level rise
[1] 1-in-20 chance = 5 percent probability SLR meets or exceeds…
[2] Median = 50 percent probability SLR meets or exceeds…

It should be noted that the SLR projections used in the District's 2019 Vulnerability Assessment, which are based on the OPC 2018 probabilistic projections, were predicted to occur earlier than updated SLR science suggests. For example, the OPC 2018 SLR Guidance predicts that 1.6 feet of SLR would occur in 2060 and 2.5 feet of SLR would occur in 2080, following the Low Risk Aversion (Table 2). Meanwhile, the SLR projections in the OPC 2024 SLR Guidance, which are based on the IPCC AR6 projections, predict that 1.6 feet of SLR would occur between 2070 and 2080 and 2.5 feet of SLR would occur in 2090, following the Intermediate Scenario (Table 2).

Project-Specific Sea-Level Rise Vulnerability

The District's tidelands are divided into 10 planning districts that correspond to the District's PMP. The Project area is within the East Basin Industrial Subarea Port Master Plan Planning District 2 (Harbor Island/Lindbergh Field). The Harbor Island Planning District also includes the SDIA (formerly Lindbergh Field), although the SDIA, including all land uses, activities, and improvements, is under direct jurisdiction of the San Diego County Regional Airport Authority, which recently completed an assessment that evaluates risks of projected SLR on the SDIA.

The following sections include analyses of potential SLR inundation and temporary flooding impacts in the Project area. The analyses include projections of potential SLR with a 100-year storm surge consistent with those used by the District in their 2019 Vulnerability Assessment. For informational purposes, the District has chosen to disclose a 6.6-foot SLR scenario that is considered an extreme SLR scenario for the year 2100 in the 2024 OPC Science and Policy Update in Table 1.

The following SLR scenarios are studied in this SLR Memo:

- Baseline Scenario (Current flooding conditions with no SLR)
- 0.8 Foot SLR Scenario
- 1.6 Feet SLR Scenario
- 2.5 Feet SLR Scenario
- 4.9 Feet SLR Scenario
- 6.6 Feet SLR Scenario

For each of these SLR scenarios, two figures are provided to show the projected SLR inundation and temporary flooding in the Project area under existing Project area conditions (without the Project) and proposed Project area conditions (with the Project). The following discussions for the SLR scenarios include an evaluation of SLR exposure (using CoSMoS data), sensitivity of the site to this exposure, and adaptive capacity to the projected SLR in the Project area.

Baseline Scenario

CoSMoS maps the baseline flooding scenario for the existing Project area conditions (Figure 3, Baseline Scenario – Existing Conditions) and proposed Project conditions (Figure 4, Baseline Scenario – Proposed Project Conditions). Under this baseline scenario, sections of the Project area's shoreline are currently subjected to tidal fluctuations and temporary flooding, including part of the Convair Lagoon beach, the abandoned seaplane ramp and gravel area adjacent to the west, and the larger boat ramp at the western end of the East Basin. Temporary flooding in the Project area does not currently impact land use functions, in particular because the majority of the Project area's southern boundary is currently covered with riprap and lined with an approximately 7-foot-tall brick wall.

Under proposed Project conditions, this southern shoreline area of the Project area would be redeveloped with park and open space improvements. Liberator Way would also be realigned to the north, farther from the shoreline (Figure 4). These proposed improvements would reduce the sensitivity and increase the adaptive capacity of the Project area. Therefore, the Project would not exacerbate or be impacted by SLR inundation or temporary flooding under baseline conditions.

0.8 Foot SLR Scenario

According to CoSMoS, incremental portions of the Project area are expected to be impacted by SLR inundation alone (with no flooding from a 100-year storm surge) under the 0.8 Foot SLR Scenario. These areas include the Convair Lagoon beach immediately west of the U.S. Coast Guard property, the abandoned seaplane ramp south of the SDIA temporary construction staging facilities, and a narrow sliver of the gravel area west of this seaplane ramp. Additionally, the larger boat ramp on the western end of the Project area includes incremental areas of projected SLR inundation under this scenario. Only part of the abandoned seaplane ramp and the larger boat ramp are projected to be impacted by temporary flooding from SLR with a 100-year storm event under the 0.8 Foot SLR Scenario (Figure 5, 0.8 Foot SLR Scenario – Existing Conditions, and Figure 6, 0.8 Foot SLR Scenario – Proposed Project Conditions).

Under existing (no Project) conditions for this scenario, SLR inundation and temporary flooding would minimally affect the Project area. The areas exposed to tidal fluctuation occur only on at the edge of the shoreline. No buildings would be affected by this level of SLR inundation or temporary flooding (Figure 5). Only sandy beach and submerged seaplane and boat ramps would be impacted by SLR inundation and temporary flooding under this scenario. Generally, these features exist at lower elevations below zero feet NAVD 88.

The Project would not develop any areas that would be affected by SLR inundation or temporary flooding under this scenario. Along the Convair Lagoon beach, the Project would only change the land use designation from Industrial Business Park, Open Space, and Harbor Services to Park/Plaza, and no physical changes would occur. While not included as part of the Project, the District could implement future park and open space improvements (e.g., bench installation) in this area given the change in land use. However, given the proposed land use designation of Park/Plaza, future improvements to this area would not exacerbate the effects of SLR inundation and flooding. Additionally, future improvements not included as part of the Project would be subject to further consideration under the California Environmental Quality Act (CEQA).

The southern portion of the Project area between the Convair Lagoon beach to the east and Harbor Island Drive to the west would also be redesignated as Park/Plaza land use and would include park and open space improvements, such as the installation of a pedestrian promenade, as part of the Project. Given that park and open space areas are more passive in nature and have less critical functions, these uses have a higher adaptive capacity to SLR inundation and flooding, meaning they can withstand SLR effects better than other, more critical uses, such as a transportation infrastructure or buildings. Additionally, the Project would realign Liberator Way farther away from the shoreline, reducing the roadway's exposure and sensitivity to SLR inundation and flooding (Figure 6). Neither the existing San Diego Harbor Police headquarters nor the proposed Topgolf visitor-serving attraction would be impacted by SLR inundation or temporary flooding under the 0.8 Foot SLR Scenario.

Therefore, under existing (no Project) conditions, the low-lying areas along the periphery of the Project area may experience minimal inundation or temporary flooding with a 100-year storm. The Project would not exacerbate or be impacted by SLR inundation or flooding in the Project area under the 0.8 Foot SLR Scenario.

Further, while the 2019 Vulnerability Assessment, which follows the OPC 2018 SLR Guidance, projects that the 0.8 Foot SLR Scenario would occur between 2030 and 2040 for the Low Risk Aversion scenario and by 2030 for the Medium-High Risk Aversion scenario (Table 1), more recent science projects that this scenario would occur much later. Specifically, the Intermediate Scenario in the OPC 2024 SLR Guidance projects that an increase in SLR of 0.8 foot will not occur until 2050 (Table 2).

1.6 Feet SLR Scenario

Similar to the 0.8 Foot SLR Scenario, only the Convair Lagoon beach, the abandoned seaplane ramp and a sliver of the gravel area west of this seaplane ramp, and the larger boat ramp on the western end of the Project area are expected to be impacted by SLR inundation alone (with no flooding from a 100-year storm surge) under the 1.6 Feet SLR Scenario. Additionally, only part of the abandoned seaplane ramp and the larger boat ramp are projected to be impacted by temporary flooding from SLR with a 100-year storm event under the 1.6 Feet SLR Scenario (Figure 7, 1.6 Feet SLR Scenario – Existing Conditions, and Figure 8, 1.6 Feet SLR Scenario – Proposed Project Conditions).

Under existing (no Project) conditions for this SLR scenario, SLR inundation and temporary flooding would minimally affect the Project area, as described for the 0.8 Foot SLR Scenario. The areas that would be subjected to minimal inundation and temporary flooding occur only along the edge of the shoreline, on sandy beach, and the boat ramp. No buildings would be affected by this level of SLR inundation or temporary flooding (Figure 7).

The Project would not develop any part of the Project area that would be affected by SLR inundation or temporary flooding under the 1.6 Feet SLR Scenario. Neither the existing San Diego Harbor Police headquarters nor the proposed Topgolf visitor-serving attraction would be impacted by SLR inundation or temporary flooding under this scenario. Along the Convair Lagoon beach, the Project would only change the land use designation from Industrial Business Park, Open Space, and Harbor Services to Park/Plaza, and no physical changes would occur. The southern portion of the Project area between the Convair Lagoon beach and Harbor Island Drive would also be redesignated as Park/Plaza and would include park and open space improvements as part of the proposed Project. Given that park and open space areas are more passive in nature and have less critical functions, these uses have a higher adaptive capacity to SLR inundation and flooding, meaning they can withstand these effects better than other uses, such as a transportation infrastructure or buildings. Additionally, Liberator Way would be realigned farther away from the shoreline as part of the Project, reducing the roadway's exposure and sensitivity to SLR inundation and flooding (Figure 8).

The District's 2019 Vulnerability Assessment identifies this scenario as the 2050 SLR Scenario, given that the Low Risk Aversion in the OPC 2018 SLR Guidance projects 1.6 feet of SLR to occur in 2060 and the Medium-High Risk Aversion projects this would occur between 2040 and 2050 (Table 1). However, the Intermediate Scenario in the OPC 2024 SLR Guidance projects that 1.6 feet of SLR would occur between 2070 and 2080 (Table 2). According to the new SLR projections presented in the OPC 2024 SLR Guidance, the 1.6 Feet SLR Scenario is anticipated to occur near or after the end of the lease term for the proposed Topgolf visitor-serving attraction operation.

Therefore, SLR inundation and flooding impacts to the Project area would be more substantial under existing (no Project) conditions compared to Project buildout conditions. The Project would not exacerbate or be impacted by SLR inundation or flooding in the Project area under the 1.6 Feet SLR Scenario.

2.5 Feet SLR Scenario

Compared to the 1.6 Feet SLR Scenario (Figure 7 and Figure 8), much of the additional area projected for SLR inundation and temporary flooding shown on Figure 9, 2.5 Feet SLR Scenario – Existing Conditions, and Figure 10, 2.5 Feet SLR Scenario – Proposed Project Conditions, occurs on the U.S. Coast Guard and SDIA properties adjacent to but outside the Project area. Within the Project area, the

same areas that are expected to be inundated and flooded under the 0.8 Foot and 1.6 Feet SLR scenarios are also projected to be inundated and flooded under the 2.5 Feet SLR Scenario. The area expected to be inundated by SLR along the Convair Lagoon beach is greater under this scenario compared to the 0.8 Foot and 1.6 Feet SLR scenarios. Similarly, the SLR inundation and temporary flooding previously described along the edge of the shoreline near the seaplane ramp occurs slightly further inland toward the existing alignment of Liberator Way. Along the boat ramp shoreline, there is a small sliver of projected temporary flooding as described for the 0.8 Foot and 1.6 Feet SLR scenarios. There is slightly more projected SLR inundation in this area compared to the other scenarios, although the inundation still consists of only a narrow sliver of land along the edge of the shoreline. No buildings within the Project area would be affected by SLR inundation or temporary flooding under the existing (no Project) conditions for the 2.5 Feet SLR Scenario. Additionally, Liberator Way is outside the projected SLR inundation and temporary flooding areas under the existing (no Project) conditions for the 2.5 Feet SLR Scenario (Figure 9).

As described previously, the eastern portion of the Project area, which would be affected by temporary flooding under this scenario, would not be developed or improved by the Project and would only require a change to the land use designation from Industrial Business Park, Open Space, and Harbor Services to Park/Plaza. Under the proposed Project, the projected SLR inundation and temporary flooding in this area would occur only within a narrow sliver of proposed park and open space area southeast of Liberator Way. This proposed park and open space area would also be redesignated as Park/Plaza land use and would include park and open space improvements as part of the Project. Given that park and open space areas are more passive in nature and have less critical functions, these uses have a higher adaptive capacity to SLR inundation and flooding, meaning they can withstand these effects better than other uses, such as transportation infrastructure or buildings. Additionally, Liberator Way would be realigned further inland as part of the Project, reducing the roadway's exposure and sensitivity to SLR inundation and flooding (Figure 10).

The Project does not include any buildings or structures that would be affected by SLR inundation or temporary flooding under the 2.5 Feet SLR Scenario. Neither the existing San Diego Harbor Police headquarters nor the proposed Topgolf visitor-serving attraction would be impacted by SLR inundation or temporary flooding under this scenario. Additionally, this scenario is likely to occur outside the lease term of the proposed Topgolf visitor-serving attraction operation. The OPC 2018 SLR Guidance projects that the 2.5 Feet SLR Scenario would occur sometime between 2060 (Medium-High Risk Aversion) and 2080 (Low Risk Aversion) (Table 1), while the Intermediate Scenario in the OPC 2024 SLR Guidance projects that an increase in SLR of 2.5 feet will not occur until 2090 (Table 2).

Given that Liberator Way would be realigned farther away from the shoreline and the periphery of the coastline south of Liberator Way would be improved with park and open space improvements, the Project would further reduce sensitivity and increase adaptive capacity of the Project area to SLR inundation and flooding impacts compared to existing (no Project) conditions. The Project would not exacerbate or be impacted by SLR inundation or flooding in the Project area under the 2.5 Feet SLR Scenario.

4.9 Feet SLR Scenario

As shown on Figure 11, 4.9 Feet SLR Scenario – Existing Conditions, and Figure 12, 4.9 Feet SLR Scenario – Proposed Project Conditions, a much greater area of land is projected to be affected by SLR inundation and temporary flooding under the 4.9 Feet SLR Scenario compared to the 2.5 Feet SLR Scenario (Figure 9 and Figure 10). However, the majority of this land is outside the Project area (i.e., on SDIA and U.S. Coast Guard properties).

Under this scenario, the Convair Lagoon beach is projected to be impacted by both SLR inundation and temporary flooding. Temporary flooding from SLR with a 100-year storm event under this scenario would substantially impact the existing SDIA temporary construction staging facilities within the Project area (located west of the Convair Lagoon beach and north of the abandoned seaplane ramp). The shoreline near the abandoned seaplane ramp would be retreated due to projected SLR inundation in this area. On the western side of the Project area, projected temporary flooding would affect sections of Harbor Island Drive and Liberator Way and most of the parking area, as well as a few of the buildings associated with the San Diego Harbor Police headquarters (Figure 11).

The 4.9 Feet SLR Scenario represents the greatest level of impacts to the Project area out of the four SLR scenarios analyzed in the District's 2019 Vulnerability Assessment. However, even under this high-end scenario, the proposed Topgolf visitor-serving attraction is not expected to be inundated with SLR or temporary flooding from SLR with a 100-year storm event. While much of the Convair Lagoon beach within the Project area is projected to be impacted by SLR inundation and/or temporary flooding, the Project would not exacerbate or be impacted by SLR because no new development would occur in these areas. Only the land use designation would be changed from Industrial Business Park, Open Space, and Harbor Services to Park/Plaza.

The Project would remove the existing SDIA temporary construction staging facilities and abandoned seaplane ramp west of the Convair Lagoon beach and replace them with park and open space. The projected temporary flooding in this area would be less destructive to the proposed park and open space uses than it would be to the existing paved land and SDIA temporary construction staging facilities. As previously described, development of the park and open space improvements would reduce the sensitivity and improve the adaptive capacity of the Project area to the effects of SLR.

Additionally, sections of Harbor Island Drive and Liberator Way and most of the parking area, as well as a few of the buildings, associated with the San Diego Harbor Police headquarters on the western end of the Project area, are predicted to be impacted by temporary flooding under the 4.9 Feet SLR Scenario. While the Project would include realignment of Liberator Way and its intersection with Harbor Island Drive farther inland (north), the proposed alignment of the roadway would still be affected by projected temporary flooding. Additionally, North Harbor Drive at its intersection with Liberator Way would be inundated by temporary flooding. As such, both access points to the Project area would be non-viable during and following heavy storm events, which would constrain operation of the San Diego Harbor Police headquarters and the Topgolf visitor-serving attraction. No buildings are proposed in this area, and no improvements are proposed for the San Diego Harbor Police headquarters as part of the Project. As shown on Figure 12, the proposed Topgolf visitor-serving attraction would be within proximity to but outside the areas projected to be inundated by SLR and temporary flooding. Therefore, the Project would not exacerbate SLR inundation or flooding in the Project area under the 4.9 Feet SLR Scenario; however, the Project would be impacted by temporary flooding due to constraints accessing the site.

The 4.9 Feet SLR Scenario would occur outside the lease term for the proposed Topgolf visitor-serving attraction operation. For instance, the Medium-High Risk Aversion in the OPC 2018 SLR Guidance projects that the 4.9 Feet SLR Scenario would occur sometime between 2080 and 2090 (Table 1). Additionally, both the Low Risk Aversion in the OPC 2018 SLR Guidance and the Intermediate Scenario in the OPC 2024 SLR Guidance project 4.9 feet of SLR to occur around 2130 (Table 2).

6.6 Feet SLR Scenario

As noted previously, the 6.6 Feet SLR Scenario was chosen to be included in this analysis for informational purposes. However, according to the OPC 2024 SLR Guidance, this SLR scenario is more severe and would not occur within the 2020 to 2150 timeframe under the Intermediate Scenario.

Outside the Project area, the entire U.S. Coast Guard property and much of the SDIA property where it abuts the Project area would be subject to SLR inundation under the 6.6 Feet SLR Scenario. As such, both access ways to the Project area would be non-viable due to SLR inundation. Much of the remaining land area shown on Figure 13, 6.6 Feet SLR Scenario – Existing Conditions, would be subject to temporary flooding from SLR with a 100-year storm event. Similarly, almost the entire Project area is expected to be impacted by temporary flooding, with the exception of a few small areas that would be fully inundated due to SLR and a small northwestern portion of the Project area near North Harbor Drive, which would not be affected by SLR inundation or temporary flooding (Figure 13). Although the proposed Topgolf visitor-serving attraction is projected to be affected by temporary flooding, this scenario would occur well outside the lease term of the proposed Topgolf visitor-serving attraction operation. For instance, the OPC Medium-High Risk Aversion in the 2018 SLR Guidance projects 6.6 feet of SLR would occur between 2090 and 2100 (Table 1). This scenario is outside the 2030 to 2150 timeframe for the Low Risk Aversion in the OPC 2018 SLR Guidance and similarly outside the 2020 to 2150 timeframe for the

Intermediate Scenario in the OPC 2024 SLR Guidance. The Intermediate-High Scenario in the OPC 2024 SLR Guidance projects this 6.6 Feet SLR Scenario to occur after 2120 (Table 2).

Under Project conditions, the entire area that would be redeveloped, including the proposed park and open space improvements and the Topgolf visitor serving-attraction, would be affected by temporary flooding from SLR with a 100-year storm event (Figure 14, 6.6 Feet SLR Scenario – Proposed Project Condition). While the Project would not exacerbate the effects of SLR in the Project area, it would be impacted by the effects of SLR under this extreme scenario. However, this scenario was included for informational purposes only. This analysis does not assume an impact to the Project.

Summary

Under the 0.8 Foot and 1.6 Feet SLR scenarios, the Project area would be minimally affected by SLR. While some effects of SLR inundation and temporary flooding may occur along the Project area's shorelines, the Project would improve the adaptive capacity of the site by lining the shoreline with park and open space. Further, no existing or proposed buildings within the Project area would be affected by SLR inundation or temporary flooding under these scenarios.

SLR inundation and temporary flooding impacts under the 2.5 Feet SLR Scenario would be similar to those described for the 0.8 Foot and 1.6 Feet SLR scenarios, although temporary flooding is projected to incrementally increase. None of the existing or proposed buildings within the Project area would be affected by SLR inundation or temporary flooding under the 2.5 Feet SLR Scenario.

Under the 4.9 Feet SLR Scenario, projected SLR inundation and temporary flooding from SLR with a 100-year storm event is expected to impact the easternmost and western portions of the Project area, including sections of Liberator Way and Harbor Island Drive and part of the San Diego Harbor Police headquarters. Additionally, under existing conditions, the SDIA temporary construction staging facilities west of the Convair Lagoon beach would be subject to temporary flooding; however, the Project would remove these facilities and improve the adaptive capacity of this area by replacing them with park and open space uses. The proposed Topgolf visitor-serving attraction itself would not be affected by SLR inundation or temporary flooding under this scenario; however, access to the site would be constrained by temporary flooding at both access points, particularly during and after heavy storm events.

The only scenario evaluated in this SLR Memo that would result in flooding impacts to the proposed Topgolf visitor-serving attraction is the 6.6 Feet SLR Scenario, which has been determined unlikely to occur until after 2100, well outside the lease term of the proposed Topgolf visitor-serving attraction. Under this extreme scenario, almost the entire Project area and surrounding land would be subject to SLR inundation and/or temporary flooding from SLR with a 100-year storm event.

Given the limited potential for SLR inundation and temporary flooding impacts in the Project area over the next 60 years, a suite of potential adaptation strategies for the Project area are provided in this SLR Memo.

Wake Height Analysis

In addition to SLR inundation and temporary flooding, wave runup can substantially affect shorelines along the California coast, including the state's protected harbors and bays. Waves in San Diego Bay are generated by winds blowing over the water surface (wind waves) and from ship-induced waves, with the largest waves generated by large vessels as a function of both the vessel characteristics and vessel speed.

Winds along coastal San Diego are primarily from the west, with velocities averaging 5 to 10 miles per hour throughout the year. Once every 100 years, extreme sustained wind speeds approaching 50 nautical miles per hour (knots) are expected in the coastal San Diego area (NOAA 1980). Wind waves are limited by the fetch, or the unobstructed length of water over which the wind blows, and are also a function of the wind speed given a minimum sustained duration to fully develop the wind wave. Wind waves that develop across relatively shallow water are further reduced from the friction along the shallow seabed. According to an analysis of wave height completed for the District's Coronado Ferry Landing Restaurant, shallow-water waves originating in San Diego Bay could develop wind-driven wave heights approaching

2.5 feet, with a corresponding wave period of about 3 seconds from 50 knot winds, with a duration of approximately 10 minutes (ENGEO 2022).

In addition to wind waves, boat wakes have the potential to affect nearshore harbor facilities. Ship-induced waves represent a steep translatory wave, meaning the water is displaced during the passage of the wave, unlike the gentler, oscillatory waves created by wind shear on the water surface. As described in the analysis of wave height completed for the Coronado Ferry Landing Restaurant, the U.S. Navy's Sea Tractor tug is expected to generate the worst-case ship-induced waves within San Diego Bay, with measured waves approaching 3 feet in height. Assuming that these tugs travel at 10 to 11 knots, this results in a 3-foot translatory wave almost 50 feet in length. However, ship-induced waves result in significantly steeper wave form that would result in a more severe effect on shoreline conditions. For example, a 3-foot wind wave oscillates about the mean still water level, with its wave height 1.5 feet above the still water level, whereas a 3-foot translatory wave developed from a ship wake would move across the still water level with its wave crest approximately 2.1 feet above the still water level. This more severe wave results in a worse wave uprush and potential for overtopping shoreline structures (ENGEO 2022). However, the Project area is within the northeastern portion of Harbor Island, which is primarily protected from wave runup by the East Basin and southeastern portion of Harbor Island. Nevertheless, there remains limited potential for ship-induced waves to impact the southeastern portion of the Project area.

Potential Adaptation Strategies

Chapter 4 of the District's 2019 Vulnerability Assessment provides a suite of adaptation strategies ranging from protecting improvements in the face of SLR and accommodating occasional flooding by making adaptive changes to the asset to ultimately removing or relocating existing development out of hazard-prone areas. Given the significant uncertainty of future SLR conditions and the potential for projected SLR inundation and flooding to impact portions of the Project area, a menu of design recommendations, consistent with the adaptation strategies described in Chapter 4 of the 2019 Vulnerability Assessment, is provided below for consideration.

Prior to the approval of a Coastal Development Permit for the Project, the District should retain a qualified engineer to prepare, for the District's review and approval, an up-to-date, site-specific analysis of potential adaptive strategies to accommodate the potential for SLR and the potential for more frequent wave overtopping and wave-induced impact forces to be incorporated into the design of the Project. Potential adaptation strategies, including but not limited to those described below, should be considered as part of the Project design, as applicable to the Project area. These potential adaptation strategies are described at a conceptual planning level of detail to identify possible future options for adaptation. The implementation of actual adaptation strategies in the future will be based on monitoring of SLR and flood risk and more detailed project-level planning and design of adaptation strategies. Any actual adaptation strategies may differ from those identified below.

Monitoring Program

A monitoring program would allow the District to monitor the frequency of flooding impacts across the Project area. The program should include thresholds or standards that, when exceeded, would trigger additional adaptation strategies to reduce the risk of temporary flooding and more permanent inundation.

Temporary Flood Protection Strategies

Temporary flood protection strategies, such as the use of sandbags, closure of flooded areas, and installation of signage, may be appropriate for temporary flooding during storm events.

Elevation

Elevation includes increasing the ground flood height of an asset or facility. Raising pad grades from existing elevations (between 0.75 and 22.58 feet [NAVD 88]) to an elevation of 15 to 15.5 feet (NAVD 88) would accommodate 4.9 feet of SLR, along with 2.1-foot boat wakes during peak high tides.

Nature-Based Adaptation Strategies

Nature-based solutions are sustainable planning, design, environmental management, and engineering practices that incorporate or mimic natural features or processes into the built environment to promote climate adaptation and resilience. These solutions use natural features and processes to address the following (FEMA 2023):

- Combat climate change
- Reduce flood risk
- Improve water quality
- Protect coastal property
- Restore and protect wetlands
- Stabilize shorelines
- Reduce urban heat
- Add recreational space, among other benefits

Waterfront Park. Waterfront parks include open space parks and recreational spaces in coastal areas that are intentionally designed to flood during storm events, minimizing flooding elsewhere. Waterfront parks can also absorb the impact from tidal or storm flooding and improve water quality (FEMA 2021).

Wetland Creation. Coastal wetlands are found along ocean, estuary, or freshwater coastlines. Restoring and protecting wetlands for ecosystems characterized by permanent or seasonal inundations can improve water quality and reduce flooding. They are often referred to as “sponges” because of their ability to absorb wave energy during storms or normal tide cycles (FEMA 2021). Wetlands can also benefit groundwater recharge and fish and wildlife habitat.

Living Shorelines. A living shoreline is a protected, stabilized coastal edge made of a combination of living components, such as plants, and structural elements, such as sand, rock, and other natural materials (FEMA 2021; NOAA 2023). Among the benefits related to water quality, carbon storage, and wildlife habitat, living shorelines can also help stabilize and protect the shoreline from strong waves, minimize coastal flooding, reduce shoreline erosion, and protect coastal property (FEMA 2021). In fact, evidence shows that during major storms, a living shoreline performs better than a hardened shoreline (NOAA 2023). Additionally, unlike a concrete seawall or other hard structure, which impedes the growth of plants and animals, living shorelines grow over time.

Oyster Reefs. Oysters are often referred to as “ecosystem engineers” because of their tendency to attach to hard surfaces and create large reefs made of thousands of individuals. As oysters grow, they fuse together, forming rock-like reefs that provide habitat, filter and clean the surrounding water, and protect coastlines from wave inundation (FEMA 2021).

Depending on where the reefs are located, they can serve as natural barriers to the shoreline and protect underwater vegetation and waterfront communities from some effects of strong waves, floods, tides, and storm surge. Because oysters feed by filtering algae from the water, they function as a natural filter and improve water overloaded with nutrients. This cleaner water can also support underwater grasses, which can help create a stable sea floor and a safe habitat for wildlife (NOAA 2022). Well-established beds of underwater grasses help stabilize the bottom, providing additional resilience against wave action. Healthy reefs and established vegetation protect habitat and reduce wave energy and coastal erosion (NOAA 2022).

Living Levees. Levees provide a vertical barrier against storm surge or river overtopping (FEMA 2021). Instead of dropping down sharply, living levees (also called horizontal levees or ecotone slopes) slope gently downward in the same way that the land naturally would. This allows for natural, gradual transitions (from open water to tidal mudflat, to tidal marsh, to “ecotone” or transitional upland habitat) to be re-established in these areas. Living levees provide better protection against SLR since the gradual slopes and tidal marsh vegetation act to slow storm surges and absorb floodwaters. As a result, the earthen levee system can be lower than it would otherwise have to be, saving significant costs in construction and reducing the visual barrier between the water and the protected community behind the levee (Green Foothills 2016).

Conclusion

CoSMoS 3.0 (the best available modeling data) projects that the portions of the Project area proposed for redevelopment would not be impacted by SLR inundation or temporary flooding until the end of the century with greater than 2.5 feet of SLR. Even then, the proposed improvements in these areas would include park and open space improvements, which would have a higher adaptive capacity to SLR effects than roadway or other uses and would reduce sensitivity (i.e., risk of damage from flooding). No proposed structures, including the proposed Topgolf visitor-serving attraction, are predicted to be inundated by SLR or temporary flooding under any SLR scenario except for the 6.6 Feet SLR Scenario, which, given the new science released by OPC, is unlikely to occur by 2100 and may occur after the year 2150 (OPC 2024). This extreme scenario was only included for informational purposes and would occur well outside the lease term of the proposed Topgolf visitor-serving attraction operation. The Project is not expected to exacerbate SLR inundation or flooding in the Project area under any of the analyzed SLR scenarios. However, even with the proposed realignment of Liberator Way, projected temporary flooding conditions under the 4.9 Feet SLR Scenario are expected to impact the northeastern and western termini of Liberator Way. Additionally, given the significant uncertainty of future SLR conditions, the potential adaptation strategies included should be considered for additional protection of the Project area from potential future SLR inundation and temporary flooding from SLR with a 100-year storm surge.

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Source: Maxar Imagery 2022.

Harris & Associates

N

0 250 500

Feet

Figure 1

Existing Project Area

East Harbor Island Redevelopment/Topgolf and Waterfront Park Project



Source: San Diego Unified Port District 2024; Maxar Imagery 2022.

Harris & Associates

N

0 250 500

Feet

Figure 2

Proposed Project Area

East Harbor Island Redevelopment/Topgolf and Waterfront Park Project



Source: Maxar Imagery 2022.

Harris & Associates

N

0 250 500

Feet

Figure 3

Baseline Scenario – Existing Conditions

East Harbor Island Redevelopment/Topgolf and Waterfront Park Project



Source: CoSMoS 3.0 Phase 2 2016; Port of San Diego 2024; Maxar Imagery 2022.

Harris & Associates

N

0 250 500

Feet

Figure 4

Baseline Scenario - Proposed Project Conditions

East Harbor Island Redevelopment/Topgolf and Waterfront Park Project



Source: CoSMoS 3.0 Phase 2 2016; Port of San Diego 2024; Maxar Imagery 2022.

Harris & Associates

N

0 250 500

Feet

Figure 5

0.8 Foot SLR Scenario - Existing Conditions

East Harbor Island Redevelopment/Topgolf and Waterfront Park Project



Source: CoSMoS 3.0 Phase 2 2016; Port of San Diego 2024; Maxar Imagery 2022.

Harris & Associates

N

0 250 500

Feet

Figure 6

0.8 Foot SLR Scenario - Proposed Project Condition

East Harbor Island Redevelopment/Topgolf and Waterfront Park Project



Source: CoSMoS 3.0 Phase 2 2016; Port of San Diego 2024; Maxar Imagery 2022.

Harris & Associates

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0 250 500

Feet

Figure 7

1.6 Feet SLR Scenario - Existing Conditions

East Harbor Island Redevelopment/Topgolf and Waterfront Park Project



Source: CoSMoS 3.0 Phase 2 2016; Port of San Diego 2024; Maxar Imagery 2022.

Harris & Associates

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0 250 500

Feet

Figure 8

1.6 Feet SLR Scenario - Proposed Project Conditions

East Harbor Island Redevelopment/Topgolf and Waterfront Park Project



Source: CoSMoS 3.0 Phase 2 2016; Port of San Diego 2024; Maxar Imagery 2022.

Harris & Associates

N

0 300 600

Feet

Figure 9

2.5 Feet SLR Scenario - Existing Conditions

East Harbor Island Redevelopment/Topgolf and Waterfront Park Project



Source: CoSMoS 3.0 Phase 2 2016; Port of San Diego 2024; Maxar Imagery 2022.

Harris & Associates

N

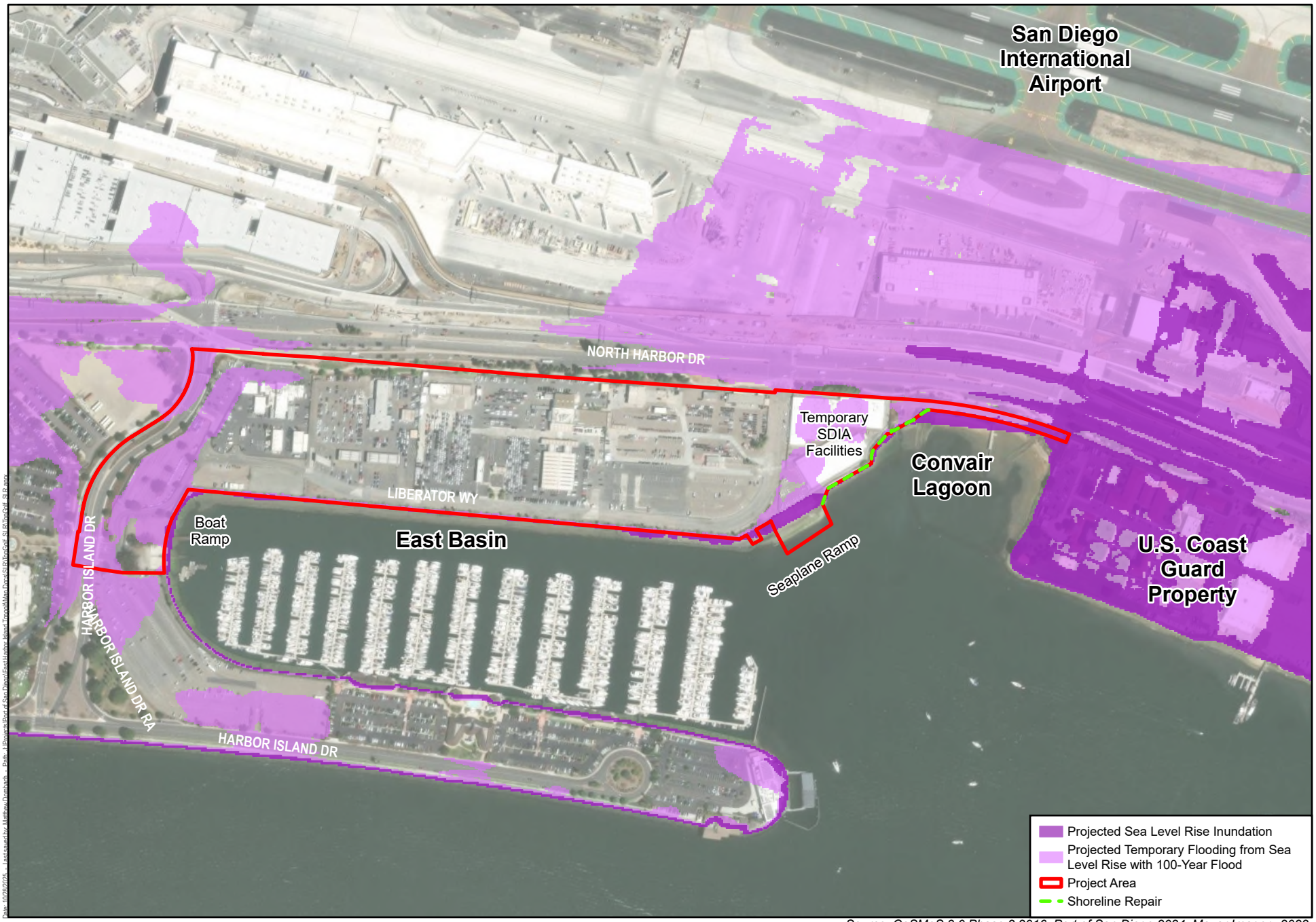
0 250 500

Feet

Figure 10

2.5 Feet SLR Scenario - Proposed Project Conditions

East Harbor Island Redevelopment/Topgolf and Waterfront Park Project



Source: CoSMoS 3.0 Phase 2 2016; Port of San Diego 2024; Maxar Imagery 2022.

Harris & Associates

N

0 250 500

Feet

Figure 11

4.9 Feet SLR Scenario - Existing Conditions

East Harbor Island Redevelopment/Topgolf and Waterfront Park Project



Source: CoSMoS 3.0 Phase 2 2016; Port of San Diego 2024; Maxar Imagery 2022.

Harris & Associates

N

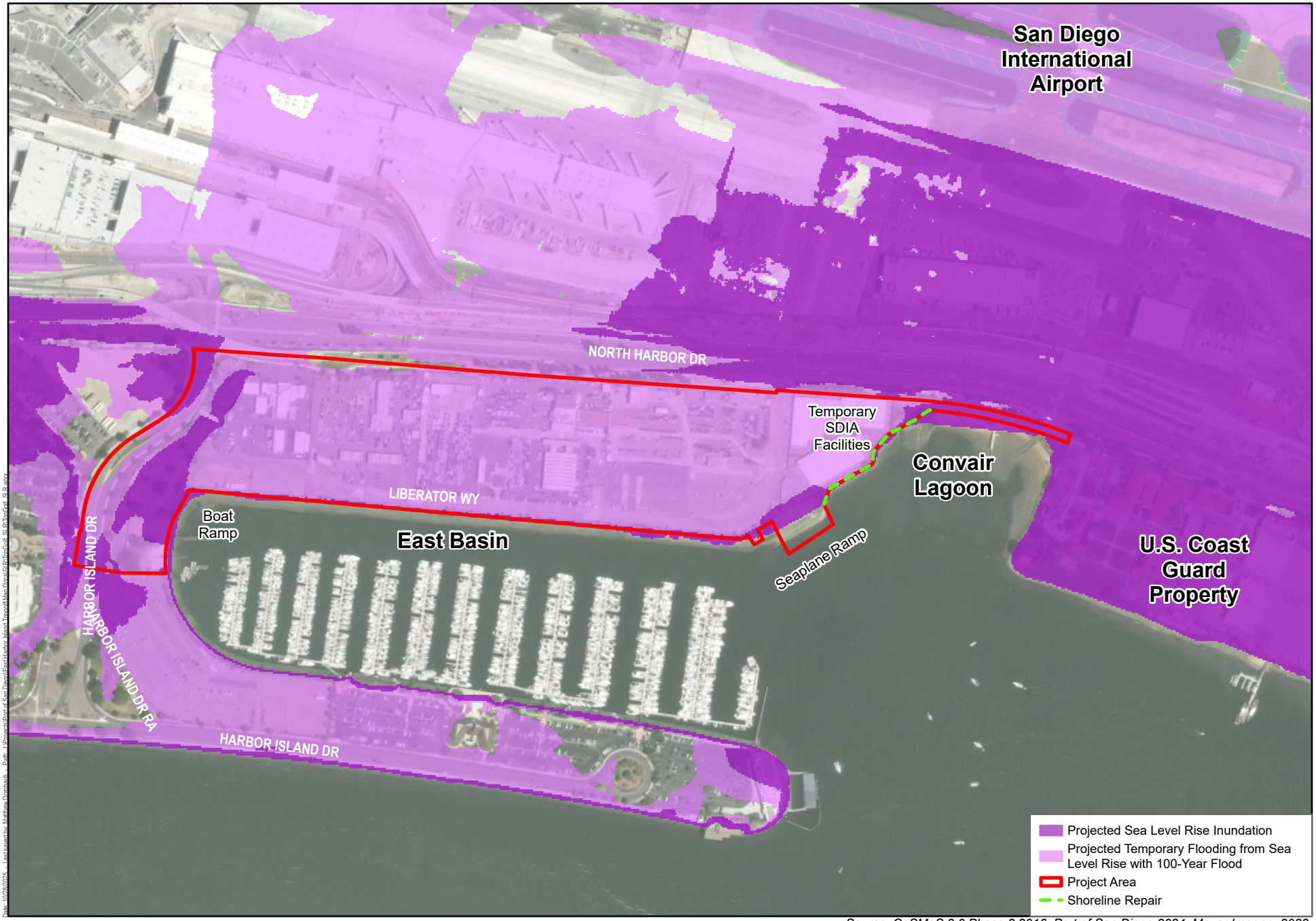
0 250 500

Feet

Figure 12

4.9 Feet SLR Scenario - Proposed Project Conditions

East Harbor Island Redevelopment/Topgolf and Waterfront Park Project



Source: CoSMoS 3.0 Phase 2 2016; Port of San Diego 2024; Maxar Imagery 2022.

Harris & Associates

N

0 300 600

Feet

Figure 13

6.6 Feet SLR Scenario - Existing Conditions

East Harbor Island Redevelopment/Topgolf and Waterfront Park Project



Source: CoSMoS 3.0 Phase 2 2016; Port of San Diego 2024; Maxar Imagery 2022.

Harris & Associates

N

0 250 500

Feet

Figure 14

6.6 Feet SLR Scenario - Proposed Project Conditions

East Harbor Island Redevelopment/Topgolf and Waterfront Park Project