

# Implementation and Financing Strategies

Islais Creek Southeast Mobility Adaptation Strategy

San Francisco Planning

Prepared by AECOM

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## Introduction

This memo presents a summary of proposed implementation strategies for the Islais Creek Southeast Mobility Adaptation Strategy (ICSMAS), including funding and financing opportunities, for the near-term strategies that are intended for completion by 2050. Given that infrastructure implementation tends to take several years, planning for the near-term projects – particularly those with lengthy environmental clearance and multi-actor oversight – should begin in the immediate future. This memo considers alternative implementation approaches, including implementing individual projects separately, or taking a more holistic approach and implementing multiple projects in tandem. While a combination of approaches may be required to successfully implement the full suite of projects recommended in the ICSMAS over time, pursuing a more holistic approach wherever possible can result in many benefits, including resource, schedule, and financing efficiencies as well as design improvements.

This memo includes discussion of the following topics:

- Key considerations that should inform implementation of the ICSMAS.
- Implementation strategies intended to expedite project delivery and identify efficiencies.
- Potential implementation mechanisms, including the potential to create a new entity dedicated to project implementation in the Islais Creek district.
- A review of current funding and financing opportunities.
- Potential considerations for implementing the 2080 strategies.
- Immediate next steps for implementation.

## Key Considerations

Major infrastructure projects are costly and time-consuming by nature, and costs and timelines are exacerbated when they encounter funding and financing challenges, extensive regulatory requirements, and multi-party coordination. The implementation strategies offered in the following section are specifically informed by the state and federal funding, financing, and regulatory context for the project. Additional factors that were considered in designing the implementation strategies include:

- **The City is unlikely to be able to fully fund the 2050 strategies on its own and will need to draw from a diverse set of sources.** The City's current revenue streams are most likely fully committed, and any available funding will likely only cover a small portion of project costs. The City will, instead, need to identify, source, and stitch together funding from a variety of resources, which can be both labor intensive and time consuming.
- **There is growing competition for grant funding.** With public agencies across the United States competing for grant funding, a process exasperated by the COVID-19 pandemic and tightening public budgets, the City and Port are not guaranteed to fund their projects with grant money alone. The City agencies will want to prioritize implementation strategies that best position their projects to receive grant funding, while simultaneously identifying other funding and financing strategies, with the expectation that preferred strategies may not materialize. Further, multiple City- and Port-led projects will likely be vying for the same grants, requiring the City and Port to think strategically about their entire portfolio of projects, not just those outlined in the ICSMAS.
- **Multiple public agencies will be involved with project permitting, including environmental clearance and design approvals, resulting in a bureaucratic and politically challenging process.** Table 1 lists factors that contribute to project complexity and an extended implementation timeline. Many of the projects proposed in the ICSMAS cross multiple parcels, have multiple

beneficiaries, impact active Port operations, and about a navigable waterway. As a result, multiple parties will be involved with project review and approval. Each party or agency will have its own unique approval processes, some of which can take multiple years to complete. Opportunities to streamline multi-party bureaucracy will expedite project implementation.

- At the same time, multiple parties will also benefit from the projects proposed in the ICSMAS, presenting opportunities for partnerships.** Most of the flood mitigation strategies offer benefits to multiple parties, including across several public agencies and community stakeholders. Improvements to the public realm and public infrastructure have cascading benefits for SFPUC, the Port, SFMTA, private industry, local businesses and residents, and future economic development partners. If multiple parties collaborate to prioritize the same set of projects, then shared momentum can facilitate quicker implementation.
- Coordinating project implementation, rather than taking a siloed or piecemeal approach, can create opportunities for efficiencies in both project design and financing.** Project efficiencies can be gained when multiple projects are implemented together in a coordinated way. Yet, the forces that influence infrastructure projects are often not conducive to the multi-benefit approach. Combining multiple projects can be complicated, especially when navigating between multiple project sponsors, landowners, grant timelines and requirements, public and political support for projects, and regulatory hurdles. These challenges often lead agencies to implement projects following the “path of least resistance,” which can result in piecemeal implementation of projects rather than comprehensive and cohesive implementation of a suite of projects.

Given this context, certain project attributes contribute to the implementation process, timeline, and costs, as outlined in Table 1.

**Table 1 Project Attributes Contributing to Implementation Timeline and Costs**

<b>Expedited Process (1 to 2 years)</b>	<b>Moderately Complex Process (3 to 5 years)</b>	<b>Complex and Prolonged Process (4 to 8 years)</b>
Individual project with clear and strong project sponsor	Multiple project components with single or multiple project sponsors	Multiple project components with single or multiple project sponsors
Available or existing funding source	Multiple funding sources	Multiple, uncertain, or new funding sources; robust spending oversight
No or minimal environmental impacts	Avoidable or mitigatable environmental impacts	Substantial unavoidable environmental impacts with compensatory mitigation
Minimal environmental clearance requirements	Moderate environmental clearance requirements	Substantial environmental clearance requirements
Minimal state or federal design requirements	Moderate state and federal design requirements	Robust state or federal design requirements
No public or political controversy	Some public or political controversy	High public or political controversy
Single landowner	Few landowners	Multiple landowners
Simple engineering design and minimal review	Moderately complex engineering and design	Complex engineering design and robust review

Source: Adapted from the Dumbarton Bridge West Approach + Adjacent Communities Resilience Study Technical Report (2020).

## Implementation Strategies

The proposed implementation strategies are intended to achieve the following: 1) deliver project benefits as quickly as possible; 2) identify opportunities for design improvements; 3) efficiently secure project funding; and 4) minimize resource expenditures (labor and other costs). These strategies are intended to apply to all projects, regardless of type (e.g., transportation, stormwater, or sea level rise management) and implementation sponsor.

### Identify projects that fulfill multiple goals and offer benefits to multiple parties.

Prioritizing projects that achieve several of the ICSMAS' goals and benefit multiple parties allows more people to benefit from the public infrastructure investments sooner and can be helpful in building widespread support for additional investments in the area. Many grants, including FEMA's Building Resilient Infrastructure and Communities (BRIC) grant program, give preference to projects that benefit underserved communities like Bayview-Hunters Point. Clearly illustrating how projects provide protection to both residents and local ecosystems can help to secure more grant funding while simultaneously aligning with the City's own racial and social equity priorities. Likewise, shared interest in projects can also pave the way for inter-agency partnerships whereby design and resource efficiencies can be captured. Table 2 summarizes the role each Reach plays in furthering shared community goals.

**Table 2 Reach Roles in Furthering Community Goals**

Reach	Protected Assets	Project Goals
1) Northeastern Waterfront	Pier 80 with Warm Water Cove Park, Muni Metro East	Environment, Economy, Community and Social Equity, Transportation
2) Creek Channel Crossing	Islais Creek Bridge with Illinois Street Bridge, Tulare Park	Transportation, Economy, Community and Social Equity
3) Northwestern Creek Bank	Islais Creek Bus Facility and Marin Yard with private property	Transportation, Environment, Community and Social Equity
4) Southwestern Waterfront	City parcels and private property, pump station	Environment, Community and Social Equity, Economy
5) Southeastern Waterfront	Piers 90, 92, 94 and 96, Backlands, Pier 94 wetlands	Economy, Environment

### Group projects together by type.

To capitalize on implementation efficiencies and design improvement opportunities, grouping projects together by type (e.g., hard shoreline protection, nature-based solutions, event-based coastal protection, earthen coastal protection and stormwater management) can reduce competition for grant funding, make projects more competitive for funding, and ease design and permitting approval processes. See Appendix B for project type assignments.

### Leverage planned capital projects to prepare or implement future projects.

The City's existing capital improvement plan (CIP), OneSF, includes several projects that may overlap with projects proposed in the ICSMAS. For CIP projects that are still in early stages of development, there may be opportunities to augment scopes and capture synergies with flood protection strategies proposed in the ICSMAS. Current CIP projects that may offer synergies are noted in Appendix A. Beyond the CIP, the design and construction of other future capital projects should also be coordinated wherever possible to use resources efficiently. For example, pedestrian, bicycle, and other streetscape improvements south of Islais Creek could be timed to coincide with the construction of the proposed Caltrain Station at Oakdale Ave. Shorter term projects, such as SFMTA's Evans Avenue Quick-Build project, which is in the ICSMAS district, also have the potential to offer efficiency benefits.

### Pursue multiple funding sources for projects.

ICSMAS flood protection projects are more likely to receive funding when there are multiple contributing sources. Multiple funding sources increases confidence in the project being implemented, reduces the burden on a single funding resource, and reflects widespread support for the project.

### **Time pre-development activities to strategically position projects for future funding and financing opportunities.**

Smaller flood protection projects, or lower cost phases (such as feasibility studies), could source funds from San Francisco's Pay-As-You-Go (Pay-Go) program, although available funding in this program has been reduced in the wake of the COVID-19 pandemic and is expected to take many years to return to pre-pandemic funding levels. Meanwhile, larger projects with more substantial pre-development costs, such as pre-bond planning, can pursue funding from the City's Capital Planning Fund. Pre-development activities should be timed to coincide with the City's future general obligation bond issuances, which will each prioritize a project type (e.g. flood protection, transportation, parks and open space). City investment in the pre-development phase of a project can also better position projects for future inclusion in voter-approved tax measures, which typically require projects to have completed initial design and review phase (e.g., environmental clearance and/or approved design documents).

### **Consider multiple funding scenarios and build flexibility into the funding and financing process.**

Funding for flood protection projects is not guaranteed. Grants can be suspended, voters can turn down a new tax, or projects can fail to receive environmental clearance. Given these uncertainties, creating financing strategies that mimic the design of the Adaptation Pathways in the ICSMAS, with triggers and decision points, can provide flexibility and nimbleness, and facilitate stronger implementation outcomes.

## **Implementation Mechanisms**

While the above implementation strategies are intended to achieve co-benefits for the community, design enhancements, and resource efficiencies, they do not resolve the question of which agencies coordinate these strategies and implement each project. Two implementation mechanisms are available to the City and the Port, which are summarized in Table 3.

### **Identify a single public agency to sponsor individual projects.**

The traditional mechanism for implementing infrastructure projects is to have a single project sponsor source funding, navigate regulatory approvals, and lead design and construction. The project sponsor is identified by their ownership of or jurisdiction over the impacted land. While this approach is the primary implementation mechanism used by the City and the Port, it requires the project sponsor to dedicate staff time and agency resources to the effort, potentially limiting the agency's ability to pursue other opportunities and priorities. By nature, this approach gives preference to the lead agency's priorities, design guidelines, and approval requirements, even when the project is intended to provide multiple benefits (such as ecological enhancements incorporated with flood protection measures). This approach can also limit access to the full array of available grants, as some grants may be earmarked for specific agency types.

### **Create a new entity to implement the ICSMAS projects.**

The City and Port could instead elect to form a new entity, such as a joint powers authority, to lead funding/financing, design, and construction of the ICSMAS projects. This approach, which was used for the Transbay Transit Center, pools agency resources to create a new entity whose sole purpose is to realize one large project or suite of smaller projects. Another framing of this approach is the creation of a "Joint Benefits Authority" (JBA), which underscores that the entity is intended to realize shared benefits for all parties.

Forming a new entity can reduce the strain on existing agency departments, while ensuring that a dedicated staff is available to pursue funding, coordinate public participation, navigate permitting, and lead design and construction of the ICSMAS projects. This new entity would have jurisdictional authority over all identified projects and the entire district, thus creating a single set of priorities and design guidelines and increasing opportunity for shared project benefits. A project need not be exclusively a shoreline protection project or exclusively a bridge retrofit project, but a project that is intended to realize both benefits simultaneously.

**Table 3 Implementation Mechanism Considerations**

	<b>Pros</b>	<b>Cons</b>
Single Agency Sponsor	<ul style="list-style-type: none"> <li>No startup costs</li> </ul>	<ul style="list-style-type: none"> <li>Gives preference to the sponsor's priorities, design guidelines, and processes</li> <li>Requires extended resources from the sponsor agency</li> </ul>
Joint Benefits Authority (JBA)	<ul style="list-style-type: none"> <li>Prioritizes shared benefits</li> <li>Reduces risks and costs associated with multi-benefit projects</li> <li>Minimizes resource demand on one agency</li> </ul>	<ul style="list-style-type: none"> <li>Startup costs and time</li> </ul>

## Funding & Financing Sources

The near-term projects proposed in ICSMAS are estimated to cost over \$880 million between now and 2050 (ICSMAS Conceptual Cost Estimate, June 2021). To further study, design, and implement the full suite of projects, the City and Port will need to secure entirely new funding sources. There are three core public funding categories that traditionally fund infrastructure investments: federal and state grants, local and regional revenue sources (e.g. taxes and fees), and developer impact agreements. In each of these categories there are a variety of opportunities that the City and Port could pursue, each with their own unique features that may or may not make them attractive to target projects or implementing agencies.

When prioritizing which opportunities to pursue, there are numerous criteria to consider, including, but not limited to, compatibility between the project and the funding source, ease of securing funds, revenue-generating potential, flexibility of funds, administrative complexity, and equity implications.<sup>1</sup> The full list of funding and financing opportunities analyzed for the ICSMAS are included in Appendix A.

### Grant Opportunities

#### Federal Grants

Federal grants can cover a significant portion – often up to 80 percent – of capital costs for infrastructure projects. These grants – particularly those that offer larger sums of money, such as U.S. Department of Transportation's RAISE Grant Program (Rebuilding American Infrastructure with Sustainability and Equity) – also tend to be highly competitive and the application process can be lengthy, with additional time and resources required to pre-position and lobby for the grant opportunity. Federal grants tend to be administratively complex to manage, often requiring significant reporting and layered oversight and approvals. Given high overhead costs involved in securing and using federal funding, these grants to be better suited for high-cost projects – those that would be difficult to fund without federal grant funding. In the context of the ICSMAS, combining several similar or related projects to create a single, larger project may result in a project that is competitive for these grants and warrants the high overhead costs. The current list of applicable federal grants are summarized in Table 4.

<sup>1</sup> These criteria are adapted from *Fortifying San Francisco's Great Seawall: Strategies for Funding the Seawall Resiliency Project (2017)*.



**Table 4 Current Federal Grant Opportunities Applicable to ICSMAS Strategies**

Category	Administering Organization	Program/Grant Name	Funding Range per Grantee
Flood Management	FEMA	Building Resilient Infrastructures and Communities (BRIC) grant program (previously Pre-Disaster Mitigation Program)	Up to \$1.2M (\$600k on mitigation planning activities)
Shoreline Protection	NOAA	Coastal Resilience Grants Program	\$100k - \$2M
Green Infrastructure & Nature-Based Solutions	NOAA	Effects of Sea Level Rise (ESLR) Program	\$200k - \$500k annually, but up to \$2M across all years
Flood Management	FEMA	Flood Mitigation Assistance (FMA) Grant	Up to \$4M for project scoping and up to \$70M for community flood mitigation projects
Parks & Recreation	Department of the Interior - National Park Service	Outdoor Recreation Legacy Partnership Program (ORLP)	\$700k - \$750k
Water Quality & Management	EPA (Region 9)	San Francisco Bay Water Quality Improvement Fund (SFBWQIF)	\$500k - \$2M
Shoreline Protection	US Army Corps of Engineers	Small Flood Damage Reduction Projects (Section 205)	\$100k - \$7M
Shoreline Protection	EPA (Region 9)	Urban Waters Small Grants	Up to \$60k
Transportation & Mobility	U.S. Department of Transportation (DOT)	Rebuilding American Infrastructure with Sustainability and Equity (RAISE) Discretionary Grant Program	\$500k - \$25M+
Transportation & Mobility	U.S. Department of Transportation (DOT)	Port Infrastructure Development Program Discretionary Grants	\$4M - \$20M

### State and local grants

State and local grants tend to be less resource intensive and administratively complex compared to federal grants. With these grants, implementing agencies may have more exposure to upcoming funding priorities, allowing them to pre-position more effectively. A key consideration for state, local, and federal grants is understanding which other local projects, including those within the same agency, may be pursuing the same grant opportunities and creating strategies to align project needs with grant priorities and timing. The current list of applicable state and local grants are summarized in Table 5.

**Table 5 Current State and Local Grant Opportunities Applicable to ICSMAS Strategies**

<b>Category</b>	<b>Administering Organization</b>	<b>Program/Grant Name</b>	<b>Funding Range per Grantee</b>
Transportation & Mobility	Caltrans	Active Transportation Program (ATP)	\$50k - \$3M
Transportation & Mobility	Caltrans	Low Carbon Transit Operations Program (LCTOP)	\$20k - \$4M
Transportation & Mobility	Caltrans	SB1 State Local Partnership Program (LPP)	~\$200k - \$5M
Transportation & Mobility	Caltrans	Sustainable Communities Grant	\$100k - \$700k
Green Infrastructure	California Coastal Conservancy	California Air Resources Board (Cap & Trade Funds) - Climate Ready Program	\$60k - \$400k
Shoreline Protection	California Coastal Conservancy	California Coastal Conservancy (Prop 1 Funds)	\$50k - \$1M
Parks & Recreation	California Coastal Conservancy	Prop 68 Climate Adaptation Funds	Up to \$1M
Transportation & Mobility	Department of Housing and Community Development	Affordable Housing and Sustainable Communities (AHSC) Program	Varies depending on the project
Parks & Recreation	Department of Parks and Recreation	Land and Water Conservation Fund (LWCF) State Grants Program	~\$800k and up to \$6M
Parks & Recreation	Department of Parks and Recreation	Statewide Park Program (SPP)	\$200k - \$8.5M
Shoreline Protection	Department of Water Resources	Integrated Regional Water Management Grants (IRWM): Implementation Grant Program	\$250k - \$4M
Parks & Recreation	Natural Resources Agency	Urban Greening Program	\$100k - \$2M
Shoreline Protection	California Ocean Protection Council	California Ocean Protection Council Prop 1 Grants	\$300k - \$2.5M
Transportation & Mobility	Metropolitan Transportation Commission (MTC)	Community-Based Transportation Planning Program	\$75k - \$300k
Transportation & Mobility	Metropolitan Transportation Commission (MTC)	Lifeline Program	\$400k - \$3M
Transportation & Mobility	Metropolitan Transportation Commission (MTC)	Transportation Development Act Article 3	\$50k - \$200k
Transportation & Mobility	San Francisco County Transportation Authority (SFCTA)	One Bay Area Grant	\$100k - \$9M

Green Infrastructure	San Francisco Public Utilities Commission (SFPUC)	Green Infrastructure Grant Program	up to \$2 million in funding
Shoreline Protection	San Francisco Bay Restoration Authority	San Francisco Bay Restoration Authority Competitive Grant	Up to \$100,000
Green Infrastructure	Wildlife Conservation Board	Climate Adaptation and Resiliency Program	\$100k - \$1M

### Philanthropic grants

Grants from non-governmental organizations (NGOs) can also be a source of potential funding. Sometimes these grants are offered annually or on a relatively consistent basis, while other times these grants are offered on an as-available basis, as is the case with Amazon's Right Now Climate Fund (see Appendix A for details). To successfully secure NGO funding, it will be essential to match NGOs' specific funding priorities with projects, or project components, that are most representative of those priorities.

### Revenue-generating & Financing Strategies

Public infrastructure requires local funding sources. These sources are both essential to covering the costs of projects and for securing grants, which often require a local match. The City and County of San Francisco, as the local taxing agency, can use a variety of revenue-generating tools to establish project funding, ranging from revenue bonds to assessment districts to user fees. These strategies are summarized in Table 6. Each tool, however, has its own set of opportunities and drawbacks that may or may not make it a good fit for the projects proposed in the ICSMAS. These factors related to timing, revenue-generating potential, political feasibility, administrative complexity, and equity. For example, a new sales tax has the potential to generate substantial funding that can be earmarked for multiple projects (including those beyond the ICSMAS), but sales taxes also tend to be regressive. Meanwhile, an assessment district may be politically feasible and administratively simple to implement but may not generate substantial cash flow until redevelopment occurs in the area, which may take several years.

The equity component of financing strategies is especially important in the Islais Creek, Bayview-Hunters Point area. A financing strategy that creates new fees or taxes for low-income residents would not achieve the Strategy's long-term goals promoting community and social equity. Capital improvements and their implementation strategies should be aligned and implemented in tandem with other policies or programs that protect the local population from displacement.

**Table 6 Revenue-Generating and Financing Opportunities**

Category	Type	Strategy	Cost Burden Constituency
Revenue-generating	Taxes & Fees	New Sales Taxes	Consumers
	Value Capture	Tax Increment Financing, including Infrastructure and Enhanced Infrastructure Finance Districts (IFD/EIFD)	Property owners within designated boundaries
	Value Capture	Community Facility District (CFD)	Property owners within designated boundaries
	Value Capture	Assessment District	Property owners within designated boundaries
	Taxes & Fees	Development Impact Fees, including Transit Impact Development Fees	Developers and their renters
	User Fees	User Fees (e.g. access fees)	Users of publicly provided services
	User Fees	Stormwater Fees, Utility Service Charges (and/or other applicable management fees)	Ratepayers
	User Fees	Regional Measures/Bridge Tolls	Bridge users
Financing	Bond	Environmental Impact Bond (EIB)	Tax-paying residents and businesses
	Bond	Revenue Bonds	Users of publicly provided services
	Bond	General Obligation (G.O.) Bonds	Tax-paying residents and businesses
	Bond	Resilience Bonds/Insurance Value Capture	Tax-paying residents and businesses
	Loan	Infrastructure State Revolving Fund (ISRF)	Tax-paying residents and businesses
	Investment	Public Private Partnership	Tax-paying residents and businesses

## Role of Adjacent Development Projects

### Adjacent development and redevelopment projects

Developer contributions are a common funding source for infrastructure projects, particularly projects that directly service and enhance a new development project. Developer contributions can be negotiated to either provide funding (to support the City or Port in project implementation) or delivered in-kind (with the developer designing and constructing the project). To pursue a developer contribution, there must be a direct relationship between the development project and the project that is being delivered.

### Community benefit agreements

Alternatively, the City can negotiate community benefit agreements with developers, particularly those who may be purchasing or redeveloping publicly owned land. These agreements tend to offer more

flexibility than developer contributions and are often negotiated through the City's Office of Economic and Workforce Development.

## Implementation & Funding Considerations for 2080

Further analysis of the 2080 strategies would not begin until trigger points, as indicated on the Adaptation Pathways for each Reach, have occurred. Most trigger points are expected to occur after 2040, indicating that further project analysis, design, and funding pursuits would not occur until after that point. While seeking funds for unspecified future projects poses challenges, there are strategies that can be pursued in the near-term to ease implementation later.

### Challenges

- **Grant funding and financing landscape is likely to be different in the future.** Infrastructure funding and financing is highly variable depending on the economic and political context. Grants that currently exist may not be available in the future, and new grants may be created in their place. Likewise, new financing tools may be designed and widely implemented by 2050 that are more favorable to the City, Port, and its taxpayers than current tools. Given that this landscape is constantly changing, it is likely to be more efficient to wait to pursue specific funding and financing strategies for longer-term projects.
- **Funding near-term priorities with today's dollars is preferable to saving for future, long-term projects.** The City and Port manage many critical priorities, ranging from transit investments and street maintenance to affordable housing and homeless services. Existing funds are needed to address these priorities. Rather than allocating existing funds to projects that are planned far into the future, consider implementation mechanisms and revenue sources that provide the flexibility to adapt over time to meet changing needs (as discussed below).

### Strategies

- **Consider both the 2050- and 2080-time horizon when selecting implementation mechanism.** If the joint benefits authority mechanism is used for 2050 strategies, then it could remain in place through the implementation of 2080 strategies. It could also monitor and lead decision-making for each trigger point in the various Reaches. If the traditional single-agency sponsor route is taken, then a specific agency (e.g., DPW or the Port) should be assigned with monitoring trigger points and convening stakeholders for decision-making discussions.
- **Leverage Adaptation Pathways to develop funding and financing scenarios.** The Adaptation Pathways offer a framework for designing funding and financing scenarios. These scenarios would be tied to trigger points and indicate when work needs to begin on which tasks, which funding and financing resources are needed for those tasks, and which resources are available.
- **Prioritize opportunities to create long-term revenue streams.** Many of the financing strategies outlined in Appendix A can be extended over time (often with voter approval) to fund projects over many decades. If implemented for near-term strategies, then they could provide funding for the early stages, such as feasibility and conceptual design, of 2080 strategies.

## Next Steps

Across the ICSMAS district and the five proposed Reaches, there are nearly 70 near-term strategies for improving flood resilience, mobility, environmental conditions, and economic vitality. Implementing these strategies – even just a fraction of them – will be most effective if several projects are pursued in tandem. In order to ensure the most effective and efficient outcomes, multiple coordinated strategies will be planned and implemented together. Next steps for this effort may include:

- **Conduct analysis of total economic, social, and environmental co-benefits offered by the strategies.** Prioritization of projects to implement first will be dependent on understanding which projects offer the most short- and long-term benefits to the community, local economy, and environment. While the ICSMAS “Economic Impacts of the Near-term Strategies on Port Assets” analysis summarizes the economic impacts of near-term strategies related to the Port’s key assets, the analysis exclusively considers the economic impacts of implementing (e.g. designing, engineering, and constructing) capital projects and does not consider the long-term benefits of avoided flood damages, protected industrial and business operations, increased mobility, and environmental protection. Further analysis of all benefits, such as a triple bottom line analysis (as used previously by the SFPUC), will clarify which projects offer the highest cost-benefit ratios.
- **Identify synergies with upcoming general obligation bond schedules.** The City’s 2022 – 2031 CIP, OneSF, proposes issuing general obligation (G.O.) bonds almost every year between 2022 and 2031 with each year’s bond issuance funding specific types of projects. The 2022 bond is expected to fund transportation-related projects while the 2026 bond will fund waterfront safety projects and the 2028 bond will fund parks and open space projects. ICSMAS strategies that fall into these categories may find funding and financing synergies with the City’s G.O. bond schedule, which would require pre-planning for these projects to begin in the immediate future.
- **Identify alignment opportunities with other planned capital projects.** One way of identifying relatively easy projects to implement, thus offering potential for quick wins, is by determining whether there are planned capital improvements, including those funded by forthcoming G.O. bonds, in the District and exploring opportunities to augment those projects to include ICSMAS strategies. In this vein, SFPUC has committed to coordinating with the project team to contribute data on relevant capital investments via a future memo, since this grant project was primarily focused on SFMTA and Port assets.
- **Determine which strategies will require environmental review, technical analysis, and/or complex partnerships and permitting.** Many of the ICSMAS strategies will have longer implementation timelines. These strategies, such as those that require multiple implementation partners and/or oversight agencies, tend to have numerous and lengthy steps before reaching the design and engineering phase. Beginning the first phase of work on these longer-term projects can build on the momentum created by this planning effort and capitalize on the current grant context, which favors mitigation and adaptation projects in underserved communities.
- **Pursue a cohesive implementation mechanism.** The interventions that the City has identified for the District are highly interdisciplinary and advance the goals of many agencies and stakeholders. With that in mind, the team is aware that new models of integrated planning and project delivery will be needed to be successful. The ICSMAS team will explore the Joint Benefits Authority (JBA) implementation mechanism, a tool for advanced capital planning and blended funding, to advance the project goals. Efforts to formalize a JBA will take time and resources. Once established, the JBA will need additional time and resources to secure staffing, funding sources, and operational practices. While conversations about JBA have already been underway, next steps may include strategic conversations with the City’s other joint authorities and engaging the City’s legal department for initial discussions. The JBA should, ideally, be in place to implement the first round of “low-hanging fruit” and quick “wins” projects.

While these next steps are underway, the City and Port should continue to explore how shoreline and shoreline-adjacent improvements can best be accessed by San Franciscans and how this connectivity, in the form of green infrastructure for stormwater management/flood resilience and improved pedestrian/bike access, can be a driver for improved neighborhood spaces in the District. The ICSMAS team should look at site-specific flood resilient design strategies both for the public right-of-way and for assets within the District.

# Appendix A Funding & Financing Matrices



Table 7. Grant Funding Opportunities

Category	Administering Organization	Program/Grant Name	Eligible Receiving Agencies	Recurring?	Match Requirement	Funding Use (planning, implementation, both)	Eligible Projects	Funding Range per Grantee	Example ICSMAS Projects for which Grant May Be Applicable	Local Examples	Other Considerations (e.g. recurring funding source, ability to fund co-benefits or land acquisition, etc.)
Flood Management	FEMA	<b>Building Resilient Infrastructures and Communities (BRIC) grant program (previously Pre-Disaster Mitigation Program)</b>	State or local public agencies	Yes	Yes	Both	Public infrastructure projects, nature-based solutions, and enforcement of modern building codes	Up to \$1.2M (\$600k on mitigation planning activities)	<ul style="list-style-type: none"> <li>Implementation of nature-based shoreline adaptation strategies to expand Warm Water Cove Park (Reach 1).</li> <li>Elevation and protection Pier 80 to support maritime function (Reach 1).</li> <li>Protection of Marin Yard (Reach 3).</li> </ul>	Marin County was awarded \$150k through the Pre-Disaster Mitigation Program to establish a local hazard mitigation plan (2019).	<ul style="list-style-type: none"> <li>Funding may be used for land acquisition.</li> <li>Local governments are considered subapplicants and must submit subapplications to their state to receive funding.</li> <li>Once the State of California receives funds, a portion of BRIC funds are then targeted to disadvantaged communities (DACs), as defined by California SB 535.</li> </ul>
Shoreline Protection	NOAA	<b>Coastal Resilience Grants Program</b>	State or local public agencies	Yes	Yes	Planning	Coastal property and infrastructure protection	\$100k - \$2M	<ul style="list-style-type: none"> <li>Implementation of nature-based shoreline adaptation strategies to expand Warm Water Cove Park (Reach 1).</li> <li>Retrofit outfall at Islais Creek Promenade (Reach 2).</li> <li>Elevation and protection Pier 80 to support maritime function (Reach 1).</li> <li>Protection of Marin Yard (Reach 3).</li> </ul>	The City of Menlo Park, the Santa Clara Valley Water District, and the San Francisco Bay Joint Powers Authority were awarded \$1.5M to restore wetland and channel habitats and protect Bay communities from changing environmental conditions (2017).	<ul style="list-style-type: none"> <li>The most common aspects of projects that were awarded funds include natural and nature-based infrastructure initiatives, post-disaster recovery, and risk assessments.</li> </ul>
Green Infrastructure & Nature-Based Solutions	NOAA	<b>Effects of Sea Level Rise (ESLR) Program</b>	State or local public agencies and non-profits and educational institutions	Yes	No	Planning	Coastal resilience and surface transportation resilience	\$200k - \$500k annually, but up to \$2M across all years	<ul style="list-style-type: none"> <li>Implementation of nature-based shoreline adaptation strategies to expand Warm Water Cove Park (Reach 1).</li> <li>Adaptation of Islais Creek and Illinois Street Bridges (Reach 2).</li> </ul>	The U.S. Geological Survey and University of Oregon were awarded funds to allow coastal managers to evaluate vulnerability and inform restoration of San Francisco Bay tidal marshes (2015).	<ul style="list-style-type: none"> <li>Local governments are considered subapplicants and must submit subapplications to their state to receive funding.</li> <li>Funding can be used for ecosystem service valuations, which refers to the monetary and non-monetary valuation of nature and nature-based features (NNBF). This includes co-benefits and trade-offs of NNBF versus other coastal protection approaches.</li> </ul>
Flood Management	FEMA	<b>Flood Mitigation Assistance (FMA) Grant</b>	State or local public agencies	Yes	Yes	Planning	Reduction of flood damage to buildings	Up to \$4M for project scoping and up to \$70M for community flood mitigation projects	<ul style="list-style-type: none"> <li>Implementation of nature-based shoreline adaptation strategies to expand Warm Water Cove Park (Reach 1).</li> <li>Address flooding at the Islais Creek Bus Facility (Reach 3)</li> <li>Protect Marin Yard (Reach 3)</li> <li>Expand Islais Creek Park and waterfront access (Reach 4)</li> <li>Protect artist studios (Reach 4)</li> </ul>	Sacramento County was awarded \$1.28M to convert a 9.1-acre lot into open space and remove a flood-prone structure in order to mitigate flooding impacts.	<ul style="list-style-type: none"> <li>FEMA selects projects to fund based on severe repetitive loss (i.e., projects that will mitigate flood damage to at least 50 percent of structures).</li> </ul>
Parks & Recreation	Department of the Interior - National Park Service	<b>Outdoor Recreation Legacy Partnership Program (ORLP)</b>	Local public agencies	Yes	Yes	Both	Neighborhood parks and public lands, specifically in underserved areas	\$700k - \$750k	<ul style="list-style-type: none"> <li>Expansion of Islais Creek Park and waterfront access (Reach 4).</li> </ul>	The City and County of San Francisco was awarded \$375,225 for the Bay View Park Playground Improvement Project; funds were used to construct a new physical fitness path, exercise equipment, play structures, gathering/picnic areas, and improve existing pedestrian access points.	<ul style="list-style-type: none"> <li>Pre-identified economically disadvantaged cities are invited to submit grant applications for eligible projects, including parts of the San Francisco Bay Area.</li> <li>Grants must be matched at a minimum one-to-one ratio with state, local, and private funds, at least doubling the impact of the federal investment.</li> </ul>
Water Quality & Management	EPA (Region 9)	<b>San Francisco Bay Water Quality Improvement Fund (SFBWQIF)</b>	State or local public agencies	Yes	Yes	Both	Restore wetlands and watersheds, and reduce polluted runoff	\$500k - \$2M	<ul style="list-style-type: none"> <li>Retrofit outfall at Islais Creek Promenade (Reach 3).</li> <li>Conversion of western shoreline into tidal marsh (Reach 4).</li> <li>Expand Islais Creek Park and waterfront access (Reach 4).</li> <li>Improve ecosystem of creek channel (Reach 4)</li> <li>Restore/improve the creek and bay ecosystem at Lash Lighter Basin and Heron's Head Park (Reach 5)</li> </ul>	The San Francisco Planning Department was awarded \$1.2M to incorporate stormwater planters, run-off reducing improvements, and permeable concrete for the Cesar Chavez Street green retrofitting project (2015).	<ul style="list-style-type: none"> <li>Funding prioritizes projects that provide co-benefits relating to flood protection and disadvantaged communities</li> </ul>
Shoreline Protection	US Army Corps of Engineers	<b>Small Flood Damage Reduction Projects (Section 205)</b>	Local public agencies	Yes	Yes	Both	Nature-based and gray infrastructure solutions, including conservation, restoration, and improved land management, in wetland ecosystems.	\$100k - \$7M	<ul style="list-style-type: none"> <li>Implement nature-based shoreline adaptation strategies to expand Warm Water Cove Park (Reach 1)</li> <li>Retrofitting of outfall at Islais Creek Promenade (Reach 3).</li> <li>Conversion of western shoreline into tidal marsh (Reach 4).</li> <li>Improvements to ecosystem of creek channel (Reach 1).</li> <li>Incremental migration of Pier 94 wetlands (Reach 5).</li> </ul>	The City of Snoqualmie, Washington was awarded \$2.2M to create a flood hazard reduction plan, which included the development of levees and other nature-based solutions (2002).	<ul style="list-style-type: none"> <li>Levee and channel modifications are examples of flood control projects constructed utilizing the Section 205 authority.</li> <li>Feasibility studies are only fully federally funded up to \$100k; costs over \$100k are shared equally with the non-federal sponsor.</li> <li>Begins with a planning study to determine federal interest. USACE funded projects often have a long implementation timeline.</li> </ul>
Shoreline Protection	EPA (Region 9)	<b>Urban Waters Small Grants</b>	State or local public agencies	Yes	Yes	Both	Green infrastructure for managing run-off and coastal restoration	Up to \$60k	<ul style="list-style-type: none"> <li>Retrofit outfall at Islais Creek Promenade (Reach 3)</li> <li>Conversion of western shoreline into tidal marsh (Reach 4).</li> <li>Expand Islais Creek Park and waterfront access (Reach 4).</li> <li>Improve ecosystem of creek channel (Reach 4)</li> <li>Restore/improve the creek and bay ecosystem at Lash Lighter Basin and Heron's Head Park (Reach 5)</li> </ul>	Multiple federal, state, and local partners were awarded funds to revitalize the Los Angeles River watershed (2015).	<ul style="list-style-type: none"> <li>The EPA has identified San Francisco/Oakland as a priority metropolitan area to receive funds.</li> <li>The cost of recent land acquisition or easement may also qualify as match for a project involving work at the acquired site.</li> </ul>
Transportation & Mobility	U.S. Department of Transportation (DOT)	<b>Rebuilding American Infrastructure with Sustainability and Equity (RAISE) Discretionary Grant Program</b>	State or local public agencies	Yes	Yes	Both	Port infrastructure, intermodal projects, and surface transportation	\$500k - \$25M+	<ul style="list-style-type: none"> <li>Elevation and protection Pier 80 to support maritime function (Reach 1).</li> <li>Protection of Marin Yard (Reach 3).</li> <li>Construction of new bike and pedestrian crossing connecting Rosa Parks Plaza to Illinois Street at Tulare Park (Reach 2).</li> <li>Construction of boardwalk or pedestrian bridge to connect north and south banks of the creek (Reach 3).</li> </ul>	Port of Oakland received TIGER funding (a previous iteration of this grant) in 2012 for intermodal rail improvements. Also in 2012, CCSF received funding for surface transportation improvements in Mission Bay.	<ul style="list-style-type: none"> <li>Funding can be used for ROW acquisition.</li> <li>Highly competitive.</li> </ul>
Transportation & Mobility	U.S. Department of Transportation (DOT)	<b>Port Infrastructure Development Program Discretionary Grants</b>	Port Authorities	Yes	Yes	Both	Port infrastructure	\$4M - \$20M	<ul style="list-style-type: none"> <li>Elevation and protection Pier 80 to support maritime function (Reach 1).</li> <li>Protection of Marin Yard (Reach 3).</li> </ul>	The Port of Los Angeles received \$10M in 2020 to improve a freight interchange.	<ul style="list-style-type: none"> <li>Funded projects include a variety of activities, all of which are aimed at improving operability of maritime ports.</li> </ul>
Transportation & Mobility	Caltrans	<b>Active Transportation Program (ATP)</b>	State or local public agencies	Yes	No	Both	Capital improvements that increase use of active modes of transit	\$50k - \$3M	<ul style="list-style-type: none"> <li>Construction of new bike and pedestrian crossing connecting Rosa Parks Plaza to Illinois Street at Tulare Park (Reach 2).</li> <li>Construction of boardwalk or pedestrian bridge to connect north and south banks of the creek (Reach 3).</li> <li>Construct new pedestrian crossing at Islais Creek Park (Reach 4).</li> </ul>	Identified in SFMTA CIP as a funding source (2019 - 2023).	<ul style="list-style-type: none"> <li>Applicants are required to demonstrate that disadvantaged communities fully share in the benefits of the program.</li> </ul>
Transportation & Mobility	Department of Housing and Community Development	<b>Affordable Housing and Sustainable Communities (AHSC) Program</b>	Local transit, planning, or housing agencies	Yes	No	Both	Transit-oriented development projects, including affordable housing development	Varies depending on the project	<ul style="list-style-type: none"> <li>Look for shoreline protection and recreational access opportunities (Reach 3).</li> <li>Expand Islais Creek Park (Reach 4).</li> <li>Construct creek trail for waterfront access (Reach 4).</li> </ul>	CCSF was awarded \$30M to expedite the construction of crucial affordable housing and infrastructure projects at Sunnysdale and Potrero HOPE SF sites (2020).	<ul style="list-style-type: none"> <li>This grant is only applicable if used for an affordable housing project. While a new affordable housing project should not be built within a hazard area, if a project were built in the broader Islais Creek area then it could include co-benefits that prioritize sustainability, such as green infrastructure and multi-modal transit access.</li> </ul>
Green Infrastructure & Nature-Based Solutions	California Coastal Conservancy	<b>California Air Resources Board (Cap &amp; Trade Funds) - Climate Ready Program</b>	State or local public agencies	Yes, assuming funding is available	No, but recommended	Both	Adaptation planning and natural infrastructure	\$60k - \$400k	<ul style="list-style-type: none"> <li>Implement nature-based shoreline adaptation strategies to expand Warm Water Cove Park (Reach 1).</li> <li>Restore shoreline at Islais Creek (Reach 3)</li> <li>Convert western shoreline into tidal marsh (Reach 4).</li> <li>Expand Islais Creek Park and waterfront access (Reach 4).</li> <li>Improvements to ecosystem of creek channel (Reach 4).</li> <li>Incremental migration of Pier 94 wetlands (Reach 5).</li> <li>Restore/improve the creek and bay ecosystem at Lash Lighter Basin and</li> <li>Implement nature-based shoreline adaptation strategies to expand Warm Water Cove Park (Reach 1).</li> </ul>	San Francisco International Airport was awarded \$200k to assess the vulnerability of the airport and its neighbors to flooding from sea level rise and storms (2014).	<ul style="list-style-type: none"> <li>Funding may be used for land acquisition.</li> </ul>
Shoreline Protection	California Coastal Conservancy	<b>California Coastal Conservancy (Prop 1 Funds)</b>	State or local public agencies	Unknown	Yes	Both	Watershed protection and restoration	\$50k - \$1M	<ul style="list-style-type: none"> <li>Restore shoreline at Islais Creek (Reach 3)</li> <li>Convert western shoreline into tidal marsh (Reach 4).</li> <li>Expand Islais Creek Park and waterfront access (Reach 4).</li> <li>Improvements to ecosystem of creek channel (Reach 4).</li> <li>Incremental migration of Pier 94 wetlands (Reach 5).</li> <li>Restore/improve the creek and bay ecosystem at Lash Lighter Basin and</li> </ul>	The San Joaquin River Conservancy was awarded \$10M for water supply, watershed protection, and restoration projects for local waterways (2014).	<ul style="list-style-type: none"> <li>Must obtain a consultation from the California Conservation Corps (CCC) in order to be considered for funds.</li> <li>Supports funding of co-benefit projects, like assisting communities to prepare for the impacts of climate change.</li> <li>Funding may be used for land acquisition</li> </ul>
Shoreline Protection	California Ocean Protection Council	<b>California Ocean Protection Council Prop 1 Grants</b>	State or local public agencies	Yes	Yes	Both	Stormwater recapture, wetland, and coastal watershed restoration; shoreline health	\$300k - \$2.5M	<ul style="list-style-type: none"> <li>Restoration of shoreline along Islais Creek (Reach 4)</li> <li>Conversion of western shoreline into tidal marsh (Reach 4).</li> <li>Improvements to ecosystem of creek channel (Reach 4).</li> <li>Incremental migration of Pier 94 wetlands (Reach 5).</li> </ul>	The Port of San Francisco was awarded \$1.6M for adaptation planning and coordination efforts at Heron's Head Park Shoreline Resilience (2021).	<ul style="list-style-type: none"> <li>OPC anticipates granting funds to acquire property or develop projects that include carbon sequestration benefits as one co-benefit.</li> </ul>



Category	Administering Organization	Program/Grant Name	Eligible Receiving Agencies	Recurring?	Match Requirement	Funding Use (planning, implementation, both)	Eligible Projects	Funding Range per Grantee	Example ICSMAS Projects for which Grant May Be Applicable	Local Examples	Other Considerations (e.g. recurring funding source, ability to fund co-benefits or land acquisition, etc.)
Flood Management, Green Infrastructure & Nature-Based Solutions	Wildlife Conservation Board	<b>Climate Adaptation and Resiliency Program</b>	Local public agencies	Unknown	Yes	Both	Projects that protect and restore ecosystems	\$100k - \$1M	<ul style="list-style-type: none"> <li>All of Reach 1.</li> <li>All of Reach 5.</li> </ul>	Contra Costa County was awarded \$1.25M to restore and enhance coastal wetlands and adjacent habitats at the mouth of Walnut Creek and its tributary, Pacheco Creek (2020).	<ul style="list-style-type: none"> <li>Funding may be used for land acquisition of conservation easements that provide direct climate change adaptation and resilience benefits.</li> <li>WCB is seeking projects that provide adaptation and resilience to wildlife populations in the face of climate change.</li> </ul>
Shoreline Protection	California Department of Water Resources	<b>Integrated Regional Water Management Grants (IRWM): Implementation Grant Program</b>	Local public agencies	No, expected to end in 2021	Yes	Both	Watershed protection, restoration, and management projects	\$250k - \$4M	<ul style="list-style-type: none"> <li>Retrofit outfall at Islais Creek Promenade (Reach 3).</li> <li>Restoration of shoreline along Islais Creek (Reach 4).</li> <li>Conversion of western shoreline into tidal marsh (Reach 4).</li> <li>Improvements to ecosystem of creek channel (Reach 4).</li> <li>Restore/improve the creek and bay ecosystem at Lash Lighter Basin and Heron's Head Park.</li> </ul>	The San Francisco Public Utilities Commission was awarded \$538k for the San Francisco Zoo Recycled Water Pipeline Project (2020).	
Parks & Recreation	Department of Parks and Recreation	<b>Land and Water Conservation Fund (LWCF) State Grants Program</b>	State or local public agencies	Yes	Yes	Both	Public outdoor recreation areas, including wetlands creation, acquisition or restoration	~\$800k, but up to \$6M	<ul style="list-style-type: none"> <li>Expansion of Islais Creek Park and waterfront access (Reach 4).</li> </ul>	SF Parks and Recreation has been awarded LCWF grants, notably for public access improvements at Warm Water Cove (1975) and McLaren Park Trail Connector Trail Project (2011).	<ul style="list-style-type: none"> <li>Land acquisition projects are highest ranked.</li> </ul>
Transportation & Mobility	Caltrans	<b>Low Carbon Transit Operations Program (LCTOP)</b>	Local planning or transit agencies	Yes	No	Both	Transit mobility and accessibility improvements	\$20k - \$4M	<ul style="list-style-type: none"> <li>Construction of new bike and pedestrian crossing connecting Rosa Parks Plaza to Illinois Street at Tulare Park (Reach 2).</li> <li>Construction of boardwalk or pedestrian bridge to connect north and south banks of the creek (Reach 3).</li> <li>Construct new pedestrian crossing at Islais Creek Park (Reach 4).</li> </ul>	SFMTA was awarded \$3.3M to install transit bulbs, pedestrian upgrades, curb ramps, and crosswalks along the 27 Bryant route (2019).	<ul style="list-style-type: none"> <li>Funds will be awarded to projects that demonstrate public co-benefits.</li> </ul>
Parks & Recreation	California Coastal Conservancy	<b>Prop 68 Climate Adaptation Funds</b>	State or local public agencies	Yes	No, but recommended	Both	Creation of parks, enhancement of river parkways, and protection of coastal forests and wetlands	Up to \$1M	<ul style="list-style-type: none"> <li>Implement nature-based shoreline adaptation strategies to expand Warm Water Cove Park (Reach 1)</li> <li>Elevate and protect Pier 80 (Reach 1).</li> <li>Islais Creek and Illinois Street Bridge adaptation options (Reach 3).</li> <li>Expansion of Islais Creek Park and waterfront access (Reach 4).</li> <li>Restore and protect maritime and industrial use at Piers 90 &amp; 92.</li> </ul>	The City of San Jose was awarded \$140k for habitat restoration and reconstruction of the Coyote Creek Trail Singleton Road Crossing (2021).	<ul style="list-style-type: none"> <li>Funding may be used for land acquisition.</li> <li>Projects that use natural infrastructure and provide multiple benefits are prioritized.</li> </ul>
Transportation & Mobility	Caltrans	<b>SB1 State Local Partnership Program (LPP)</b>	Local transit agencies	Yes	Yes	Both	Active transportation, road conditions, aging infrastructure, health and safety benefits	~\$200k - \$5M	<ul style="list-style-type: none"> <li>Construction of new bike and pedestrian crossing connecting Rosa Parks Plaza to Illinois Street at Tulare Park (Reach 2).</li> <li>Construction of boardwalk or pedestrian bridge to connect north and south banks of the creek (Reach 3).</li> <li>Construct new pedestrian crossing at Islais Creek Park (Reach 4).</li> </ul>	SFCTA applied for \$8.7M in LPP funding for the Mission Geneva Safety Project to increase safety, improve transit reliability, and enhance the local business district (2020). Funds have not yet been awarded for the 2020 - 2021 cycle.	<ul style="list-style-type: none"> <li>SFMTA and SFCTA are eligible for both the Formulaic Program or the Competitive Program.</li> </ul>
Parks & Recreation	Department of Parks and Recreation	<b>Statewide Park Program (SPP)</b>	Local public agencies and non-profits	Yes	No	Both	Parks and recreation opportunities in underserved communities	\$200k - \$8.5M	<ul style="list-style-type: none"> <li>Expansion of Islais Creek Park and waterfront access (Reach 4).</li> </ul>	SF Parks and Recreation was awarded SPP grants to expand recreation opportunities in Boeddeker Park (2014).	<ul style="list-style-type: none"> <li>Cost of land acquisition may be charged to the grant.</li> <li>Potential for partnerships, growth, and renewal where few existed before.</li> </ul>
Transportation & Mobility	Caltrans	<b>Sustainable Communities Grant</b>	Local public agencies	Yes	Yes	Planning	Active transportation plans, including plans for bicycle, freight, and pedestrian master plans	\$100k - \$700k	<ul style="list-style-type: none"> <li>Construction of new bike and pedestrian crossing connecting Rosa Parks Plaza to Illinois Street at Tulare Park (Reach 2).</li> <li>Construction of boardwalk or pedestrian bridge to connect north and south banks of the creek (Reach 3).</li> <li>Construct new pedestrian crossing at Islais Creek Park (Reach 4).</li> </ul>	SFMTA was awarded \$352k to improve access and connectivity for residents in Visitacion Valley in light of the City's Vision Zero policy (2020).	<ul style="list-style-type: none"> <li>Funds will be awarded to projects that demonstrate public co-benefits.</li> </ul>
Parks & Recreation	California Natural Resources Agency	<b>Urban Greening Program</b>	Local public agencies	Unknown	No	Both	Conversion of an existing built environment into green space	\$100k - \$2M, though there are no maximum or minimum grant amounts	<ul style="list-style-type: none"> <li>Expansion of Islais Creek Park and waterfront access (Reach 4).</li> </ul>	The California State Parks Foundation was awarded \$894k for the Yosemite Slough Restoration and Development Project at Candlestick Point State Recreation Area (2017).	<ul style="list-style-type: none"> <li>Grant may be used to fund land acquisition for urban greening projects that do not include infrastructure development.</li> <li>It is unlikely that this funding source will be available again, though additional funding cycles are contingent upon the number of competitive applications.</li> </ul>
Transportation & Mobility	MTC	<b>Community-Based Transportation Planning Program</b>	Local public agencies	Yes, assuming funding is available	Yes	Planning	Community accessibility and mobility plans	\$75k - \$300k	<ul style="list-style-type: none"> <li>Construction of new bike and pedestrian crossing connecting Rosa Parks Plaza to Illinois Street at Tulare Park (Reach 2).</li> <li>Construction of boardwalk or pedestrian bridge to connect north and south banks of the creek (Reach 3).</li> <li>Construct new pedestrian crossing at Islais Creek Park (Reach 4).</li> </ul>	CCSF was awarded \$175k, which was allocated to plans in Bayview Hunters Point, Potrero Hill, and Mission-Geneva, among others (2017 - 2020).	<ul style="list-style-type: none"> <li>Any funds not used within nine months of being granted will be repurposed by MTC.</li> </ul>
Green Infrastructure & Nature-Based Solutions	San Francisco Public Utilities Commission (SFPUC)	<b>Green Infrastructure Grant Program</b>	Any public or private entity	Yes	No	Both	Green infrastructure, including the design of permeable surfaces and best management practices	\$765,000 per acre of impervious surface managed, up to \$2 million in funding		San Francisco Recreation and Parks was awarded \$860k to incorporate permeable surfaces at Crocker Amazon Park (2020).	<ul style="list-style-type: none"> <li>Other city agencies may or may not be candidates for the grant.</li> <li>If any of the on-site water management strategies for Islais Creek Bus Facility or Marin Yard were adapted to be green infrastructure, then this grant may be a good match.</li> <li>Applicants are required to demonstrate that the project will have at least two co-benefits to receive funding.</li> </ul>
Transportation & Mobility	MTC	<b>Lifeline Program</b>	Local public agencies	Yes	Yes	Planning	Pedestrian and bicycle access improvements	\$400k - \$3M	<ul style="list-style-type: none"> <li>Construction of new bike and pedestrian crossing connecting Rosa Parks Plaza to Illinois Street at Tulare Park (Reach 2).</li> <li>Construction of boardwalk or pedestrian bridge to connect north and south banks of the creek (Reach 3).</li> <li>Construct new pedestrian crossing at Islais Creek Park (Reach 4).</li> </ul>	CCSF was awarded \$2.5M to plan for fixed-route bus services, transit stop improvements, pedestrian and bicycle access improvements, and community shuttles, among other projects (2017 - 2018).	<ul style="list-style-type: none"> <li>Funding apportioned from Urbanized Area Formulized Grants - 5307 (federal grants) and State Transit Assistance (STA).</li> <li>This grant is well-suited for funding projects derived from the Bayview Community Transportation Plan.</li> </ul>
Transportation & Mobility	SFCTA	<b>One Bay Area Grant</b>	Local public agencies	Yes, assuming funding is available	Yes	Both	Local street and road maintenance, streetscape enhancements, bicycle and pedestrian improvements	\$100k - \$9M	<ul style="list-style-type: none"> <li>Complete seismic and flood retrofits of Islais Creek Bridge (Reach 2).</li> <li>Implement interim bike and pedestrian safety improvements along Illinois Street (Reach 2).</li> </ul>	The SFMTA was awarded \$10.5M for the Second Street Complete Streets project (2016 - 2017).	<ul style="list-style-type: none"> <li>Funding apportioned from FHWA Surface Transportation Program (STP) and Congestion Mitigation and Air Quality (CMAQ) Program.</li> </ul>
Shoreline Protection	San Francisco Bay Restoration Authority	<b>San Francisco Bay Restoration Authority Competitive Grant</b>	Local public agencies and non-profits	Yes	No	Both	Shoreline protection, flood management, and recreational amenities	Up to \$100,000	<ul style="list-style-type: none"> <li>Implementation of temporary flood fighting measures at low spots along shoreline (Reach 1).</li> <li>Raising of shoreline edge, improvements to stormwater drainage, and construction of setback floodwall along bus facility (Reach 3).</li> <li>Construction of creek trail for waterfront access (Reach 4).</li> </ul>	Shore Up Marin City was awarded \$100,000 for the Marin City Urban Wetland Community Visioning Project in order to restore a degraded stormwater detention basin into wetland and open water habitat (2021).	<ul style="list-style-type: none"> <li>The grant was awarded in 2021 for the first time and it is unclear when the next competitive grant program cycle will commence.</li> </ul>
Transportation & Mobility	MTC	<b>Transportation Development Act Article 3</b>	Local public agencies	Yes	No	Both	Construction of bicycle or pedestrian capital projects	\$50k - \$200k	<ul style="list-style-type: none"> <li>Construction of new bike and pedestrian crossing connecting Rosa Parks Plaza to Illinois Street at Tulare Park (Reach 2).</li> <li>Construction of boardwalk or pedestrian bridge to connect north and south banks of the creek (Reach 3).</li> <li>Construct new pedestrian crossing at Islais Creek Park (Reach 4).</li> </ul>	The City of Berkeley was awarded \$115k annually to update their bicycle, pedestrian, and active transportation plans every five years (2017)	<ul style="list-style-type: none"> <li>Jurisdictions must submit a resolution stating that their projects were reviewed by a countywide Bicycle and Pedestrian Advisory Committee that meets the criteria for expanded representation for their jurisdiction as determined by MTC.</li> </ul>

Category	Administering Organization	Program/Grant Name	Eligible Receiving Agencies	Recurring?	Match Requirement	Funding Use (planning, implementation, both)	Eligible Projects	Funding Range per Grantee	Example ICSMAS Projects for which Grant May Be Applicable	Local Examples	Other Considerations (e.g. recurring funding source, ability to fund co-benefits or land acquisition, etc.)
Green Infrastructure & Nature-Based Solutions	California Resilience Challenge	California Resilience Challenge	All	To be determined	No	Planning	Any project that builds resilience to flooding, heat, drought, or fire	up to \$200,000	<ul style="list-style-type: none"> <li>Implement nature-based shoreline adaptation strategies at Warm Water Cove Park (Reach 1)</li> <li>Elevate and protect Pier 80 to support maritime function (Reach 1)</li> <li>Restore shoreline along Islais Creek (Reach 3)</li> <li>Restore and protect maritime and industrial use at Pier 90 &amp; 92</li> </ul>		
Parks & Recreation	Amazon	Right Now Climate Fund	Local public agencies and non-profits	Yes	No	Both	Nature-based and gray infrastructure solutions, including conservation, restoration, and improved land management, in wetland ecosystems.	\$1M - \$10M	<ul style="list-style-type: none"> <li>Conversion of western shoreline into tidal marsh (Reach 4).</li> <li>Improvements to ecosystem of creek channel (Reach 5).</li> <li>Incremental migration of Pier 94 wetlands (Reach 5).</li> </ul>	The Nature Conservancy was awarded \$3.75M to mitigate climate change risks and increase species biodiversity through three urban greening projects (2020).	Funding is flexible and project-specific, and thus may be used to fund co-benefits and land acquisition.



Table 8. Financing Mechanisms

Category	Overseeing Jurisdiction	Type	Strategy	Eligible Projects	Applicability to ICSMAS Projects	Cost Burden Constituency	Key Benefits	Key Challenges	Other Considerations	Local Examples
Revenue-generating Mechanism	CCSF	Taxes & Fees	<b>New Sales Taxes</b>	Public infrastructure	All projects on City-owned property	Consumers	<ul style="list-style-type: none"> <li>Potential to generate a lot of funding.</li> <li>Can be used for capital or operating expenses.</li> </ul>	<ul style="list-style-type: none"> <li>Regressive.</li> <li>Revenues will shrink during economic downturns.</li> </ul>	<ul style="list-style-type: none"> <li>While sales tax may be used to bond against future sales tax revenue, sales tax revenues are often too volatile to serve as security for bond issuances.</li> <li>Sales tax revenue is used for a suite of projects - not just one - so timing with other projects will be needed.</li> <li>Typically general taxes at the local level require a simple majority to be levied, while dedicated taxes require two-thirds vote.</li> </ul>	CCSF Prop. K Half Cent Sales Tax
Revenue-generating Mechanism	CCSF & State	Value Capture	<b>Tax Increment Financing, including Infrastructure and Enhanced Infrastructure Finance Districts (IFD/EIFD)</b>	Public infrastructure	All projects on City-owned property	Property owners within designated boundaries	<ul style="list-style-type: none"> <li>IFDs capture increases in property tax revenue stemming from growth in assessed value as a result of new development and uses that revenue to finance infrastructure projects. This use is relevant to the Islais Creek project.</li> <li>Process has been done elsewhere and is understood.</li> <li>Geographic boundaries are flexible.</li> <li>Most applicable for areas where there is significant development potential.</li> <li>District could be designed for a long time horizon (45 year cap).</li> <li>Could bond against future revenues (although fees may be higher due to risk of fluctuations).</li> </ul>	<ul style="list-style-type: none"> <li>Issuance of bond requires 55% voter approval in district.</li> <li>Requires redirecting future property tax revenue from City coffers.</li> </ul>	<ul style="list-style-type: none"> <li>Dependent on anticipated increases in value, which is limited for highly built-out areas, particularly under Prop. 13.</li> <li>Amount raised depends on the amount of new development; EIFDs work best when coupled with policies that increase density (primarily due to the limitations posed by Prop 13); limits geographic scale.</li> <li>Requires redirecting future property tax revenue from City coffers.</li> </ul>	Treasure Island Pier 70 Mission Rock
Revenue-generating Mechanism	CCSF	Taxes & Fees	<b>Community Facility District (CFD) Special Taxes</b>	Public infrastructure	Projects that provide direct benefits to private property owners, such as stormwater and flood management	Property owners within designated boundaries	<ul style="list-style-type: none"> <li>Only requires property owner approval (no voter approval) if there are fewer than 12 registered voters in the proposed district.</li> <li>Boundaries do not need to be contiguous.</li> <li>Flexibility in tax rate formula which can be dynamic across geographies (e.g. further from the facility equates to lower rates).</li> <li>Flexible use: revenue can be used for capital and some maintenance.</li> <li>Process has been done elsewhere and is understood.</li> <li>District could be designed for a long time horizon.</li> <li>Rates can run in perpetuity and there is no renewal process.</li> <li>Could bond against future revenues.</li> </ul>	<ul style="list-style-type: none"> <li>If more than 12 registered voters, requires two-thirds approval of district's registered voters.</li> <li>Dependent on property owners supporting the project(s).</li> <li>Need to consider existing property tax limit(s).</li> </ul>	<ul style="list-style-type: none"> <li>CFDs are often used to capture increases in property tax revenue stemming from growth in assessed value as a result of new development.</li> <li>Given voter requirements, geographic scale may be limited to areas with development potential.</li> </ul>	Transbay Treasure Island Central SOMA Pier 70 (specifically for sea level rise projects) India Basin Hunters Point Mission Bay
Revenue-generating Mechanism	CCSF	Value Capture	<b>Assessment District</b>	Any project that provides a direct benefit to property owners.	Projects that provide direct benefits to private property owners, such as stormwater and flood management	Property owners within designated boundaries	<ul style="list-style-type: none"> <li>Not subject to Proposition 13 limitations.</li> <li>Lower voter approval thresholds than special taxes.</li> <li>Could bond against future revenues.</li> </ul>	<ul style="list-style-type: none"> <li>Must demonstrate that the cost of the assessment directly correlates with benefit received by the parcel owner.</li> <li>Must be renewed periodically.</li> <li>Bonds paid back by benefit assessments can be more expensive due to increased risk associated with property value changes.</li> </ul>	<ul style="list-style-type: none"> <li>A good fit for places where there is significant development potential</li> <li>Each assessment district includes a benefit formula and each parcel in the service area is assessed according to the specific benefit it receives from the services and improvements. The charge is calculated based on this formula and placed on the county property tax bill.</li> </ul>	
Revenue-generating Mechanism	CCSF	Taxes & Fees	<b>Development Impact Fees, including Transit Impact Development Fees</b>	Public infrastructure: new development must require this infrastructure or exacerbate underlying infrastructure needs	Projects whose need will be increased due to presence of new development, such as transportation improvements or stormwater management needs	Developers and their renters	<ul style="list-style-type: none"> <li>SF has designated part of the Islais Creek area as a target area for development impact fees (see the Central Waterfront of the Eastern Neighborhoods Area Plan).</li> <li>No voter approval required.</li> <li>Process has been done elsewhere and is understood.</li> <li>Requires developers to pay for the expected burden to public infrastructure, such as congestion, that their new development will cause.</li> </ul>	<ul style="list-style-type: none"> <li>Tied to market conditions which are often cyclical and difficult to forecast.</li> <li>Requires new development / major redevelopment to generate significant funding.</li> </ul>		The Balboa Park Station Area Plan was funded by \$1.05M in impact fees.
Revenue-generating Mechanism	Local Utility	User Fees	<b>Stormwater Fees, Utility Service Charges (and/or other applicable management fees)</b>	Projects with direct correlation to the utility	Stormwater management projects	Ratepayers	<ul style="list-style-type: none"> <li>Rate increases are common and expected.</li> <li>Revenue funds projects that directly benefit the utility and, thus, the ratepayer.</li> </ul>	<ul style="list-style-type: none"> <li>In April 2018, SFPUC raised rates that resulted in an average monthly bill increase of \$10 for the average single-family residential household (about 8-9% per year). SFPUC may face challenges further raising fees to cover additional capital improvement projects in the next four years.</li> </ul>	<ul style="list-style-type: none"> <li>water and wastewater service rates. The rate and fee increases will allow the SFPUC to improve and upgrade water and sewage systems. Projects include the repair, replacement, maintenance, or construction of roads, fences, or trails, the acquisition of easements and/or fee title of properties, and other ecosystem restoration or public access, recreation, and education projects.</li> </ul>	
Revenue-generating Mechanism	Regional	User Fees	<b>Regional Measures/Bridge Tolls</b>	Core capacity transit improvements	Transportation related projects	Bridge users	<ul style="list-style-type: none"> <li>No time limit on the toll increase.</li> <li>Potential to raise a significant amount of funds.</li> <li>Can be used for capital or operating expenses.</li> <li>Measures are familiar to Bay Area citizens.</li> <li>Cost is assigned to the party that creates the negative externality (drivers; congestion and greenhouse gas emissions).</li> <li>Could bond against future revenues.</li> </ul>	<ul style="list-style-type: none"> <li>Regional measure funds are typically allocated to regional capital projects, including bridge, freeway, and corridor enhancements.</li> <li>Regional Measure 3 was very recently passed in 2018 and will implement additional fare hikes in 2022 and 2025. A potential RM4 would likely not garner voter support for many years.</li> </ul>		RM funding has been used for Muni Fleet Expansion and Facilities, Caltrain Downtown Extension, Transbay Rail Crossing
Financing Mechanism	CCSF	Bond	<b>Environmental Impact Bond (EIB)</b>	Large-scale green infrastructure, public transportation, and resilience projects	Water management and shoreline protection projects	Tax-paying residents and businesses	<ul style="list-style-type: none"> <li>Projects with measured environmental, social, and governance improvement co-benefits are prioritized in receiving additional funding from private investment firms.</li> <li>Investors pay the upfront costs for deploying environmental solutions.</li> </ul>	<ul style="list-style-type: none"> <li>EIBs require a third party, including non-profit organizations and foundations, to fund the structuring costs.</li> <li>Public agencies are expected to repay investors based on the achievement of agreed-upon outcomes of the program.</li> </ul>	<ul style="list-style-type: none"> <li>Eligible projects generally cost over \$5M.</li> </ul>	While EIB has yet to fund a project in California, the Atlanta Department of Watershed Management was awarded \$14M to plan and implement green infrastructure projects along Proctor Creek (2019).
Financing Mechanism	CCSF	Bond	<b>Revenue Bonds</b>	Public infrastructure	All projects on City-owned property	Users of publicly-provided services	<ul style="list-style-type: none"> <li>Revenue Bonds are typically used where other funding sources have traditionally not been able to fill final funding gaps for priority projects.</li> </ul>	<ul style="list-style-type: none"> <li>A revenue source for the bond, such as a IFD, CFD, or assessment district, needs to be created.</li> <li>Typically, since holders of revenue bonds can only rely on the specific project's income, it has a higher risk than GO bonds and pays a higher rate of interest.</li> </ul>		SFMTA issued \$71M of revenue bonds to refinance debt and finance transit and parking garage projects (2014).
Financing Mechanism	CCSF	Bond	<b>General Obligation (G.O.) Bonds</b>	Public infrastructure	All projects on City-owned property	Tax-paying residents and businesses	<ul style="list-style-type: none"> <li>Unlike revenue bonds, GO bonds are not backed by collateral and do not pay creditors back on the basis of income generated, but from the general tax base. No revenue source needs to be identified.</li> </ul>	<ul style="list-style-type: none"> <li>Dependent on voter approval.</li> <li>To garner widespread support for the project, taxpayers must perceive that the funded projects will offer widespread benefits.</li> </ul>	<ul style="list-style-type: none"> <li>Municipalities may increase property taxes accordingly to repay its payments and obligations.</li> </ul>	CCSF issued \$425M in GO bonds for the improvement, seismic strengthening, reconstruction, and repair of the Embarcadero seawall and other critical infrastructure (2018).
Financing Mechanism	CCSF	Bond	<b>Resilience Bonds/Insurance Value Capture</b>	Large-scale green infrastructure, public transportation, and adaptation, mitigation, and resilience projects	Water management projects	Tax-paying residents and businesses	<ul style="list-style-type: none"> <li>Resilience Bonds are insurance products—not municipal bonds—so sponsors are only responsible for paying premiums, not for repaying bond principal, which can help public-sector sponsors, such as municipal governments, avoid concerns about debt capacity limits or credit rating impacts.</li> <li>Investors are typically seeking diversification in their portfolios and are willing to take more risk (including the risk of losing their principal invested) for higher returns on investment.</li> </ul>	<ul style="list-style-type: none"> <li>This instrument has not yet been used in California.</li> <li>Investors consider the extent to which projects are in catastrophic peril due to sudden environmental shocks when evaluating which projects to support.</li> </ul>	<ul style="list-style-type: none"> <li>Resilience bonds have funded flood protection and transit projects in the past.</li> </ul>	While Resilience Bonds have yet to fund a project in California, the New York Metropolitan Transit Authority (MTA) secured \$200M through a catastrophe bond to cover damages to infrastructure from Hurricane Sandy (2017).
Financing Mechanism	State	Loan	<b>Infrastructure State Revolving Fund (ISRF)</b>	Public infrastructure, excluding housing	All projects on City-owned property	Tax-paying residents and businesses	<ul style="list-style-type: none"> <li>ISRF financing is available in amounts ranging from \$50k to \$25M with loan terms for the useful life of the project up to a maximum of 30 years.</li> <li>There is not a matching fund requirement, and ISRF financing may serve as matching funds for other financing.</li> </ul>	<ul style="list-style-type: none"> <li>Applicant must provide evidence that it has applied for and/or received all permits or approvals, if appropriate for the type of financing being considered, necessary for the construction of the project.</li> <li>Projects ideally would be shovel-ready and need funds in six or 12 months in order to be eligible for financing.</li> </ul>	<ul style="list-style-type: none"> <li>A few examples of ISRF financed projects include water and wastewater treatment plant upgrades, airport construction, and street repair and upgrades.</li> </ul>	IBank issued \$3M to the City of Alameda to build a new firehouse and Emergency Operations Center (2015).
Financing Mechanism	CCSF & State	Investment	<b>Public Private Partnership</b>	Public infrastructure	All projects on City-owned property	Tax-paying residents and businesses	<ul style="list-style-type: none"> <li>In the context of limited public funding, a P3 may provide capital that allows a project to be delivered faster.</li> <li>Private operators have the reputation for being able to move more quickly and operate more efficiently.</li> </ul>	<ul style="list-style-type: none"> <li>Public agencies have mixed views on the success of P3s.</li> <li>Could be more expensive compared to the GO Bond market.</li> <li>Could require redirecting future public revenue (depending on contract design), which creates potential for political pushback.</li> <li>Takes time to set up contract. Contract would need to have specific guidelines around fares and service to ensure that the systems operates, overall, as a public good</li> </ul>		CCSF received funding from Golden Link Partners, Equity Investors, HOCHTIEF, and Meridian in the construction of the Presidio Parkway (2009).

## Appendix B Implementation Matrices

Table 9. Summary of Near-Term Strategies Grouped by Reach

Reach	Strategy & Sub-Strategy	Near Term Strategies	Project Type	Hard Cost	Cost with Markup & Contingency	Potential Strategy Lead	Local Offices with Jurisdiction & Potential Implementation Partners	State and Federal Agencies with Potential Permitting and/or Jurisdictional Authority	CIP-related projects? (OneSF CIP 2020 - 2029)	Implementation Considerations	Applicable Grants
R1	R1	<b>REACH 1: NORTHEASTERN WATERFRONT</b>									
		<b>Key Asset: Pier 80</b>									
		<b>Co-beneficiaries: Warm Water Cove Park and Muni Metro East</b>									
(R1) 1	(R1) 1	<b>1. Implement nature-based shoreline adaptation strategies to expand Warm Water Cove Park</b>									
R1	1.1	Temporary Flood Fighting Measures at Low Spots - Portable Cylinder Flood Barriers	Event	\$ 178,436	\$ 378,285	Port		USACE, RWQCB, BCDC	Waterfront Park Emerging Projects	Similar requirements as construction of temporary barriers, as outlined in Reaches 3 and 5	Grants related to flood management (e.g., Coastal Resilience Grants Program, ESLR Program, Flood Mitigation Assistance, Section 205 Grant)
R1	1.2.1	Construct pocket beach features	Nature	\$ 2,051,450	\$ 4,349,074	Port		USACE, USFWS, RWQCB, BCDC	Waterfront Park Emerging Projects		Grants related to parks & recreation access and restoration (e.g., ORLP, AHSC Program, LWCF State Grants Program, Statewide Park Program)
R1	1.2.2	Add groynes	Nature	\$ 628,267	\$ 1,331,925	Port		USACE, USFWS, RWQCB, BCDC	Waterfront Park Emerging Projects		Grants related to parks & recreation access and restoration (e.g., ORLP, AHSC Program, LWCF State Grants Program, Statewide Park Program)
R1	1.2.3	Re-nourish beaches	Nature	\$ 1,452,150	\$ 3,078,558	Port		USACE, USFWS, RWQCB, BCDC	Waterfront Park Emerging Projects		Grants related to parks & recreation access and restoration (e.g., ORLP, AHSC Program, LWCF State Grants Program, Statewide Park Program)
R1	1.3	Add kayak launch at Warm Water Cove Park	Nature	\$ 155,000	\$ 330,308	Port		USACE, BCDC, RWQCB, NMFS, CDFW, SLC	Waterfront Park Emerging Projects	Implement this along with the above strategy.	Grants related to parks & recreation access and restoration (e.g., AHSC Program, LWCF State Grants Program, Statewide Park Program)
R1	1.4	Expand Blue Greenway	Hard	\$ 379,080	\$ 803,650	Port	DPW, SFMTA	BCDC	Bayview Community Based Transportation Plan Waterfront Park Emerging Projects	Other parts of the Blue Greenway have been funded by a mixture of philanthropic and CCSF dollars.	Grants related to transportation & mobility (e.g., ATP, Community-Based Transportation Planning Program, One Bay Area Grant)
(R1) 2	(R1) 2	<b>2. Elevate and protect Pier 80 to support maritime function*</b>									
R1	2.1.1	Deployable Barriers - Aqua Dam (at southeast corner of Pier 80)	Event	\$ 82,500	\$ 174,900	Port		USACE, NMFS, RWQCB, BCDC, SLC		Similar requirements as construction of temporary barriers, as outlined in Reaches 3 and 5	Grants related to gray infrastructure projects (BRIC Grant Program, FMA Grant, Section 205 Grant)
R1	2.1.2	Floodproof critical maritime buildings	Hard	\$ 495,000	\$ 1,049,400	Port					Grants related to flood management (e.g., Coastal Resilience Grants Program, ESLR Program, Flood Mitigation Assistance, USACE Section 205)
R1	2.2	Pier 80, Low-lying shoreline east of Illinois St	Hard			Port	DPW, SFMTA	USACE, USFWS, NMFS, BCDC, CDFW, SLC		Floodwalls are also part of Reaches 3 and 4.	Grants related to flood management (BRIC Grant Program, FMA Grant, Section 205 Grant)
R1	2.2A	Option A: Reinforced concrete Floodwall	Hard	\$ 574,905	\$ 1,218,799	Port	DPW, SFMTA	USACE, USFWS, NMFS, BCDC, CDFW, SLC		Floodwalls are also part of Reaches 3 and 4.	Grants related to flood management (e.g., Coastal Resilience Grants Program, ESLR Program, Flood Mitigation Assistance, USACE Section 205)
R1	2.2B	Option B: Living Shoreline (east of Illinois St, remove rubble and debris and construct living shoreline)	Nature	\$ 274,050	\$ 584,005	Port	DPW	USACE, USFWS, NMFS, BCDC, CDFW, SLC		Removal of rubble and debris follows a similar approval process outlined in Reach 3.	Grants related to shoreline protection (Coastal Resilience Grants Program, SFBWQF, Section 205 Grant, Urban Waters Small Grants)
R1	2.3	Improve site grading to prevent precipitation flooding/ponding	Hard	\$ 29,700,000	\$ 62,964,000	Port		USACE, NMFS, RWQCB, BCDC, SLC			Grants related to flood management (e.g., Coastal Resilience Grants Program, ESLR Program, Flood Mitigation Assistance, USACE Section 205)
R1	(District)	New Green Streets (on 25th St, from 3rd St to Maryland St)	Nature	\$ 1,163,120	\$ 2,465,814	DPW	SFPUC, SFMTA, Port	None			Grants related to green infrastructure and nature-based solutions (e.g., BRIC Program, Urban Waters Small Grants, Climate Ready Program), in addition to standard flood management (e.g., FMA Grant, Section 205) and transportation improvements (e.g., Active Transportation Program)
R2	R2	<b>REACH 2: CREEK CHANNEL CROSSING</b>									
		<b>Key Asset: Islais Creek Bridge</b>									
		<b>Co-beneficiaries: Illinois Street Bridge, Tulare Park, Port piers</b>									
R2	(R2) 1	<b>1. Complete seismic and flood retrofits of Islais Creek Bridge</b>									
R2	1.1	Seismic retrofit	Hard	\$ 80,498,623	\$ 171,543,886	DPW	Port, SFMTA	USACE, NMFS, RWQCB, BCDC, CDFW, SLC	Islais Creek Bridge Overhead Reconstruction Islais Creek Bridge Project	This project is currently underway - is 65% complete.	Grants related to the implementation of transportation & mobility projects (e.g., LCTOP, LPP, TDA Article 3)
R2	1.2	Temporary floodproofing	Event	\$ 650,000	\$ 1,385,161	DPW	Port, SFMTA	Caltrans	Islais Creek Bridge Overhead Reconstruction Islais Creek Bridge Project	Similar requirements as construction of temporary barriers, as outlined in Reach 1 and 5.	Grants related to green infrastructure and nature-based solutions (e.g., BRIC Program, Urban Waters Small Grants, Climate Ready Program, Green Infrastructure Grant Program, Urban Greening Program, Right Now Climate Fund).
R2	1.3	Relocate access hatches to street level	Hard	\$ 130,000	\$ 277,032	DPW	Port, SFMTA	Caltrans	Islais Creek Bridge Overhead Reconstruction Islais Creek Bridge Project	Incorporate this as part of final design for the retrofit.	Grants related to green infrastructure and nature-based solutions (e.g., BRIC Program, Urban Waters Small Grants, Climate Ready Program, Green Infrastructure Grant Program, Urban Greening Program).
R2		Forego current rehabilitation project since time horizon is 50 years and does not include SLR upgrades.	Policy			DPW	Port, SFMTA	Caltrans, BCDC	Islais Creek Bridge Overhead Reconstruction Islais Creek Bridge Project		



Reach	Strategy & Sub-Strategy	Near Term Strategies	Project Type	Hard Cost	Cost with Markup & Contingency	Potential Strategy Lead	Local Offices with Jurisdiction & Potential Implementation Partners	State and Federal Agencies with Potential Permitting and/or Jurisdictional Authority	CIP-related projects? (OneSF CIP 2020 - 2029)	Implementation Considerations	Applicable Grants
R2	1.4	New Flood Wall (along Tulare Park, between the two bridges)	Hard	\$ 502,216	\$ 1,070,230	DPW	Port, SFMTA	USACE, NMFS, USFWS, RWQCB, BCDC, CDFW, SLC	Islais Creek Bridge Overhead Reconstruction Islais Creek Bridge Project		Grants related to flood and stormwater management (e.g., BRIC, FMA Grant, Section 205 Grant)
R2	(R2) 2	<b>2. Islais Creek Bridge Adaptation Options</b>									
R2		Complete technical traffic feasibility analysis on proposed changes to Islais Creek and Illinois Street Bridges.	Study			DPW	Port, SFMTA	Caltrans	Bayview Community Based Transportation Plan Islais Creek Bridge Overhead Reconstruction Islais Creek Bridge Project		Grants related to transportation planning & mobility (e.g., Community-Based Transportation Planning Program, Lifeline Program)
R2		Change status of creek to navigable waterway for only recreational human-powered boats	Policy			Port	DPW, SFMTA, SFFD	USCG	Islais Creek Bridge Overhead Reconstruction Islais Creek Bridge Project		
R2	2A	Islais Creek Bridge Adaptation, Option A @ 2040 Seal and Secure Existing Bridge as Non-Operable	Hard	\$ 1,130,000	\$ 2,408,049	DPW	Port	Caltrans, SHPO	Islais Creek Bridge Overhead Reconstruction Islais Creek Bridge Project		Grants related to flood management and transportation (e.g., SFBWQIF, BRIC Grant Program, LCTOP, LPP)
R2	2B	Islais Creek Bridge Adaptation, Option B: Seal and Secure Existing Bridge as Non-Operable @ 2040 + Replace As New @ 2080 - Non-Operable Bridge At Higher Elevation in Future	Hard	\$ 1,130,000	\$ 2,395,600	DPW	Port	USACE, NMFS, RWQCB, BCDC, CDFW, SLC, Caltrans, SHPO	Islais Creek Bridge Overhead Reconstruction Islais Creek Bridge Project	If this strategy is selected, incorporate other project benefits outlined in this Study as part of bridge design.	Grants related to flood management and transportation (e.g., SFBWQIF, IRWM, BRIC Grant Program, LCTOP, LPP)
R2	2C	Islais Creek Bridge Adaptation, Option C: Replace As New - Operable Bridge At Higher Elevation @ 2040	Hard	\$ 102,250,000	\$ 216,770,000	DPW	Port	USACE, NMFS, RWQCB, BCDC, CDFW, SLC, Caltrans, SHPO	Islais Creek Bridge Overhead Reconstruction Islais Creek Bridge Project	If this strategy is selected, incorporate other project benefits outlined in this Study as part of bridge design.	Grants related to flood management and transportation (e.g., SFBWQIF, IRWM, BRIC Grant Program, LCTOP, LPP)
R2	(R2) 3	<b>3. Illinois Street Bridge Adaptation Options</b>									
R2	3.1A	Option A: Interim Bike/Pedestrian Safety Improvements	Hard	\$ 480,000	\$ 1,022,888	Port	DPW, SFMTA	Caltrans	Bayview Community Based Transportation Plan		Grants related to transportation & mobility, with a priority on serving disadvantaged communities (e.g., LCTOP, Sustainable Communities Grant, Community-Based Transportation Planning Program, Lifeline Program)
R2	3.1B	Option B: New Bike-Pedestrian Crossing	Hard	\$ 11,280,000	\$ 24,037,865	Port	DPW, SFMTA	USACE, NMFS, RWQCB, BCDC, CDFW, SLC	Bayview Community Based Transportation Plan		Grants related to transportation & mobility, with a priority on serving disadvantaged communities (e.g., LCTOP, Sustainable Communities Grant, Community-Based Transportation Planning Program, Lifeline Program), in addition to grants related to parks & recreation access and restoration (e.g., AHSC Program, LWCF State Grants Program, Statewide Park Program)
R2	3A	Illinois Street Bridge Adaptation, Option A: Replace as Non-Operable Bridge at Higher Elevation @ 2080	Hard	\$ 108,717,840	\$ 231,679,500	Port	DPW	USACE, NMFS, RWQCB, BCDC, CDFW, SLC, Caltrans, SHPO	Islais Creek Bridge Overhead Reconstruction Islais Creek Bridge Project	If this strategy is selected, incorporate other project benefits outlined in this Study as part of bridge design.	Grants related to flood management and transportation (e.g., SFBWQIF, IRWM, BRIC Grant Program, LCTOP, LPP)
R2	3B	Illinois Street Bridge Adaptation, Option B: Replace as Operable Bridge at Higher Elevation @ 2080	Hard	\$ 170,422,560	\$ 363,173,271	Port	DPW	USACE, NMFS, RWQCB, BCDC, CDFW, SLC, Caltrans, SHPO	Islais Creek Bridge Overhead Reconstruction Islais Creek Bridge Project	If this strategy is selected, incorporate other project benefits outlined in this Study as part of bridge design.	Grants related to flood management and transportation (e.g., SFBWQIF, IRWM, BRIC Grant Program, LCTOP, LPP)
R3	R3	<b>REACH 3: NORTHWESTERN CREEK BRANK</b> <b>Key Assets: Islais Creek Bus Facility and Marin Yard</b> <b>Co-beneficiaries: Private property</b>									
(R3) 1	(R3) 1	<b>1. Address inland flooding at the Islais Creek Bus Facility</b>									
R3		Conduct local drainage study and alternatives analysis	Study			SFMTA	SFPUC, Port, DPW	None	Wastewater at Islais Creek Crossing		Grants related to flood and stormwater management (e.g., BRIC, FMA Grant, Section 205 Grant)
R3		Coordinate with Caltrans to address I-280 overflows	Study			SFMTA		Caltrans	Wastewater at Islais Creek Crossing		
R3	1A.1	Option A1: Divert offsite runoff from adjacent streets with perimeter flood wall, 2' concrete wall	Hard	\$ 52,800	\$ 111,936	SFMTA	SFPUC, Port, DPW	USACE, RWQCB, BCDC, NMFS, CDFW, SLC		Similar to temporary flood barriers in Reach 1 and 5.	Grants related to flood and stormwater management (e.g., BRIC, FMA Grant, Section 205 Grant)
R3	1A.2	Option A2: Constructing Pop-up Flood Barriers	Event	\$ 702,000	\$ 1,488,240	SFMTA	SFPUC, DPW	None		Similar to temporary flood barriers in Reach 1 and 5.	Grants related to flood and stormwater management (e.g. FMA Grant, Section 205 Grant)
R3	1A.3	Option A3: Raising and Regrading Low Spots on Property	Hard	\$ 4,349,875	\$ 9,221,735	SFMTA	SFPUC, DPW	None			Grants related to flood and stormwater management (e.g., BRIC, FMA Grant, Section 205 Grant)
R3	1A.4	Option A4: Floodproofing Buildings - 62,500 SF - 3' tall concrete perimeter wall with deployable barriers at entrances	Hard	\$ 311,150	\$ 659,638	SFMTA	SFPUC, DPW	None			Grants related to flood and stormwater management (e.g. FMA Grant, Section 205 Grant)
R3	1A.5	Option A5: Elevate Storage Areas and Elec./Mech. Equipment - 15,000 SF	Hard	\$ 639,688	\$ 1,356,138	SFMTA	SFPUC, DPW	None			Grants related to flood and stormwater management (e.g. FMA Grant, Section 205 Grant)
R3	1B.1	Install a separated stormwater drainage system, Option 1B.1	Hard	\$911,250	\$1,931,850	SFMTA	SFPUC, DPW	USACE, USFWS, NMFS, RWQCB (401 Cert and NPDES), CDFW, BCDC, SLC	Wastewater at Islais Creek Crossing		Grants related to flood and stormwater management, in addition to water runoff (e.g., BRIC, FMA Grant, USACE Section 205, SFBWQIF, IRWM)

Reach	Strategy & Sub-Strategy	Near Term Strategies	Project Type	Hard Cost	Cost with Markup & Contingency	Potential Strategy Lead	Local Offices with Jurisdiction & Potential Implementation Partners	State and Federal Agencies with Potential Permitting and/or Jurisdictional Authority	CIP-related projects? (OneSF CIP 2020 - 2029)	Implementation Considerations	Applicable Grants
(R3) 2	(R3) 2	<b>2. Protect the Marin Yard</b>									
		Coordinate with Islais Creek Bridge replacement									
R3		Coordinate with Bus Facility drainage study	Study			Port	SFMTA, SFPUC, DPW	None	Wastewater at Islais Creek Crossing		Grants related to flood and stormwater management, in addition to water runoff (e.g., BRIC, FMA Grant, Section 205 Grant, SFBWQIF, IRWM)
R3	2.1.1	Raise nearby streets	Hard	\$ 1,298,796	\$ 2,753,448	DPW	DPW, SFMTA	RWQCB			Grants related to flood management (e.g., Coastal Resilience Grants Program, ESLR Program, Flood Mitigation Assistance, USACE Section 205)
R3	2.1.2	Deploy temporary flood barriers	Event	\$ 168,712	\$ 357,670	Port	SFMTA, SFPUC, DPW	RWQCB, BCDC			Grants related to flood management (e.g., Coastal Resilience Grants Program, ESLR Program, Flood Mitigation Assistance, USACE Section 205)
R3	2.1.3	Construct perimeter floodwall	Hard	\$ 2,061,728	\$ 4,370,864	Port	SFMTA, SFPUC, DPW	USACE, NMFS, BCDC, CDFW, SLC		Floodwalls are also part of Reach 1 and 4.	Grants related to flood management (e.g., Coastal Resilience Grants Program, ESLR Program, Flood Mitigation Assistance, USACE Section 205)
R3	2.2.1	Remove Rubble/Debris Along Shoreline	Hard	\$ 150,000	\$ 318,000	Port	DPW	USACE, NMFS, USFWS, NMFS, RWQCB, BCDC, CDFW, SLC	Waterfront Park Emerging Projects	Floodwalls are also part of Reach 1 and 4.	Grants related to shoreline protection (e.g., LWCF State Grants Program, Coastal Resilience Grants Program, ESLR Program, FMA Grant, SF Bay Water Quality Improvement Fund, Climate Adaptation and Resiliency Program, IRWM Implementation Grant Program, Right Now Climate Fund).
R3	2.2.2	Raise Shoreline with Seawall	Hard	\$ 1,070,513	\$ 2,269,487	Port	DPW	USACE, NMFS, USFWS, NMFS, RWQCB, BCDC, CDFW, SLC	Waterfront Park Emerging Projects	Floodwalls are also part of Reach 1 and 4.	Grants related to shoreline protection (e.g., LWCF State Grants Program, Coastal Resilience Grants Program, ESLR Program, FMA Grant, SF Bay Water Quality Improvement Fund, Climate Adaptation and Resiliency Program, IRWM Implementation Grant Program, Right Now Climate Fund).
(R3) 3	(R3) 3	<b>3. Retrofit outfall at Islais Creek Promenade</b>									
R3	3.1	Oyster Reefs Along Seawall	Nature	\$ 149,400	\$ 316,728	Port		USACE, NMFS, USFWS, RWQCB, BCDC, CDFW, SLC	Wastewater at Islais Creek Crossing		Grants related to green infrastructure and nature-based solutions (e.g., BRIC Program, Urban Waters Small Grants, Climate Ready Program, Green Infrastructure Grant Program, Urban Greening Program), in addition to grants related to water quality and management (e.g., SFBWQIF, IRWM)
R3	3.2	Backflow Prevention at Combined Sewer Discharge	Hard	\$ 45,000	\$ 95,400	Port	SFPUC	RWQCB, BCDC	Wastewater at Islais Creek Crossing		Grants related to shoreline protection (e.g., LWCF State Grants Program, Coastal Resilience Grants Program, ESLR Program, FMA Grant, SF Bay Water Quality Improvement Fund, Climate Adaptation and Resiliency Program, IRWM Implementation Grant Program, Right Now Climate Fund).
(R3) 4	(R3) 4	<b>4. Restore shoreline along Islais Creek</b>									
R3	4.1	Remove Rubble/Debris and Construct Living Shoreline	Nature	\$ 8,607,000	\$ 18,246,840	SFPUC	Port, SFMTA, DPW	USACE, NMFS, USFWS, RWQCB, BCDC, SLC	Waterfront Park Emerging Projects	Removal of rubble and debris is included in Reach 1, too.	Grants related to green infrastructure and nature-based solutions (e.g., BRIC Program, Urban Waters Small Grants, Climate Ready Program, Green Infrastructure Grant Program, Urban Greening Program).
R3	4.2	Raise Shoreline Edge, Curb Wall, and Construct Setback Floodwall	Hard	\$ 90,750	\$ 192,390	SFPUC	Port, SFMTA, DPW	USACE, NMFS, USFWS, RWQCB, BCDC, SLC	Waterfront Park Emerging Projects Wastewater at Islais Creek Crossing		Grants related to flood and stormwater management, in addition to water runoff (e.g., BRIC, FMA Grant, Section 205 Grant, SFBWQIF, IRWM)
R3	4.3	Raise Shoreline Path on Levee - 3'	Hard	\$ 77,550	\$ 164,406	SFPUC	Port, SFMTA, DPW	USACE, NMFS, USFWS, RWQCB, BCDC, SLC	Waterfront Park Emerging Projects		Grants related to flood and stormwater management, in addition to water runoff (e.g., BRIC, FMA Grant, Section 205 Grant, SFBWQIF, IRWM)
R3	4.4	Extend Living Shoreline up Levee Slope	Nature	\$ 798,000	\$ 1,691,760	SFPUC	Port, SFMTA, DPW	USACE, NMFS, USFWS, RWQCB, BCDC, SLC	Waterfront Park Emerging Projects		Grants related to green infrastructure and nature-based solutions (e.g., BRIC Program, Urban Waters Small Grants, Climate Ready Program, Green Infrastructure Grant Program, Urban Greening Program).
R3	4.5	Replace Rubble/Riprap Along Western Back with Vegetated Eco-Riprap	Nature	\$ 440,000	\$ 932,800	SFPUC	Port, SFMTA, DPW	USACE, NMFS, USFWS, RWQCB, BCDC, SLC	Waterfront Park Emerging Projects	Removal of rubble and debris is included in Reach 1, too.	Grants related to green infrastructure and nature-based solutions (e.g., BRIC Program, Urban Waters Small Grants, Climate Ready Program, Green Infrastructure Grant Program, Urban Greening Program).
(R3) 5	(R3) 5	<b>5. Introduce a pedestrian bridge at the end of the creek</b>									
R3	5.1	Introduce Pedestrian Bridge or Floating Walkway at End of Creek	Hard	\$ 10,260,000	\$ 21,751,200	Port	DPW, SFMTA	USACE, NMFS, USFWS, RWQCB, BCDC, SLC	Bayview Community Based Transportation Plan Waterfront Park Emerging Projects	Coordinate with other pedestrian improvements in the landing areas.	Grants related to transportation & mobility (e.g., ATP, LCTOP, Sustainable Communities Grant, SB1 State Local Partnership Program, TDA Article 3, Community-Based Transportation Planning Program, Lifeline Program, One Bay Area Grant, Small Flood Damage Reduction Projects).
R3	(District)	New Green Streets (along Cesar Chavez, from Illinois St to I-280)	Hard	\$ 820,080	\$ 1,738,570	Port	DPW, SFMTA, SFPUC	None			Grants related to green infrastructure and nature-based solutions (e.g., BRIC Program, Urban Waters Small Grants, Climate Ready Program), in addition to standard flood management (e.g., FMA Grant, Section 205) and transportation improvements (e.g., Active Transportation Program)
R4	R4	<b>REACH 4: SOUTHWESTERN WATERFRONT</b>									
		<b>Key Asset: None</b>									
		<b>Co-beneficiaries: Islais Creek Bridge, pump station, private property</b>									
(R4) 1	(R4) 1	<b>1. Convert the western shoreline into tidal marsh</b>									
R4	1.1.1	Acquire properties	Land Use Change	\$ 128,416,995	\$ 135,479,930	CCSF	DPW	BCDC, RWQCB, DTSC	Waterfront Park Emerging Projects	This line item is inclusive of strategy 4.4.2.	Grants that authorize the purchase of private property for flood management purposes (e.g., BRIC, ESLR)
R4	1.1.2	Remediate properties - tenant payouts, etc.	Land Use Change	\$ 12,330,850	\$ 26,141,402	CCSF	DPW	BCDC, RWQCB, DTSC	Waterfront Park Emerging Projects		

Reach	Strategy & Sub-Strategy	Near Term Strategies	Project Type	Hard Cost	Cost with Markup & Contingency	Potential Strategy Lead	Local Offices with Jurisdiction & Potential Implementation Partners	State and Federal Agencies with Potential Permitting and/or Jurisdictional Authority	CIP-related projects? (OneSF CIP 2020 - 2029)	Implementation Considerations	Applicable Grants
R4	1.2.1	Construct sheet pile floodwall.	Hard	\$ 2,282,000	\$ 4,837,840	Port		USACE, NMFS, USFWS, RWQCB, BCDC, CDFW, SLC		Floodwall construction also required in Reaches 1 and 3.	Grants related to shoreline protection and preservation (e.g., LWCF State Grants Program, Coastal Resilience Grants Program, ESLR Program, FMA Grant, SF Bay Water Quality Improvement Fund)
R4	1.2.2	Removal of rubble and riprap.	Nature	\$ 181,926	\$ 385,683	Port		USACE, NMFS, USFWS, RWQCB, BCDC, CDFW, SLC			Grants related to green infrastructure and nature-based solutions (e.g., BRIC Program, Urban Waters Small Grants, Climate Ready Program, Green Infrastructure Grant Program, Urban Greening Program).
(R4) 2	(R4) 2	<b>2. Expand Islais Creek Park and waterfront access</b>									
R4	2.1	Expand park (and create wetlands where possible)	Nature	\$ 3,705,000	\$ 7,854,600	Port		USACE, NMFS, USFWS, RWQCB, BCDC, CDFW, SLC	Waterfront Park Emerging Projects		Grants related to parks & recreation access and restoration (e.g., ORLP, SPP, Prop 68 Climate Adaptation Funds, SF Bay Restoration Authority Grant).
R4	2.2	Relocate and rehabilitate kayak / boat launch.	Nature	\$ 60,000	\$ 127,200	Port		BCDC	Waterfront Park Emerging Projects		Grants related to parks & recreation access and restoration (e.g., ORLP, AHSC Program, LWCF State Grants Program, Statewide Park Program, SF Bay Restoration Authority Grant)
R4	2.3 & 2.4	Construct shoreline berm & path	Earthen	\$ 112,800	\$ 239,136	Port	DPW	BCDC, RWQCB			Grants related to green infrastructure and nature-based solutions (e.g., BRIC Program, Urban Waters Small Grants, Climate Ready Program), in addition to standard flood management (e.g., FMA Grant, Section 205)
(R4) 3	(R4) 3	<b>3. Protect booster pump station</b>									
R4	3A	Option A: Allowance Relocate Station	Hard	\$ 12,663,448	\$ 26,846,510	Port	DPW	BCDC, RWQCB	Wastewater at Islais Creek Crossing Islais Creek Bridge Overhead Reconstruction Islais Creek Bridge Project		Grants related to flood management and asset protection (e.g., BRIC, FMA Grant, Section 205 Grant, Climate Adaptation and Resiliency Program)
(R4) 4	(R4) 4	<b>4. Protect artist studios</b>									
R4	4.1	Floodproof existing structures	Hard	\$ 3,139,309	\$ 6,655,336	Private	Department of Building Inspection			Incentives will need to be created to encourage floodproofing of privately owned buildings.	
(R4) 5	(R4) 5	<b>5. Improve ecosystem of creek channel</b>									
R4	5.1	Remediate Contaminants - Cap with 2' of Gravel	Land Use Change	\$ 693,000	\$ 1,476,794	Port		RWQCB, DTSC	Wastewater at Islais Creek Crossing		Grants related to environmental preservation and restoration (e.g., LWCF State Grants Program, Prop 68 Climate Adaptation Funds, Urban Greening Program, Right Now Climate Fund, SF Bay Restoration Authority Grant)
R4		Identify other potential ecosystem pilot studies to create habitat and improve water quality.	Nature			Port		None			Grants related to environmental preservation and restoration (e.g., LWCF State Grants Program, Prop 68 Climate Adaptation Funds, Urban Greening Program, Right Now Climate Fund, SF Bay Restoration Authority Grant)
R4		Reclassify Islais Creek as non-navigable waterway (west of bridges)	Land Use Change			Port		USCG			
(R4) 6	(R4) 6	<b>6. Improve stormwater management</b>									
R4	6.1	Separate Combined Sewer and Increase Open Space Areas	Hard	\$ 2,848,200	\$ 6,069,561	Port	SFPUC		RWQCB		Grants related to flood and stormwater management (e.g., BRIC, FMA Grant, Section 205 Grant)
R4		Coordinate with SFPUC for local stormwater management	Hard				SFPUC		RWQCB		
R5	R5	<b>REACH 5: SOUTHEASTERN WATERFRONT</b> Key Asset: Pier 96 and Backlands Co-beneficiaries: Pier 90, 92, and 94, Pier 94 Wetlands									
(R5) 1	(R5) 1	<b>1. Restore and protect maritime and industrial use at Pier 90 &amp; 92</b>									
R5	1.1	Remove Deteriorating Timber Apron and Concrete Wharf	Hard	\$ 16,456,415	\$ 34,887,600	Port		USACE, NMFS, RWQCB, BCDC, CDFW, SLC		Removal of pier also required in Heron's Head Park Restoration (also Reach 5). Water-related work is costly so efficiencies should be prioritized.	Grants related to flood and stormwater management (e.g., BRIC, FMA Grant, Section 205 Grant)
R5	1.2	Temp. Flood Protection (Sand Bags or Deployables)	Event	\$ 254,284	\$ 539,082	Port		USACE, RWQCB, BCDC, SLC		Similar to temporary flood barriers in Reaches 1 and 3.	Grants related to flood and stormwater management (e.g., BRIC, FMA Grant, Section 205 Grant)
R5	1.3A	Construct a new raised wharf and pier edge along Pier 90-92 from Illinois Street Bridge to Pier 94 wetlands.	Hard	\$ 124,439,370	\$ 263,811,464	Port		USACE, USFWS, NMFS, RWQCB, BCDC, CDFW, SLC			Grants related to flood and stormwater management (e.g., BRIC, FMA Grant, Section 205 Grant)
R5	1.3B.1	Install Bridge to Support Smaller Harbor Services Craft	Hard	\$ 24,000,000	\$ 50,880,000	Port		USACE, NMFS, RWQCB, BCDC, CDFW, SLC			Grants related to flood and stormwater management (e.g., BRIC, FMA Grant, Section 205 Grant)
R5	1.3B.2	Improve Dry Bulk Barge Unloading Facilities (Offshore Mooring Dolphins, Offshore Dry-Bulk Hopper, Elevated Conveyor Bridge)	Hard	\$ 39,806,000	\$ 84,388,720	Port		USACE, NMFS, RWQCB, BCDC, CDFW, SLC			Grants related to flood and stormwater management (e.g., BRIC, FMA Grant, Section 205 Grant)
(R5) 2	(R5) 2	<b>2. Consider incremental migration of Pier 94 wetlands</b>									



Reach	Strategy & Sub-Strategy	Near Term Strategies	Project Type	Hard Cost	Cost with Markup & Contingency	Potential Strategy Lead	Local Offices with Jurisdiction & Potential Implementation Partners	State and Federal Agencies with Potential Permitting and/or Jurisdictional Authority	CIP-related projects? (OneSF CIP 2020 - 2029)	Implementation Considerations	Applicable Grants
R5	2.1	Wetland Migration into Existing Buffer Area - Remove Rubble and 3' deep imported fill + hydroseed + plants	Nature	\$ 27,692,500	\$ 58,708,100	Port		USACE, USFWS, NMFS, RWQCB, BCDC, CDFW			Grants related to flood and stormwater management (e.g., BRIC, FMA Grant, Section 205 Grant)
R5	2.2	Construct Flood Protection Structure Between Tenants and Wetland Buffer	Earthen	\$ 3,000,079	\$ 6,360,168	Port		USACE, USFWS, NMFS, RWQCB, BCDC, CDFW			Grants related to flood and stormwater management (e.g., BRIC, FMA Grant, Section 205 Grant)
R5		Explore Opportunities to Provide Public Access to Pier 94 Wetlands	Study			Port					
(R5) 3	(R5) 3	<b>3. Optimize use of cargo terminals and industrial areas to facilitate growth</b>									
R5	3.1	Study and explore shoreline adaptation options that maintain & optimize maritime terminal berth functions and cargo growth	Study	Not Included		Port		None			
(R5) 4	(R5) 4	<b>4. Protect maritime function of Pier 96</b>									
R5	4.1	Reconstruct Existing Sheet Pile Wall	Hard	\$ 12,460,000	\$ 26,415,200	Port		USACE, USFWS, NMFS, RWQCB, BCDC, CDFW, SLC			Grants related to flood and stormwater management (e.g., BRIC, FMA Grant, Section 205 Grant)
R5	4.2	Evaluate the next planned major investment in recycling facilities at Pier 96 in tandem with reconstructing the sheetpile wall. Consider elevating this facility.	Study	Not Included		Port		None			Grants related to flood and stormwater management (e.g., BRIC, FMA Grant, Section 205 Grant)
R5	4.3	Add additional general berth	Hard	Not Included		Port		USCG, USACE, NMFS, RWQCB, BCDC, CDFW and SLC		Level of oversight dependent on what is already in place.	Grants related to flood and stormwater management (e.g., BRIC, FMA Grant, Section 205 Grant)
R5	4.4	Raise Wharf Edge - 2' concrete wall and Curb	Hard	\$ 489,500	\$ 1,037,740	Port		BCDC, USACE			Grants related to flood and stormwater management (e.g., BRIC, FMA Grant, Section 205 Grant)
R5	4.5	Coordinate with Port plans to protect or relocate current tenants	Land Use Change	Not Included		Port		USACE, NMFS, RWQCB, BCDC, CDFW, SLC			
(R5) 5	(R5) 5	<b>5. Restore / improve the creek and bay ecosystem at Lash Lighter Basin and Heron's Head Park</b>									
R5	5.1	Convert Existing Drainage Channels to Tidal Marsh	Nature	\$ 391,822	\$ 830,663	Port		None			Grants related to shoreline protection and preservation (e.g., LWCF State Grants Program, Coastal Resilience Grants Program, ESLR Program, FMA Grant, SFBWQIF)
R5	5.2	Remove and Demolish Remnant Pier/Piles	Hard	\$ 113,350	\$ 240,302	Port		USACE, USFWS, NMFS, RWQCB, BCDC, CDFW, SLC		Removal of pier also part of Pier 90 - 92 work (also Reach 5). Water-related work is costly so efficiencies should be prioritized.	Grants related to shoreline protection and preservation (e.g., LWCF State Grants Program, Coastal Resilience Grants Program, ESLR Program, FMA Grant, SFBWQIF)
R5	5.3	Implement the Heron's Head Park Adaptation Plan	Nature	Not Included		Port		USCG, USACE, NMFS, RWQCB, BCDC, CDFW and SLC	Waterfront Park Emerging Projects		Grants related to shoreline protection and preservation (e.g., LWCF State Grants Program, Coastal Resilience Grants Program, ESLR Program, FMA Grant, SFBWQIF)
R5	(District)	Expand Blue Greenway	Hard	\$ 119,340	\$ 253,001	Port	DPW, SFMTA	BCDC	Bayview Community Based Transportation Plan Waterfront Park Emerging Projects	Other parts of the Blue Greenway have been funded by a mixture of philanthropic and CCSF dollars.	Grants related to transportation & mobility (e.g., ATP, Community-Based Transportation Planning Program, One Bay Area Grant)

**Table 10. Summary of Near-Term Strategies Grouped by Project Type**

Table 10. Summary of Near-Term Strategies Grouped by Project Type

Reach	Strategy & Sub-Strategy	Project Type	Near Term Strategies	Hard Cost	Cost with Markup & Contingency	Potential Strategy Lead	Local Offices with Jurisdiction & Potential Implementation Partners	State and Federal Agencies with Potential Permitting and/or Jurisdictional Authority	CIP-related projects? (OneSF CIP 2020 - 2029)	Applicable Grants
R5	2.2	Earthen	Construct Flood Protection Structure Between Tenants and Wetland Buffer	\$ 3,000,079	\$ 6,360,168	Port	0	USACE, USFWS, NMFS, RWQCB, BCDC, CDFW	0	Grants related to flood and stormwater management (e.g., BRIC, FMA Grant, Section 205 Grant)
R4	2.3 & 2.4	Earthen	Construct shoreline berm & path	\$ 112,800	\$ 239,136	Port	DPW	BCDC, RWQCB	0	Grants related to green infrastructure and nature-based solutions (e.g., BRIC Program, Urban Waters Small Grants, Climate Ready Program), in addition to standard flood management (e.g., FMA Grant, Section 205)
R1	1.1	Event	Temporary Flood Fighting Measures at Low Spots - Portable Cylinder Flood Barriers	\$ 178,436	\$ 378,285	Port	0	USACE, RWQCB, BCDC	Waterfront Park Emerging Projects	Grants related to flood management (e.g., Coastal Resilience Grants Program, ESLR Program, Flood Mitigation Assistance, Section 205 Grant)
R2	1.2	Event	Temporary floodproofing	\$ 650,000	\$ 1,385,161	DPW	Port, SFMTA	Caltrans	Islais Creek Bridge Overhead Reconstruction Islais Creek Bridge Project	Grants related to green infrastructure and nature-based solutions (e.g., BRIC Program, Urban Waters Small Grants, Climate Ready Program, Green Infrastructure Grant Program, Urban Greening Program, Right Now Climate Fund).
R5	1.2	Event	Temp. Flood Protection (Sand Bags or Deployables)	\$ 254,284	\$ 539,082	Port	0	USACE, RWQCB, BCDC, SLC	0	Grants related to flood and stormwater management (e.g., BRIC, FMA Grant, Section 205 Grant)
R3	1A.2	Event	Option A2: Constructing Popup Flood Barriers	\$ 702,000	\$ 1,488,240	SFMTA	SFPUC, DPW	None	0	Grants related to flood and stormwater management (e.g. FMA Grant, Section 205 Grant)
R1	2.1.1	Event	Deployable Barriers - Aqua Dam (at southeast corner of Pier 80)	\$ 82,500	\$ 174,900	Port	0	USACE, NMFS, RWQCB, BCDC, SLC	0	Grants related to gray infrastructure projects (BRIC Grant Program, FMA Grant, Section 205 Grant)
R3	2.1.2	Event	Deploy temporary flood barriers	\$ 168,712	\$ 357,670	Port	SFMTA, SFPUC, DPW	RWQCB, BCDC	0	Grants related to flood management (e.g., Coastal Resilience Grants Program, ESLR Program, Flood Mitigation Assistance, USACE Section 205)
R4	0	Hard	Coordinate with SFPUC for local stormwater management	\$ -	\$ -	SFPUC	SFPUC	RWQCB	0	0
R2	1.1	Hard	Siesmic retrofit	\$ 80,498,623	\$ 171,543,886	DPW	Port, SFMTA	USACE, NMFS, RWQCB, BCDC, CDFW, SLC	Islais Creek Bridge Overhead Reconstruction Islais Creek Bridge Project	Grants related to the implementation of transportation & mobility projects (e.g., LCTOP, LPP, TDA Article 3)
R5	1.1	Hard	Remove Deteriorating Timber Apron and Concrete Wharf	\$ 16,456,415	\$ 34,887,600	Port	0	USACE, NMFS, RWQCB, BCDC, CDFW, SLC	0	Grants related to flood and stormwater management (e.g., BRIC, FMA Grant, Section 205 Grant)
R2	1.3	Hard	Relocate access hatches to street level	\$ 130,000	\$ 277,032	DPW	Port, SFMTA	Caltrans	Islais Creek Bridge Overhead Reconstruction Islais Creek Bridge Project	Grants related to green infrastructure and nature-based solutions (e.g., BRIC Program, Urban Waters Small Grants, Climate Ready Program, Green Infrastructure Grant Program, Urban Greening Program).
R1	1.4	Hard	Expand Blue Greenway	\$ 379,080	\$ 803,650	Port	DPW, SFMTA	BCDC	Bayview Community Based Transportation Plan Waterfront Park Emerging Projects	Grants related to transportation & mobility (e.g., ATP, Community-Based Transportation Planning Program, One Bay Area Grant)
R1	1.4	Hard	Expand Blue Greenway	\$ 379,080	\$ 803,650	Port	DPW, SFMTA	BCDC	Bayview Community Based Transportation Plan Waterfront Park Emerging Projects	Grants related to transportation & mobility (e.g., ATP, Community-Based Transportation Planning Program, One Bay Area Grant)
R2	1.4	Hard	New Flood Wall (along Tulare Park, between the two bridges)	\$ 502,216	\$ 1,070,230	DPW	Port, SFMTA	USACE, NMFS, USFWS, RWQCB, BCDC, CDFW, SLC	Islais Creek Bridge Overhead Reconstruction Islais Creek Bridge Project	Grants related to flood and stormwater management (e.g., BRIC, FMA Grant, Section 205 Grant)
R1	2.2	Hard	Pier 80, Low-lying shoreline east of Illinois St	\$ -	\$ -	Port	DPW, SFMTA	USACE, USFWS, NMFS, BCDC, CDFW, SLC	0	Grants related to flood management (BRIC Grant Program, FMA Grant, Section 205 Grant)

Reach	Strategy & Sub-Strategy	Project Type	Near Term Strategies	Hard Cost	Cost with Markup & Contingency	Potential Strategy Lead	Local Offices with Jurisdiction & Potential Implementation Partners	State and Federal Agencies with Potential Permitting and/or Jurisdictional Authority	CIP-related projects? (OneSF CIP 2020 - 2029)	Applicable Grants
R1	2.3	Hard	Improve site grading to prevent precipitation flooding/ponding	\$ 29,700,000	\$ 62,964,000	Port	0	USACE, NMFS, RWQCB, BCDC, SLC	0	Grants related to flood management (e.g., Coastal Resilience Grants Program, ESLR Program, Flood Mitigation Assistance, USACE Section 205)
R3	3.2	Hard	Backflow Prevention at Combined Sewer Discharge	\$ 45,000	\$ 95,400	Port	SFPUC	RWQCB, BCDC	Wastewater at Islais Creek Crossing	Grants related to shoreline protection (e.g., LWCF State Grants Program, Coastal Resilience Grants Program, ESLR Program, FMA Grant, SF Bay Water Quality Improvement Fund, Climate Adaptation and Resiliency Program, IRWM Implementation Grant Program, Right Now Climate Fund).
R4	4.1	Hard	Floodproof existing structures	\$ 3,139,309	\$ 6,655,336	Private	Department of Building Inspection	0	0	0
R5	4.1	Hard	Reconstruct Existing Sheet Pile Wall	\$ 12,460,000	\$ 26,415,200	Port	0	USACE, USFWS, NMFS, RWQCB, BCDC, CDFW, SLC	0	Grants related to flood and stormwater management (e.g., BRIC, FMA Grant, Section 205 Grant)
R3	4.2	Hard	Raise Shoreline Edge, Curb Wall, and Construct Setback Floodwall	\$ 90,750	\$ 192,390	SFPUC	Port, SFMTA, DPW	USACE, NMFS, USFWS, RWQCB, BCDC, SLC	Waterfront Park Emerging Projects Wastewater at Islais Creek Crossing	Grants related to flood and stormwater management, in addition to water runoff (e.g., BRIC, FMA Grant, Section 205 Grant, SFBWQIF, IRWM)
R3	4.3	Hard	Raise Shoreline Path on Levee - 3'	\$ 77,550	\$ 164,406	SFPUC	Port, SFMTA, DPW	USACE, NMFS, USFWS, RWQCB, BCDC, SLC	Waterfront Park Emerging Projects	Grants related to flood and stormwater management, in addition to water runoff (e.g., BRIC, FMA Grant, Section 205 Grant, SFBWQIF, IRWM)
R5	4.3	Hard	Add additional general berth	Not Included	\$ -	Port	0	USCG, USACE, NMFS, RWQCB, BCDC, CDFW and SLC	0	Grants related to flood and stormwater management (e.g., BRIC, FMA Grant, Section 205 Grant)
R5	4.4	Hard	Raise Wharf Edge - 2' concrete wall and Curb	\$ 489,500	\$ 1,037,740	Port	0	BCDC, USACE	0	Grants related to flood and stormwater management (e.g., BRIC, FMA Grant, Section 205 Grant)
R3	5.1	Hard	Introduce Pedestrian Bridge or Floating Walkway at End of Creek	\$ 10,260,000	\$ 21,751,200	Port	DPW, SFMTA	USACE, NMFS, USFWS, RWQCB, BCDC, SLC	Bayview Community Based Transportation Plan Waterfront Park Emerging Projects	Grants related to transportation & mobility (e.g., ATP, LCTOP, Sustainable Communities Grant, SB1 State Local Partnership Program, TDA Article 3, Community-Based Transportation Planning Program, Lifeline Program, One Bay Area Grant, Small Flood Damage Reduction Projects).
R5	5.2	Hard	Remove and Demolish Remnant Pier/Piles	\$ 113,350	\$ 240,302	Port	0	USACE, USFWS, NMFS, RWQCB, BCDC, CDFW, SLC	0	Grants related to shoreline protection and preservation (e.g., LWCF State Grants Program, Coastal Resilience Grants Program, ESLR Program, FMA Grant, SFBWQIF)
R4	6.1	Hard	Separate Combined Sewer and Increase Open Space Areas	\$ 2,848,200	\$ 6,069,561	Port	SFPUC	RWQCB	0	Grants related to flood and stormwater management (e.g., BRIC, FMA Grant, Section 205 Grant)
R3	(District)	Hard	New Green Streets (along Cesar Chavez, from Illinois St to I-280)	\$ 820,080	\$ 1,738,570	Port	DPW, SFMTA, SFPUC	None	0	Grants related to green infrastructure and nature-based solutions (e.g., BRIC Program, Urban Waters Small Grants, Climate Ready Program), in addition to standard flood management (e.g., FMA Grant, Section 205) and transportation improvements (e.g., Active Transportation Program)
R4	1.2.1	Hard	Construct sheet pile floodwall.	\$ 2,282,000	\$ 4,837,840	Port	0	USACE, NMFS, USFWS, RWQCB, BCDC, CDFW, SLC	0	Grants related to shoreline protection and preservation (e.g., LWCF State Grants Program, Coastal Resilience Grants Program, ESLR Program, FMA Grant, SF Bay Water Quality Improvement Fund)
R5	1.3A	Hard	Construct a new raised wharf and pier edge along Pier 90-92 from Illinois Street Bridge to Pier 94 wetlands.	\$ 124,439,370	\$ 263,811,464	Port	0	USACE, USFWS, NMFS, RWQCB, BCDC, CDFW, SLC	0	Grants related to flood and stormwater management (e.g., BRIC, FMA Grant, Section 205 Grant)
R5	1.3B.1	Hard	Install Bridge to Support Smaller Harbor Services Craft	\$ 24,000,000	\$ 50,880,000	Port	0	USACE, NMFS, RWQCB, BCDC, CDFW, SLC	0	Grants related to flood and stormwater management (e.g., BRIC, FMA Grant, Section 205 Grant)
R5	1.3B.2	Hard	Improve Dry Bulk Barge Unloading Facilities (Offshore Mooring Dolphins, Offshore Dry-Bulk Hopper, Elevated Conveyor Bridge)	\$ 39,806,000	\$ 84,388,720	Port	0	USACE, NMFS, RWQCB, BCDC, CDFW, SLC	0	Grants related to flood and stormwater management (e.g., BRIC, FMA Grant, Section 205 Grant)

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R3	1A.1	Hard	Option A1: Divert offsite runoff from adjacent streets with perimeter flood wall, 2' concrete wall	\$ 52,800	\$ 111,936	SFMTA	SFPUC, Port, DPW	USACE, RWQCB, BCDC, NMFS, CDFW, SLC	0	Grants related to flood and stormwater management (e.g., BRIC, FMA Grant, Section 205 Grant)
R3	1A.3	Hard	Option A3: Raising and Regrading Low Spots on Property	\$ 4,349,875	\$ 9,221,735	SFMTA	SFPUC, DPW	None	0	Grants related to flood and stormwater management (e.g., BRIC, FMA Grant, Section 205 Grant)
R3	1A.4	Hard	Option A4: Floodproofing Buildings - 62,500 SF - 3' tall concrete perimeter wall with deployable barriers at entrances	\$ 311,150	\$ 659,638	SFMTA	SFPUC, DPW	None	0	Grants related to flood and stormwater management (e.g. FMA Grant, Section 205 Grant)
R3	1A.5	Hard	Option A5: Elevate Storage Areas and Elec./Mech. Equipment - 15,000 SF	\$ 639,688	\$ 1,356,138	SFMTA	SFPUC, DPW	None	0	Grants related to flood and stormwater management (e.g. FMA Grant, Section 205 Grant)
R3	1B.1	Hard	Install a separated stormwater drainage system, Option 1B.1	\$ 911,250	\$ 1,931,850	SFMTA	SFPUC, DPW	USACE, USFWS, NMFS, RWQCB (401 Cert and NPDES), CDFW, BCDC, SLC	Wastewater at Islais Creek Crossing	Grants related to flood and stormwater management, in addition to water runoff (e.g., BRIC, FMA Grant, USACE Section 205, SFBWQIF, IRWM)
R3	2.1.1	Hard	Raise nearby streets	\$ 1,298,796	\$ 2,753,448	DPW	DPW, SFMTA	RWQCB	0	Grants related to flood management (e.g., Coastal Resilience Grants Program, ESLR Program, Flood Mitigation Assistance, USACE Section 205)
R1	2.1.2	Hard	Floodproof critical maritime buildings	\$ 495,000	\$ 1,049,400	Port	0	0	0	Grants related to flood management (e.g., Coastal Resilience Grants Program, ESLR Program, Flood Mitigation Assistance, USACE Section 205)
R3	2.1.3	Hard	Construct perimeter floodwall	\$ 2,061,728	\$ 4,370,864	Port	SFMTA, SFPUC, DPW	USACE, NMFS, BCDC, CDFW, SLC	0	Grants related to flood management (e.g., Coastal Resilience Grants Program, ESLR Program, Flood Mitigation Assistance, USACE Section 205)
R3	2.2.1	Hard	Remove Rubble/Debris Along Shoreline	\$ 150,000	\$ 318,000	Port	DPW	USACE, NMFS, USFWS, NMFS, RWQCB, BCDC, CDFW, SLC	Waterfront Park Emerging Projects	Grants related to shoreline protection (e.g., LWCF State Grants Program, Coastal Resilience Grants Program, ESLR Program, FMA Grant, SF Bay Water Quality Improvement Fund, Climate Adaptation and Resiliency Program, IRWM Implementation Grant Program, Right Now Climate Fund).
R3	2.2.2	Hard	Raise Shoreline with Seawall	\$ 1,070,513	\$ 2,269,487	Port	DPW	USACE, NMFS, USFWS, NMFS, RWQCB, BCDC, CDFW, SLC	Waterfront Park Emerging Projects	Grants related to shoreline protection (e.g., LWCF State Grants Program, Coastal Resilience Grants Program, ESLR Program, FMA Grant, SF Bay Water Quality Improvement Fund, Climate Adaptation and Resiliency Program, IRWM Implementation Grant Program, Right Now Climate Fund).
R1	2.2A	Hard	Option A: Reinforced concrete Floodwall	\$ 574,905	\$ 1,218,799	Port	DPW, SFMTA	USACE, USFWS, NMFS, BCDC, CDFW, SLC	0	Grants related to flood management (e.g., Coastal Resilience Grants Program, ESLR Program, Flood Mitigation Assistance, USACE Section 205)
R2	2A	Hard	Islais Creek Bridge Adaptation, Option A @ 2040 Seal and Secure Existing Bridge as Non-Operable	\$ 1,130,000	\$ 2,408,049	DPW	Port	Caltrans, SHPO	Islais Creek Bridge Overhead Reconstruction Islais Creek Bridge Project	Grants related to flood management and transportation (e.g., SFBWQIF, BRIC Grant Program, LCTOP, LPP)
R2	2B	Hard	Islais Creek Bridge Adaptation, Option B: Seal and Secure Existing Bridge as Non-Operable @ 2040 + Replace As New @ 2080 - Non-Operable Bridge At Higher Elevation in Future	\$ 1,130,000	\$ 2,395,600	DPW	Port	USACE, NMFS, RWQCB, BCDC, CDFW, SLC, Caltrans, SHPO	Islais Creek Bridge Overhead Reconstruction Islais Creek Bridge Project	Grants related to flood management and transportation (e.g., SFBWQIF, IRWM, BRIC Grant Program, LCTOP, LPP)
R2	2C	Hard	Islais Creek Bridge Adaptation, Option C: Replace As New - Operable Bridge At Higher Elevation @ 2040	\$ 102,250,000	\$ 216,770,000	DPW	Port	USACE, NMFS, RWQCB, BCDC, CDFW, SLC, Caltrans, SHPO	Islais Creek Bridge Overhead Reconstruction Islais Creek Bridge Project	Grants related to flood management and transportation (e.g., SFBWQIF, IRWM, BRIC Grant Program, LCTOP, LPP)
R2	3.1A	Hard	Option A: Interim Bike/Pedestrian Safety Improvements	\$ 480,000	\$ 1,022,888	Port	DPW, SFMTA	Caltrans	Bayview Community Based Transportation Plan	Grants related to transportation & mobility, with a priority on serving disadvantaged communities (e.g., LCTOP, Sustainable Communities Grant, Community-Based Transportation Planning Program, Lifeline Program)
R2	3.1B	Hard	Option B: New Bike-Pedestrian Crossing	\$ 11,280,000	\$ 24,037,865	Port	DPW, SFMTA	USACE, NMFS, RWQCB, BCDC, CDFW, SLC	Bayview Community Based Transportation Plan	Grants related to transportation & mobility, with a priority on serving disadvantaged communities (e.g., LCTOP, Sustainable Communities Grant, Community-Based Transportation Planning Program, Lifeline Program), in addition to grants related to parks & recreation access and restoration (e.g., AHSC Program, LWCF State Grants Program, Statewide Park Program)

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R2	3A	Hard	Illinois Street Bridge Adaptation, Option A: Replace as Non-Operable Bridge at Higher Elevation @ 2080	\$ 108,717,840	\$ 231,679,500	Port	DPW	USACE, NMFS, RWQCB, BCDC, CDFW, SLC, Caltrans, SHPO	Islais Creek Bridge Overhead Reconstruction Islais Creek Bridge Project	Grants related to flood management and transportation (e.g., SFBWQIF, IRWM, BRIC Grant Program, LCTOP, LPP)
R4	3A	Hard	Option A: Allowance Relocate Station	\$ 12,663,448	\$ 26,846,510	Port	DPW	BCDC, RWQCB	Wastewater at Islais Creek Crossing Islais Creek Bridge Overhead Reconstruction Islais Creek Bridge Project	Grants related to flood management and asset protection (e.g., BRIC, FMA Grant, Section 205 Grant, Climate Adaptation and Resiliency Program)
R2	3B	Hard	Illinois Street Bridge Adaptation, Option B: Replace as Operable Bridge at Higher Elevation @ 2080	\$ 170,422,560	\$ 363,173,271	Port	DPW	USACE, NMFS, RWQCB, BCDC, CDFW, SLC, Caltrans, SHPO	Islais Creek Bridge Overhead Reconstruction Islais Creek Bridge Project	Grants related to flood management and transportation (e.g., SFBWQIF, IRWM, BRIC Grant Program, LCTOP, LPP)
R4	0	Land Use Change	Reclassify Islais Creek as non-navigable waterway (west of bridges)	\$ -	\$ -	Port	0	USCG	0	0
R5	4.5	Land Use Change	Coordinate with Port plans to protect or relocate current tenants	Not Included	\$ -	Port	0	USACE, NMFS, RWQCB, BCDC, CDFW, SLC	0	0
R4	5.1	Land Use Change	Remediate Contaminants - Cap with 2' of Gravel	\$ 693,000	\$ 1,476,794	Port	0	RWQCB, DTSC	Wastewater at Islais Creek Crossing	Grants related to environmental preservation and restoration (e.g., LWCF State Grants Program, Prop 68 Climate Adaptation Funds, Urban Greening Program, Right Now Climate Fund, SF Bay Restoration Authority Grant)
R4	1.1.1	Land Use Change	Acquire properties	\$ 128,416,995	\$ 135,479,930	CCSF	DPW	BCDC, RWQCB, DTSC	Waterfront Park Emerging Projects	Grants that authorize the purchase of private property for flood management purposes (e.g., BRIC, ESLR)
R4	1.1.2	Land Use Change	Remediate properties - tenant payouts, etc.	\$ 12,330,850	\$ 26,141,402	CCSF	DPW	BCDC, RWQCB, DTSC	Waterfront Park Emerging Projects	0
R4	0	Nature	Identify other potential ecosystem pilot studies to create habitat and improve water quality.	\$ -	\$ -	Port	0	None	0	Grants related to environmental preservation and restoration (e.g., LWCF State Grants Program, Prop 68 Climate Adaptation Funds, Urban Greening Program, Right Now Climate Fund, SF Bay Restoration Authority Grant)
R1	1.3	Nature	Add kayak launch at Warm Water Cove Park	\$ 155,000	\$ 330,308	Port	0	USACE, BCDC, RWQCB, NMFS, CDFW, SLC	Waterfront Park Emerging Projects	Grants related to parks & recreation access and restoration (e.g., AHSC Program, LWCF State Grants Program, Statewide Park Program)
R4	2.1	Nature	Expand park (and create wetlands where possible)	\$ 3,705,000	\$ 7,854,600	Port	0	USACE, NMFS, USFWS, RWQCB, BCDC, CDFW, SLC	Waterfront Park Emerging Projects	Grants related to parks & recreation access and restoration (e.g., ORLP, SPP, Prop 68 Climate Adaptation Funds, SF Bay Restoration Authority Grant).
R5	2.1	Nature	Wetland Migration Into Existing Buffer Area - Remove Rubble and 3' deep imported fill + hydroseed + plants	\$ 27,692,500	\$ 58,708,100	Port	0	USACE, USFWS, NMFS, RWQCB, BCDC, CDFW	0	Grants related to flood and stormwater management (e.g., BRIC, FMA Grant, Section 205 Grant)
R4	2.2	Nature	Relocate and rehabilitate kayak / boat launch.	\$ 60,000	\$ 127,200	Port	0	BCDC	Waterfront Park Emerging Projects	Grants related to parks & recreation access and restoration (e.g., ORLP, AHSC Program, LWCF State Grants Program, Statewide Park Program, SF Bay Restoration Authority Grant)
R3	3.1	Nature	Oyster Reefs Along Seawall	\$ 149,400	\$ 316,728	Port	0	USACE, NMFS, USFWS, RWQCB, BCDC, CDFW, SLC	Wastewater at Islais Creek Crossing	Grants related to green infrastructure and nature-based solutions (e.g., BRIC Program, Urban Waters Small Grants, Climate Ready Program, Green Infrastructure Grant Program, Urban Greening Program), in addition to grants related to water quality and management (e.g., SFBWQIF, IRWM)
R3	4.1	Nature	Remove Rubble/Debris and Construct Living Shoreline	\$ 8,607,000	\$ 18,246,840	SFPUC	Port, SFMTA, DPW	USACE, NMFS, USFWS, RWQCB, BCDC, SLC	Waterfront Park Emerging Projects	Grants related to green infrastructure and nature-based solutions (e.g., BRIC Program, Urban Waters Small Grants, Climate Ready Program, Green Infrastructure Grant Program, Urban Greening Program).
R3	4.4	Nature	Extend Living Shoreline up Levee Slope	\$ 798,000	\$ 1,691,760	SFPUC	Port, SFMTA, DPW	USACE, NMFS, USFWS, RWQCB, BCDC, SLC	Waterfront Park Emerging Projects	Grants related to green infrastructure and nature-based solutions (e.g., BRIC Program, Urban Waters Small Grants, Climate Ready Program, Green Infrastructure Grant Program, Urban Greening Program).

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R3	4.5	Nature	Replace Rubble/Riprap Along Western Back with Vegetated Eco-Riprap	\$ 440,000	\$ 932,800	SFPUC	Port, SFMTA, DPW	USACE, NMFS, USFWS, RWQCB, BCDC, SLC	Waterfront Park Emerging Projects	Grants related to green infrastructure and nature-based solutions (e.g., BRIC Program, Urban Waters Small Grants, Climate Ready Program, Green Infrastructure Grant Program, Urban Greening Program).
R5	5.1	Nature	Convert Existing Drainage Channels to Tidal Marsh	\$ 391,822	\$ 830,663	Port	0	None	0	Grants related to shoreline protection and preservation (e.g., LWCF State Grants Program, Coastal Resilience Grants Program, ESLR Program, FMA Grant, SFBWQIF)
R5	5.3	Nature	Implement the Heron's Head Park Adaptation Plan	Not Included	\$ -	Port	0	USCG, USACE, NMFS, RWQCB, BCDC, CDFW and SLC	Waterfront Park Emerging Projects	Grants related to shoreline protection and preservation (e.g., LWCF State Grants Program, Coastal Resilience Grants Program, ESLR Program, FMA Grant, SFBWQIF)
R1	(District)	Nature	New Green Streets (on 25th St, from 3rd St to Maryland St)	\$ 1,163,120	\$ 2,465,814	DPW	SFPUC, SFMTA, Port	None	0	Grants related to green infrastructure and nature-based solutions (e.g., BRIC Program, Urban Waters Small Grants, Climate Ready Program), in addition to standard flood management (e.g., FMA Grant, Section 205) and transportation improvements (e.g., Active Transportation Program)
R1	1.2.1	Nature	Construct pocket beach features	\$ 2,051,450	\$ 4,349,074	Port	0	USACE, USFWS, RWQCB, BCDC	Waterfront Park Emerging Projects	Grants related to parks & recreation access and restoration (e.g., ORLP, AHSC Program, LWCF State Grants Program, Statewide Park Program)
R1	1.2.2	Nature	Add groynes	\$ 628,267	\$ 1,331,925	Port	0	USACE, USFWS, RWQCB, BCDC	Waterfront Park Emerging Projects	Grants related to parks & recreation access and restoration (e.g., ORLP, AHSC Program, LWCF State Grants Program, Statewide Park Program)
R4	1.2.2	Nature	Removal of rubble and riprap.	\$ 181,926	\$ 385,683	Port	0	USACE, NMFS, USFWS, RWQCB, BCDC, CDFW, SLC	0	Grants related to green infrastructure and nature-based solutions (e.g., BRIC Program, Urban Waters Small Grants, Climate Ready Program, Green Infrastructure Grant Program, Urban Greening Program).
R1	1.2.3	Nature	Re-nourish beaches	\$ 1,452,150	\$ 3,078,558	Port	0	USACE, USFWS, RWQCB, BCDC	Waterfront Park Emerging Projects	Grants related to parks & recreation access and restoration (e.g., ORLP, AHSC Program, LWCF State Grants Program, Statewide Park Program)
R1	2.2B	Nature	Option B: Living Shoreline (east of Illinois St, remove rubble and debris and construct living shoreline)	\$ 274,050	\$ 584,005	Port	DPW	USACE, USFWS, NMFS, BCDC, CDFW, SLC	0	Grants related to shoreline protection (Coastal Resilience Grants Program, SFBWQIF, Section 205 Grant, Urban Waters Small Grants)
R2	0	Policy	Forego current rehabilitation project since time horizon is 50 years and does not include SLR upgrades.	\$ -	\$ -	DPW	Port, SFMTA	Caltrans, BCDC	Islais Creek Bridge Overhead Reconstruction Islais Creek Bridge Project	0
R2	0	Policy	Change status of creek to navigable waterway for only recreational human-powered boats	\$ -	\$ -	Port	DPW, SFMTA, SFFD	USCG	Islais Creek Bridge Overhead Reconstruction Islais Creek Bridge Project	0
R2	0	Study	Complete technical traffic feasibility analysis on proposed changes to Islais Creek and Illinois Street Bridges.	\$ -	\$ -	DPW	Port, SFMTA	Caltrans	Bayview Community Based Transportation Plan Islais Creek Bridge Overhead Reconstruction Islais Creek Bridge Project	Grants related to transportation planning & mobility (e.g., Community-Based Transportation Planning Program, Lifeline Program)
R3	0	Study	Conduct local drainage study and alternatives analysis	\$ -	\$ -	SFMTA	SFPUC, Port, DPW	None	Wastewater at Islais Creek Crossing	Grants related to flood and stormwater management (e.g., BRIC, FMA Grant, Section 205 Grant)
R3	0	Study	Coordinate with Caltrans to address I-280 overflows	\$ -	\$ -	SFMTA	0	Caltrans	Wastewater at Islais Creek Crossing	0
R3	0	Study	Coordinate with Bus Facility drainage study	\$ -	\$ -	Port	SFMTA, SFPUC, DPW	None	Wastewater at Islais Creek Crossing	Grants related to flood and stormwater management, in addition to water runoff (e.g., BRIC, FMA Grant, Section 205 Grant, SFBWQIF, IRWM)
R5	3.1	Study	Study and explore shoreline adaptation options that maintain & optimize maritime terminal berth functions and cargo growth	Not Included	\$ -	Port	0	None	0	0

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R5	4.2	Study	Evaluate the next planned major investment in recycling facilities at Pier 96 in tandem with reconstructing the sheetpile wall. Consider elevating this facility.	Not Included	\$ -	Port	0	None	0	Grants related to flood and stormwater management (e.g., BRIC, FMA Grant, Section 205 Grant)