Resilience Existing Conditions and Background Analysis

City of Newport Beach General Plan Update

JANUARY 2024

Prepared for:

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Acronyms, Abbreviations, Key Terms

Acronym/Abbreviation	Expanded Form
AB	Assembly Bill
BID	Business Improvement District
CAL FIRE	California Department of Forestry and Fire Protection
CALGreen	California Green Buildings Standards Code
CAP	Climate Action Plan
CCC	California Coastal Commission
CFD	Community Facilities District
City	City of Newport Beach
CoSMoS	Our Coast, Our Future's Coastal Storm Modeling System
CRIA	Community Revitalization and Investment Authority
EAP	Energy Action Plan
EIFD	Enhanced Infrastructure Financing District
EV	electric vehicle
GHG	greenhouse gas
GPAC	General Plan Advisory Committee
HVAC	heating, ventilation, and air conditioning
LEED	Leadership in Energy and Environmental Design
OCTA	Orange County Transportation Authority
OPC	California Ocean Protection Council
OPR	State of California Office of Planning and Research
RCP	Relative Concentration Pathway
SB	Senate Bill
SCE	Southern California Edison
SMCA	State Marine Conservation Area
VMT	vehicle miles traveled

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1 Executive Summary

This report comprehensively assesses nine resilience topics that the community has deemed especially important in Newport Beach: resilience to coastal hazards, environmental education and awareness, sustainable buildings and development, sustainable transportation, waste reduction, energy efficiency and conservation, water conservation, recreational water quality, and urban outdoors. It identifies how the City is already addressing these topics and how the City should further address the topics through the General Plan Update, to improve coordination between City departments, maximize implementation funding opportunities, and ensure that Newport Beach remains resilient.

The City is already addressing resilience in the adopted General Plan and Implementation Program, Local Coastal Program and Implementation Plan, Municipal Code, and various other plans and policy documents focused on specific issues such as the Urban Water Management Plan. Moreover, the City works closely with other local, state, and federal agencies to address regional issues and implement state and federal environmental laws. However, many of these plans and programs, including the General Plan, must be updated to reflect rapidly changing environmental, economic, and social conditions, comply with new state and federal laws, and respond to the needs and desires of the community.

In order to protect residents, businesses, property, infrastructure, and natural environments from worsening environmental hazards and to ensure the continued vitality of the local economy and community, the General Plan Update should prioritize policies that advance resilience across Newport Beach. Specifically, coastal hazard resilience can be addressed in the Harbor and Bay and Safety Elements to support a Local Coastal Program update consistent with the current CCC standards. Environmental education and awareness should be addressed in nearly every General Plan element in order to ensure community members are aware of their own environmental impact, what the City is doing to improve environmental quality, and what resources are available to them. Resilience in buildings and development should be addressed in the Land Use Element with focus on green building design. Resilience and sustainability in transportation has recently been addressed in the Circulation Element update which focuses on reducing transportation emissions by promoting alternatives to driving and zero emission vehicles and can potentially be further enhanced through additional policies. Further, transportation-related topics can also be addressed in other elements including the Land Use Element to include supportive land uses and electric vehicle (EV) charging infrastructure. Waste reduction can be addressed in the Natural Resources Element with focus on reducing the amount of solid waste generated and preventing it from entering the natural environment. Water conservation can be addressed in the Land Use Element and focus mainly on the implementation of sustainable landscaping practices. Recreational water quality can be addressed in the Harbor and Bay, Recreation, and Natural Resources Elements and focus on reducing known pollutants at the source and educating the public. Lastly, urban outdoors can be addressed in the Land Use and Recreation Elements and focus on protecting and expanding outdoor recreation opportunities for everyone. Further recommendations include increased coordination and efficient implementation to maximize the pursuit of funding opportunities, incentives to help facilitate increased resilience, implementation steps and mechanisms for each policy, as applicable, and the establishment of a resilience staff lead to coordinate and lead implementation.

By addressing resilience issues throughout the General Plan through targeted policies and programs in each element as recommended, the City can address resilience wholistically while increasing internal coordination. This will ensure the continued health of the community, economy, and natural and built environments of Newport Beach.

2 Introduction

2.1 Overview and Purpose

One of the central functions of the City of Newport Beach (City) General Plan is to ensure that the City maintains a high level of environmental quality for the community. To do so, the City must plan to address any issues that threaten environmental quality. Although this concept—referred to as "resilience"—is already integrated into many parts of the General Plan, it is necessary to periodically reassess issues, evaluate how effectively the City is addressing them, and update plans and policies accordingly. This Resilience Existing Conditions and Background Analysis is intended to help identify these issues, where they are or can be addressed in the General Plan or other plans, and possible solutions that have been successful in other cities facing similar issues.

2.2 Defining Resilience in Newport Beach

"Resilience" is the community's ability to respond and adapt to changing social, economic, and environmental conditions. General Plan Advisory Committee (GPAC) members expressed concern regarding potential vulnerabilities relating to changes in the environment and want to ensure that the General Plan Update will help to protect the quality of life, resources, and amenities in Newport Beach. Resilience can be achieved through a number of measures, including but not limited to the incorporation of sustainability into planning and development. "Sustainability" refers to efforts to reduce the use of natural resources and the impact that people have on the environment. GPAC members have proposed a series of topics that they wish to be considered through the General Plan Update that may be vulnerable and can be addressed under the lenses of resilience. Other trends and topics related to resilience will be addressed in other analyses for the General Plan Update, as resilience is a broad topic that can apply to a multitude of planning matters. However, initial topics analyzed under the lens of resilience in this report include the following:

1. **Coastal Hazards.** Protection from sea-level rise, flooding, and coastal erosion are topics that are of great concern to Newport Beach community members. This section provides an overview of the coastal hazards impact, and provides descriptions and maps of various hazard scenarios in local communities such as the Balboa Peninsula, Newport Harbor and Corona del Mar.
2. **Education.** Municipal resources provide information tailored to the needs of residents and business owners, and can raise awareness on current City efforts, strategies, and goals related to climate resilience. This section provides an overview of these resources, including the City's Green Building Guidelines, and the channels, such as social media, that the City uses to share this information with the general public.
3. **Buildings and Development.** Implementation of green building design guidelines and other sustainable building techniques can greatly improve the resilience of the built environment and help alleviate strains on existing infrastructure systems. This section provides an overview of existing building and fire codes and resources, such as the City's Green Building Code, which are pertinent to infrastructure resilience.
4. **Transportation.** Effective transportation systems are interconnected with land uses, and disruptions to existing and planned systems have the potential to create barriers to access. This section evaluates existing conditions for transportation alternatives to the private car, including public transportation routes and

active transportation roads. This section will also provide information on the City's provisions regarding bicycle parking and parking intended for electric vehicles (EVs).

5. **Waste Reduction.** Reduction of waste takes many forms. Waste reduction can reduce risks associated with hazardous sites, and ultimately helps create a cleaner and healthier environment for all. This section provides an overview of the City's various waste management strategies and compliance with State legislation related to waste management.
6. **Energy.** Diversity in energy sources can help reduce reliance on existing systems and promote renewable energy use. This section provides information on the Southern California Edison service area which includes Newport Beach, electrification scenarios, and other related energy initiatives.
7. **Water Conservation.** When paired together, the diversification of water sources and implementation of conservation strategies can reduce the City's impact on the water supply and increase the City's resilience in the event of a drought. This section provides information on the City's water use and supply, as well as on the Water Shortage Contingency Plan.
8. **Water Quality.** Maintaining and improving the quality of water in the bay and harbor can protect Newport Beach's greatest assets, contributing to the local economy and quality of life. This section provides information on Newport Beach's water quality, as defined by Federal and State standards, and information on the water district agencies that operate within the City's jurisdiction.
9. **Urban Outdoors.** Newport Beach's recreational and natural open spaces are vital to the City's identity and support the community's physical, social, and environmental health. Newport Beach's tree canopy is a central community feature that helps residents and visitors keep cool on hot days. This section provides an overview of Newport Beach's natural resources and open spaces, and information on numerous agencies associated with the protection of these spaces.

3 General Plan and Regulatory Review

The City's General Plan and existing legislative and local regulations address many of the analyzed topics as they relate to resilience (see Section 1.2, Defining Resilience in Newport Beach). This chapter identifies where those topics are addressed in legislation, including recommended guidance from the State and local regulations, and identifies where those topics are addressed in the existing General Plan.

3.1 Resilience in State Regulations and Guidance

All California localities are required under State law to develop a general plan to serve as a blueprint for shaping and guiding its future. The State of California Office of Planning and Research (OPR) provides guidance on general plan legislative requirements, as well as recommended policy guidance and available resources. An overview of the analyzed resilience topics and which State-required general plan elements they relate to is shown in Table 1 and is further detailed in this chapter. Required general plan elements have specific topics or issues that must be addressed. State guidance provides additional context on where general plan elements can be enhanced to address community-specific concerns.

Table 1. Resilience in State General Plan Requirements and Guidance

	Land Use Element	Circulation Element	Housing Element	Conservation Element*	Open Space Element**	Noise Element	Safety Element
Coastal Hazards	Requirement	N/A	N/A	Guidance	Requirement	N/A	Requirement
Education	Guidance	Guidance	N/A	N/A	N/A	N/A	Guidance
Buildings and Development	Guidance	N/A	N/A	N/A	N/A	N/A	N/A
Transportation	N/A	Requirement	N/A	N/A	N/A	N/A	N/A
Waste Reduction	Guidance	N/A	N/A	N/A	N/A	N/A	Guidance
Energy	Guidance	N/A	N/A	N/A	N/A	N/A	N/A
Water Conservation	N/A	N/A	N/A	Requirement	N/A	N/A	Requirement
Water Quality	N/A	N/A	N/A	Guidance	N/A	N/A	N/A
Urban Outdoors	N/A	N/A	N/A	N/A	Requirement	N/A	N/A

N/A = not applicable
*The City of Newport Beach adopted General Plan addresses conservation in the Natural Resources Element.
**The City of Newport Beach adopted General Plan addresses open space in the Recreation Element.

3.1.1 Coastal Hazards

Coastal hazards are required to be addressed in several of the mandated general plan elements, with additional recommendations provided by the State for addressing this topic.

Land Use Element: Land use elements are required to consider the potential for flooding associated with all land uses, including those areas that can accommodate flood water for groundwater recharge. Sensitive land uses, such as residential uses, should not be permitted in flood zones, and all uses should be designed to accommodate flood water.

Natural Resources Element: State guidelines recommend that general plans, typically in the conservation element, consider the prevention, control, and correction of the erosion of beaches and shores. It is also recommended that the location, quantity, and quality of sand resources be considered.

Recreation Element: Recreation elements, or open space elements in, must consider the climate resilience benefits of open space and the potential threats to open space, in coordination with the safety element.[1]

Safety Element: Safety elements are required to consider potential risks to proposed land uses and proposed development in hazard zones, including flood zones and areas of coastal erosion. It is recommended that safety elements consider ways to minimize the impacts of potential disaster events.

Coastal hazards are of great importance along California's coastline. While not a requirement of the General Plan, SB 272 (2023) requires that local governments within the coastal zone develop a sea level rise plan as part of its local coastal program.

3.1.2 Education

Although education is not a required component of a general plan, there are multiple areas where policies that address education programs should be considered.

Circulation Element: Policies supporting educational programs are recommended to be included in circulation elements because these programs can provide tools and education to encourage a mix of transportation modes, such as walking and riding bikes.

Safety Element: Safety elements are required to address emergency preparedness, and it is recommended that policies addressing education in emergency preparedness are included to ensure that all are prepared to respond during an emergency event.

3.1.3 Buildings and Development

While efficient land use patterns and green building design are not required to be addressed in general plans, other tools, such as transportation networks and the California Building Code, provide regulations, information and guidelines related to buildings and development.

Land Use Element: Although not a requirement, green building standards can be encouraged as a way to incentivize options for exceeding Statewide standards for new construction, which can further improve energy and water conservation efforts. Land use elements can also craft policies related to green building standards through rehabilitation.

[1] The City of Newport Beach fulfills the requirements of the conservation and open space elements through its Natural Resources Element and Recreation Element. Therefore, these elements will address the coastal hazard topics typically covered by conservation and open space elements.

3.1.4 Transportation

Circulation Element: The Circulation Element is required to plan for "a balanced, multimodal transportation network" that considers people who bike and walk, children, people with disabilities, motorists, commercial goods movement, people who use public transportation, and older adults.

3.1.5 Waste Reduction

Safety Element: The Safety Element must consider sites that contain potentially hazardous materials and address strategies for remediation.

Land Use Element: The Land use Element may incorporate policies to encourage green building policies that reduce construction waste beyond Statewide standards.

3.1.6 Energy

Land Use Element: Green building policies may be incorporated into land use elements to encourage development to incorporate energy-efficient features and building design.

3.1.7 Water Conservation

Natural Resources Element: The Natural Resources element, which addresses the components of the required conservation element, requires coordination with agencies that are concerned with water, and evaluation of water supply and demand. Natural resource elements must identify lands that can accommodate flood water for groundwater recharge and stormwater management.

Safety Element: The Safety Element is required to address water supply and demand. This looks at water storage and water supply assessments for the region.

3.1.8 Water Quality

Natural Resources Element: The Natural Resources Element, which addresses the requirements of the conservation element, may incorporate policies for prevention and control of water pollution and protection of watersheds.

3.1.9 Urban Outdoors

Recreation Element: The Recreation Element, which addresses the components of the required the open space element, must consider access to open space for all residents. Access to open space must consider equitable access in terms of social, economic, and racial equity.

3.2 Resilience in the Adopted General Plan

The City's adopted General Plan addresses many of the analyzed topics as they relate to resilience. Table 2 identifies the General Plan goals and policies addressing resilience by each topic and includes a brief description of policy implementation measures identified in the General Plan Implementation Element (Chapter 13).

Table 2. Resilience in the Adopted General Plan

Element	Goal/Key Policies	Implementation Measures
Coastal Hazards		
Harbor and Bay Element	Policies under Goal 9 address the need for and design of bulkheads: ▪ Policy 9.1, Design of New or Renovated Bulkheads ▪ Policy 9.2, Protection of Beach Profile	▪ Amend the Zoning Code for Consistency with the General Plan: - Codify requirements and standards for the location and design of development to protect terrestrial and marine environmental resources and protect against environmental hazards. ▪ Review and revise Coastal Land Use Plan for consistency with the General Plan.
Safety Element	Policies under Goal 2 address the need to protect people and property from coastal hazards related to storm surges and seiches: ▪ Policy 2.1, Wave Up-Rush and Impact Reports ▪ Policy 2.2, Shoreline Management Plan ▪ Policy 2.5, Shoreline Protection Alternatives	▪ Develop Harbor Area Management Plan. ▪ Maintain hazards database.
	Policies under Goal 3 address adverse effects of coastal erosion: ▪ Policy 3.1, Coastal Hazard Studies ▪ Policy 3.2, Beach Width Monitoring ▪ Policy 3.3, Maintenance of Beach Width and Elevations	▪ Develop Harbor Area Management Plan. ▪ Maintain hazards database.
Education		
Safety Element	Policies under Goal 9 of the Safety Element address educational opportunities to enhance emergency preparedness: ▪ Policy 9.2, Emergency Management Systems Training ▪ Policy 9.4, Familiarity with National and State Response Plans	▪ Maintain hazards database. ▪ Educate the Community: - Newsletters, the City of Newport Beach (City) webpage, television broadcasts, workshops, and general community presentations.

Table 2. Resilience in the Adopted General Plan

Element	Goal/Key Policies	Implementation Measures
	▪ Policy 9.5, Emergency and Disaster Education Programs ▪ Policy 9.6, Effective Emergency Evacuation Programs	
Buildings and Development		
Natural Resources Element	Policies under Goal 24 address energy efficiency in City facilities and operations and in private developments: ▪ Policy 24.1, Incentives for Energy Conservation ▪ Policy 24.2, Energy-Efficient Design Features ▪ Policy 24.3, Incentives for Green Building Program Implementation ▪ Policy 24.4, Incentives for Provision of LEED Certified Buildings ▪ Policy 24.5, New Methane Extraction Activities to Reduce Reliance on Fossil Fuels	Review Building and Construction Code for consistency with General Plan and consider revisions of Title 15 California Building Code to foster the use of "green" building techniques.
Land Use Element	Policies under Goal 5.6 address a diversity of uses and buildings that are mutually compatible and enhance the quality of Newport Beach's environment in neighborhoods and districts: ▪ Policy 5.6.1, Compatible Development ▪ Policy 5.6.4, Conformance with the Natural Environmental Setting	Amendments to the Newport Beach Municipal Code (NBMC) to do the following: ▪ Implement more environmentally sustainable buildings and site planning. ▪ Protect development and populations from the risks of environmental hazards.
	Policies under Goal 6 address a diversity of governmental service, institutional, educational, cultural, social, religious, and medical facilities that are available for and enhance the quality of life for residents and are located and designed to complement Newport Beach's neighborhoods: ▪ Policy 6.1.2, Siting of New Development	▪ Coordinate with school districts to identify and monitor school sites and expand and manage facilities. ▪ Maintain and enhance police and fire facilities. ▪ Maintain and update parks and recreation facility plans. ▪ Maintain and improve parks and recreation facilities.
Circulation Element	Policies under Goal 5.1 and Goal 5.2 address transportation systems that support Complete Streets policies and design, and convenient bicycle trail systems that satisfy recreational desires and transportation needs: ▪ Policy 5.1.1, Circulation Complete Streets Systems for All Users	▪ Improve arterial streets and highways according to classification. ▪ Work with the Orange County Transportation Authority (OCTA) for countywide bus service. ▪ Maintain non-motorized transportation systems as a viable alternative to vehicular travel.

Table 2. Resilience in the Adopted General Plan

Element	Goal/Key Policies	Implementation Measures
	▪ Policy 5.2.5, Travel Mode Connectivity ▪ Policy 5.2.6, Pedestrian Improvements in New Development Projects	▪ Design, fund, and construct streetscape improvements.
Transportation		
Natural Resources Element	Policies under Goal 6 address reduced mobile-source emissions: ▪ Policy 6.1, Walkable Neighborhoods ▪ Policy 6.5, Local Transit Agency Collaboration ▪ Policy 6.6, Traffic Signal Synchronization ▪ Policy 6.7, City Fleet Vehicles ▪ Policy 6.8, Accessible Alternative Fuel Infrastructure	▪ Update and revise the General Plan to reflect changing conditions and visions. ▪ Review and amend the NBMC to achieve specific objectives of the General Plan, such as implementation of more environmentally sustainable buildings and site planning. ▪ Collaborate with the Cities of Irvine, Huntington Beach, and Costa Mesa to address planning, development, transportation, and other issues that jointly impact the communities. ▪ Coordinate with OCTA to support implementation of regional master plan traffic-control improvements to adequately provide for pedestrian crossings. ▪ Operate local demand-responsive transit service within Newport Beach to ensure mobility and accessibility for community members. ▪ Educate the community on City resources, such as public transportation and ride-sharing.
Circulation Element	Policies under Goal 1.1 and Goal 1.2 address transportation systems that facilitate the movement of people and goods within and through Newport Beach, accommodate conservative growth, and reduce summertime visitor traffic impacts: ▪ Policy 1.1.1, Comprehensive Transportation System ▪ Policy 1.2.1, Wayfinding ▪ Policy 1.2.2, Shuttle Service ▪ Policy 1.2.4, Traffic System Management	▪ Coordinate with OCTA to support implementation of regional master plan improvements; solicit funding for local transportation, transit, and parking; provide transit support facilities, such as park-and-ride lots and public transit shelters; establish or modify bus stop locations; assess the needs for the expansion of fixed-route service; provide expanded summertime bus and/or shuttle service; provide program to issue monthly bus passes locally and subsidize passes for certain populations.

Table 2. Resilience in the Adopted General Plan

Element	Goal/Key Policies	Implementation Measures
		▪ Identify and incorporate intelligent transportation systems for traffic control, to serve drivers, and to adequately provide for pedestrian crossings. ▪ Provide public transportation and look for opportunities to support the upgrade of existing services. ▪ Develop and maintain non-motorized transportation systems as a viable alternative to vehicular travel.
	Policies under Goal 2 address a safe and efficient roadway system: ▪ Policy 2.2.3, Up-to-Date Standards	▪ Monitor roadway conditions and operational systems to develop and follow a schedule for periodic review of City streets with respect to pavement, signage, signalization, and comparable elements. ▪ Maintain standards that ensure safe and efficient access for emergency vehicles to residential, commercial, and industrial areas.
	Policies under Goal 3.1 address regional transportation. Specifically, a network of regional facilities that ensures the safe and efficient movement of people and goods from within Newport Beach to areas outside its boundaries and minimizes the use of City streets by regional through-traffic: ▪ Policy 3.1.2, Integration of Transportation Systems with Adjoining Communities and the Region	▪ Maintain consistency with regional jurisdictions and local governments (California Department of Transportation, Orange County) to provide adequate facilities, including roadway infrastructure plans and design standards. ▪ Work with regional jurisdictions and local governments to modify regional plans (such as the Orange County Master Plan of Arterial Highways) so that they are consistent with City plans. ▪ Coordinate local roadway improvements that impact and are impacted by the toll road with the Transportation Corridor Agency.
	Policies under Goal 4.1 address a public transportation system that provides mobility for residents and encourages use of public transportation as an alternative to automobile travel: ▪ Policy 4.1.1, Public Transit Efficiency ▪ Policy 4.1.2, Transit Services for Special Need Populations	▪ Monitor and manage traffic conditions at school locations.

Table 2. Resilience in the Adopted General Plan

Element	Goal/Key Policies	Implementation Measures
	▪ Policy 4.1.6, School Transit	▪ Coordinate with OCTA to support implementation of regional master plan improvements; solicit funding for local transportation, transit, and parking; provide transit support facilities such as park-and-ride lots and public transit shelters; establish or modify bus stop locations; assess the needs for the expansion of fixed-route service; provide expanded summertime bus and/or shuttle service; and provide program to issue monthly bus passes locally and subsidize passes for certain populations. ▪ Operate local demand-responsive transit service within Newport Beach to ensure mobility and accessibility, especially older adults. ▪ Develop and maintain non-motorized transportation systems as a viable alternative to vehicular travel and to help satisfy local recreational needs.
	Policies under 5.2 address convenient bicycle trail systems that satisfy recreational desires and transportation needs: ▪ Policy 5.2.2, Integration of the Bicycle Master Plan ▪ Policy 5.2.11, Bicycle Supporting Amenities	Develop and maintain non-motorized transportation systems as a viable alternative to vehicular travel and to help satisfy local recreational needs. This should include trails and facilities that traverse the Newport Beach area.
	Policies under Goal 6.1 address an efficient circulation system through transportation systems management: ▪ Policy 6.1.1, Traffic Signals ▪ Policy 6.1.2, Intelligent Transportation Systems ▪ Policy 6.1.3, Coordination with Adjacent Jurisdictions	▪ Maintain and upgrade traffic signal interconnect systems to efficiently coordinate and control traffic flows on arterial streets. ▪ Develop and follow a schedule for periodic review of City streets with respect to pavement, signage, signalization, and comparable elements. ▪ Collaborate with the Cities of Irvine, Huntington Beach, and Costa Mesa to address planning, development, transportation, and other issues that jointly impact the communities.

Table 2. Resilience in the Adopted General Plan

Element	Goal/Key Policies	Implementation Measures
		▪ Coordinate with OCTA to support implementation of regional master plan improvements that will benefit mobility within Newport Beach.
	Policies under Goal 7.1 promote strategies to reduce the use of internal combustion passenger cars and the attendant greenhouse gas emissions: ▪ Policy 7.1.2, VMT Mitigation Measures ▪ Policy 7.1.3, Regional VMT Mitigation Measures	▪ Require environmental analyses for California Environmental Quality Act Review Development and Entitlement Applications to include assessment of the project's consistency with General Plan policies pertaining to each environmental topic under discussion. ▪ Coordinate with OCTA to support implementation of regional master plan improvements that will benefit mobility within Newport Beach.
Recreation Element	Policies under Goal 9 address provision and maintenance of public access for recreational purposes to Newport Beach's coastal resources: ▪ Policy 9.3, Sign Program	Design, fund, and construct waterfront promenade.
Waste Reduction		
Natural Resources	Policies under Goal 2 address increasing alternative water sources. ▪ Policy 2.1, Recycled Water Use	▪ Maintain and implement Urban Water Management Plans and encourage conservation.
Energy		
Natural Resources Element	Policies under Goal 24 address increased energy efficiency in City facilities and operations and in private developments: ▪ Policy 24.2, Energy Efficient Design Features	Review and revise Title 15 of the California Building Code to foster the use of "green" building techniques.
Water Conservation		
Natural Resources Element	Policies under Goal 1 address minimized water consumption through conservation methods and other techniques: ▪ Policy 1.2, Use of Water Conserving Devices ▪ Policy 1.3, Tiered Water Rates	▪ Examine and modify the City's Subdivision Ordinance to reflect state-of-the-art land development practices that enhance environmental sustainability. ▪ Review and revise Title 15 of the NBMC to foster the use of "green" building techniques. ▪ Maintain and Implement Urban Water Management Plans and encourage conservation.

Table 2. Resilience in the Adopted General Plan

Element	Goal/Key Policies	Implementation Measures
	Policies under Goal 2 address expanded use of alternative water sources to provide adequate water supplies for present uses and future growth: ▪ Policy 2.1, Recycled Water Use ▪ Policy 2.2, Advanced Water Treatment Processes	▪ Maintain and Implement Urban Water Management Plans and encourage conservation.
Water Quality		
Harbor and Bay Element	Policies under Goal 8 of the General Plan Harbor and Bay Element address water quality in terms of chemicals, pollution, groundwater contamination caused by construction, sewage, stormwater drainage and runoff, and the siting and design of new development: ▪ Policy 8.2, Water Pollution Prevention ▪ Policy 8.13, Natural Wetlands ▪ Policy 8.15, Street Drainage Systems	Review and amend or maintain the following: ▪ Subdivision Ordinance standards for storm drainage and pollution runoff control. ▪ Requirements for live-aboard vessels pertaining to the integrity, quality, and safety of harbor uses. ▪ Permits consistent with the National Pollutant Discharge Elimination System. ▪ Water Quality Ordinance. ▪ Water Quality Checklist. ▪ Water Quality Management Plans. ▪ Storm drainage facilities.
	Policies under Goal 7 address water quality through policies that support the restoration of Upper Newport Bay: ▪ Policy 7.3, Management of Upper Newport Bay Ecological Reserve	▪ Coordinate with Orange County for management of Newport Harbor and Upper Newport Bay. ▪ Coordinate with the California Resources Agency, Department of Fish and Wildlife for the protection and management of Upper Newport Bay.
Natural Resources Element	Policies under Goal 3 address enhancement and protection of water quality of all natural water bodies, including coastal waters, creeks, bays, harbors, and wetlands: ▪ Policy 3.2, Water Pollution Prevention ▪ Policy 3.13, Natural Wetlands ▪ Policy 3.15, Street Drainage Systems	▪ Review the Subdivision Ordinance for consistency with the General Plan. ▪ Amend the NBMC to address storm drainage and pollution runoff control. ▪ Review and revise relevant requirements for live-aboard vessels pertaining to the integrity, quality, and safety of harbor uses; environmental protection; and impacts on the public, waterfront owners/lessees, and adjoining properties.

Table 2. Resilience in the Adopted General Plan

Element	Goal/Key Policies	Implementation Measures
		▪ Maintain and implement Urban Water Management Plans and encourage conservation. ▪ Maintain and implement Sewer Master Plan. ▪ Maintain storm drainage facilities.
Urban Outdoors		
Land Use Element	Policies under Goal 1 address a unique residential community with diverse coastal and upland neighborhoods that values its colorful past, high quality of life, and community bonds, and balances the needs of residents, businesses, and visitors through the recognition that Newport Beach is primarily a residential community: ▪ Policy 1.3, Natural Resources	Review entitlements for consistency with the General Plan.
Natural Resources Element	Policies under Goal 3 address enhancement and protection of water quality of all natural water bodies, including coastal waters, creeks, bays, harbors, and wetlands: ▪ Policy 3.1, Chemical Uses Impacting Water Quality	Review and amend the NBMC Subdivision Ordinance where necessary to ensure consistency with its goals and policies, including hazard abatement and environment impact mitigation.
	Policies under Goal 5 address sanitary sewer outflows, specifically minimal adverse effects to water quality from sanitary sewer outflows: ▪ Policy 5.1, City Sewer Management and Master Plans	Maintain and implement Sewer Master Plan.
	Policies under Goal 13 address the protection, maintenance, and enhancement of Southern California wetlands: ▪ Policy 13.1, Wetland Protection	▪ Review and amend, where necessary, NBMC requirements and standards pertaining to the location and design of development to protect terrestrial and marine environmental resources. ▪ Develop Harbor Area Management Plan.
	Policies under Goal 16 address protection and management of Upper Newport Bay: ▪ Policy 16.2, Big Canyon Creek Restoration Project ▪ Policy 16.3, Management of Upper Newport Bay Ecological Reserve (UNBER) ▪ Policy 16.4, Management of Upper Newport Bay Ecological Reserve	▪ Review and amend the NBMC standards pertaining to the location and design of development to protect and maintain the integrity and quality of Newport Harbor and the Upper Newport Bay. ▪ Coordinate with Orange County for the management of Newport Harbor and Upper Newport Bay.

Table 2. Resilience in the Adopted General Plan

Element	Goal/Key Policies	Implementation Measures
	▪ Policy 16.5, Public Uses within Upper Newport Bay Ecological Reserve ▪ Policy 16.6, Water-Related Education and Research within Upper Newport Bay	▪ Coordinate with the California Resources Agency, Department of Fish and Wildlife to review projects that may impact terrestrial and marine resources, and for the restoration of Newport Bay and management of Upper Newport Bay. ▪ Maintain and update parks and recreation facility plans. ▪ Maintain recreation programs for Newport Beach residents.
Harbor and Bay Element	Policies under Goal 7 address water quality through policies that support the restoration of Upper Newport Bay: ▪ Policy 7.2, Management of Upper Newport Bay Ecological Reserve (UNBER) ▪ Policy 7.3, Management of Upper Newport Bay Ecological Reserve ▪ Policy 7.4, Public Uses within Upper Newport Bay Ecological Reserve ▪ Policy 7.5, Water-Related Education and Research within Upper Newport Bay	▪ Review and amend the NBMC standards pertaining to the location and design of development to protect and maintain the integrity and quality of Newport Harbor and the Upper Newport Bay. ▪ Coordinate with Orange County for the management of Newport Harbor and Upper Newport Bay. ▪ Coordinate with the California Resources Agency, Department of Fish and Wildlife to review projects that may impact terrestrial and marine resources, and for the restoration of Newport Bay and management of Upper Newport Bay. ▪ Coordinate Harbor event planning in collaboration with the Harbor Commission and Orange County Harbor Patrol.
	Policies under Goal 8 address enhancement and protection of water quality of all natural water bodies, including coastal waters, creeks, bays, harbors, and wetlands: ▪ Policy 8.1, Chemical Uses Impacting Water Quality	Review and update, as needed, requirements for live-aboard vessels pertaining to the integrity, quality, and safety of harbor uses; environmental protection; and impacts on the public, waterfront owners/lessees, and adjoining properties.

3.3 Resilience in Local Implementation

The City implements resilience policies as they relate to the analyzed resilience topics. Table 3 provides an overview of local implementation steps being taken by the City to implement resilience policies.

Table 3. Local Implementation by Resilience Topic

Coastal Hazards

- Harbor and bay regulations adopted by the City of Newport Beach (City) to address the provision of development within the harbor. On March 23, 2021, the City Council approved updated Waterfront Project Design Guidelines and Standards, Harbor Design Criteria Commercial & Residential Facilities. The guidelines require that any bulkhead structure permitted within the years 2021 through 2025 must have a minimum bulkhead elevation of 10.9 feet (NAVD 88) with a design for adaptability elevation of 14.4 feet (NAVD 88) to protect existing and proposed development from flooding and future sea level rise.
- The Harbor Area Management Plan adopted in 2010 addresses marine habitat restoration, including kelp beds and fisheries, and boat anchorages, marinas, and other development activities. Harbor improvements aim to facilitate boating and other coastal recreation while protecting marine habitats, preventing water pollution, maintaining hydrologic functions, protecting coastal landforms and dunes, minimizing sand transport, and ensuring compatibility with adjoining residential areas.
- The Local Coastal Program Implementation Plan, which the City adopted in 2017 following California Coastal Commission approval, sets forth goals, objectives, and policies that govern the use of land and water in the Coastal Zone within the City limits and its sphere of influence (except Newport Coast and Banning Ranch). Appendix A of the Local Coastal Program, Sea Level Rise, states the City's intention to undertake a proactive program to monitor the rate of sea-level rise and implement protective measures. Appendix A also contemplates revising existing policies related to minimum finished floor elevation, maximum roof heights, setbacks, public access requirements, existing or new seawall requirements, and drainage requirements. Furthermore, the City has published for public review a draft Local Coastal Amendment, which would establish a Flood Hazard Overlay as part of its Local Coastal Program. Before going into effect, the amendment must go through a local approval process and acquire California Coastal Commission approval.

Buildings and Development

- Buildings and development are primarily regulated through the Newport Beach Municipal Code, including zoning regulations, and local implementation of the California Building Code. Zoning designations are required to be consistent with identified land uses. The City regularly updates its Municipal Code, and the Zoning Code was comprehensively updated in 2010.
- The City adopted the 2022 edition of the California Energy Code, which encourages efficient electric heat pumps, establishes electricity-ready requirements for new homes (whose permit applications are applied for on or after January 1, 2023), expands solar photovoltaic and battery storage standards, and strengthens ventilation standards, among other items. Part of the Energy Code (Title 24, Part 6), Building Efficiency Standards, establishes efficiency standards for residential and non-residential buildings, updated every 3 years, with the aim of reducing wasteful, uneconomical, and unnecessary uses of energy.
- The City requires compliance with the California Green Building Standards Code (CALGreen) for new residential and non-residential construction; residential additions or alterations of existing buildings that increase building conditioned area, volume, or size; non-residential additions of 1,000 square feet or greater; and non-residential alterations exceeding $200,000 (see Section 3.3.1, Green Building Standards Code).

Transportation

- The City continues to monitor traffic conditions to identify and implement improvements. Improvements are identified in the City's Capital Improvement Program.
- The City provides shuttle bus services for Oasis Senior Center clients on an as-needed basis and operates a trolley service during summer weekends.
- The City continues to implement bicycle lane improvements, as identified in the General Plan Bikeways Master Plan.

Table 3. Local Implementation by Resilience Topic

- Through the development review process, the City enforces transportation and multimodal improvements in conjunction with new development. This may include enhanced pedestrian pathways, streetscape improvements, and wayfinding signage.
- The Transportation Demand Management Ordinance, updated as part of the comprehensive Zoning Code update of 2010, implements the requirements of the Orange County Congestion Management Program. The ordinance is applicable to all new non-residential projects, non-residential portions of mixed-used projects, and employment centers that employ 250 or more people. The ordinance establishes site development requirements, including those related to carpool parking, bicycle racks/lockers, lockers, and showers, and transportation alternatives information provision, among others. The aim of the ordinance is to reduce the number of peak-period vehicle trips generated in association with a project; promote and encourage alternative transportation modes, including active transportation such as walking and biking; and provide facilities that support alternative transportation modes.

Waste Reduction

- Most waste management services are provided by the City's contractor, CR&R Environmental Services, with the exception of the Santa Ana Heights area, where CR&R provides services under contract with the Costa Mesa Sanitary District.
- In 2022, the City updated its waste collection practices to comply with Senate Bill (SB) 1383, and provides each household with separate bins for trash, recyclables, and organic waste, along with a 2-gallon pail to collect organic materials in the kitchen.
- The Newport Beach Municipal Code defines additional waste management regulations and requirements as they relate to SB 1383, including requirements for self-haulers, food recovery organizations, and businesses.

Energy

- Provisions from numerous Senate Bills (SB 1038, SB 1078, SB 1250, SB 107, SB X1-2, SB 350, and SB 1393) set the California Renewable Portfolio Standard: a goal to increase the amount of renewable energy that electric utilities procure. By December 31, 2030, 50% of retail electricity sales must be from eligible renewable energy sources. The Renewable Portfolio Standard applies to the electricity utility serving Newport Beach, namely Southern California Edison. Southern California Edison must report procurement of renewable energy sources to the California Energy Commission during each compliance period, of which the most recent was from 2017 to 2020 (followed by compliance period 2021 to 2024). The California Public Utilities Commission then determines compliance for each period. Southern California Edison has continued to meet each year's Renewable Portfolio Standard target.

Water Conservation

- Water service in Newport Beach is provided by the City, Irvine Ranch Water District, and Mesa Consolidated Water District. Each agency maintains master plans for services, facilities, maintenance, and improvements necessary to support existing and projected population growth and development. Conservation practices are included within the respective plans.
- The City has adopted ordinances regulating the use of water. This includes regulations on water conservation and supply, water efficient landscaping, and water quality. These regulations establish water conservation and water supply shortage programs, promote the efficient use of water and prevent water waste in landscaping, and prohibit non-stormwater discharges into storm sewers.
- The City's 2020 Urban Water Management Plan provides projections of water demand and supply through 2045. The Urban Water Management Plan is updated every 5 years and is further detailed in Section 3.7, Water Conservation, of this document.

Table 3. Local Implementation by Resilience Topic

- In response to Executive Order B-29-15 on April 1, 2015, the City adopted in its Municipal Code (Chapter 14.17) prohibitions against wasteful practices relating to water use, including using potable water to wash sidewalks and driveways, allowing more-than-incidental runoff when irrigating turf and other ornamental landscapes, and using hoses without automatic shutoff nozzles to wash motor vehicles, among other restrictions.

Water Quality

- Harbor and bay regulations adopted by the City require that pollution be prevented in association with development and that safeguards are maintained to prevent pollution.
- The City operates programs to protect the quality of water in the harbor and bay, such as a street sweeping and the operation and maintenance of tidal valves. Street and drainage improvements are identified through the City's Capital Improvements Program.
- In compliance with Federal requirements under the Clean Water Act, the City adopted an ordinance to improve water quality by preventing and controlling stormwater runoff. In part, the ordinance sets forth requirements for all new development and significant redevelopment within Newport Beach, establishes a scope of inspections and compliance enforcement, and establishes discharge permit procedures.
- The City adopted an ordinance to update its Subdivision Code to implement the adopted General Plan. The updated Subdivision Code includes drainage and flood protection requirements (Section 19.24.090).

Urban Outdoors

- Needed investments in the City's parks system is annually assessed and is recommended for inclusion in the City's annual Capital Improvement Plan. The Capital Improvement Plan is analyzed for consistency with the General Plan.
- The City works with school districts to establish joint-use agreements for public recreational use of school properties.

3.4 Summary and Findings

Review of the nine resilience topics in relation to State regulations and guidance, the City's adopted General Plan, and local implementation steps is summarized below. This section summarizes the findings from each of the nine resilience topics described in Section 2, General Plan and Regulatory Review to establish where revisions may be needed though the General Plan Update to ensure consistency or that regulatory requirements are met.

Coastal Hazards. The City regulates coastal hazards primarily through the Local Coastal Program and its components the Local Coastal Plan and Implementation Plan. While not a requirement of the General Plan, SB 272 (2023) requires local governments to develop a sea level rise plan as part of its Local Coastal Program. The City has recently updated these documents to reflect Sea Level Rise. The Harbor and Bay Element should be updated to be consistent and enhance the Local Coastal Program.

Education. There is no existing regulation for public education in the General Plan or other City plans. However, the City distributes information on resilience related topics through multiple channels, such as its website and social media accounts to residents, employees, and visitors.

Buildings and Development. The City currently meets and enforces State requirements, such as the California Building Code. The adopted General Plan references outdated standards and should remove references that are

likely to become outdated through the planning period, allowing policies and implementation measures to avoid conflict with the current standards and future iterations of the California Building Code.

Transportation. The City has extensive regulations and support of active transportation infrastructure including planning, funding, and implementation. These should be updated based on public input and reflect the expanded adoption of electric vehicles.

Waste Reduction. The City currently meets and enforces State requirements. The General Plan should be updated to reflect the latest standards and anticipated best practices.

Energy. The City receives energy from Southern California Edison, which currently meets RPS standards. The City should address if alternative energy production or procurement is needed to meet the State's greenhouse gas reduction targets. This may include exploring Community Choice Aggregation or increasing local energy procurement, transmission, and storage.

Water Conservation. Water conservation is primarily regulated in the Urban Water Management Plan, last updated in 2020. This plan reflects the State's stringent standards. The General Plan should reflect these new standards and reflect regional programs and best practices.

Water Quality. The City includes multiple regulations that require best practices that reduce pollution run off and improve water quality. This includes regulations in the Harbor and Bay Element and the Local Coastal Program and Natural Resources Element, The General Plan should be updated to ensure consistency across these documents.

Urban Outdoors. The urban outdoors is primarily regulated in the Natural Resources Element and is also addressed in the Harbor and Bay Element. Needs assessments and capital updates occur regularly. The City works with its school, State, and Federal partners to manage the City's diverse landscape.

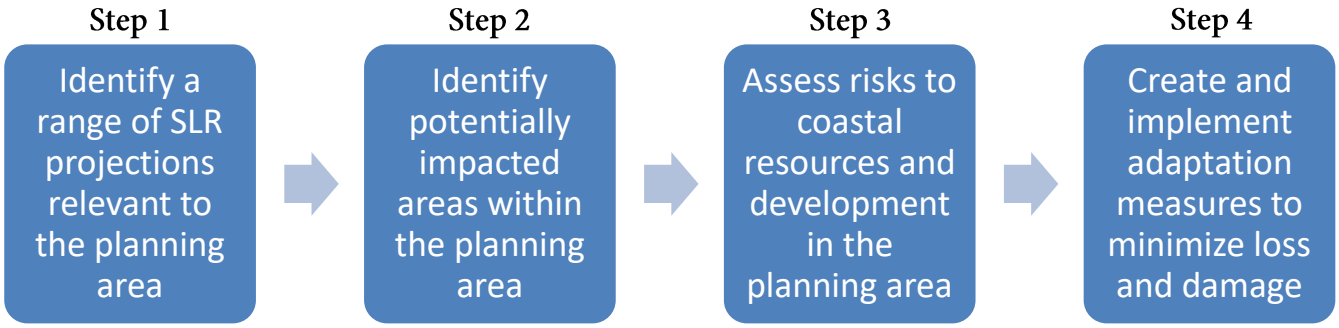
4 Existing Conditions

4.1 Coastal Hazards

Newport Beach is exposed to coastal flooding and beach and cliff erosion. These hazards pose major risks to public safety, homes, businesses, infrastructure, and natural resources. Moreover, these hazards are increasing in frequency and severity due to global climate change and sea-level rise.[2] This section assesses the risks posed by these coastal hazards using a range of possible sea-level rise scenarios.

4.1.1 Projected Sea-Level Rise in Newport Beach

Sea-level rise is a natural process that occurs due to the thermal expansion of sea water from rising ocean temperatures, the melting of Arctic and Antarctic ice sheets, the movement of tectonic plates, and land subsidence. Because thermal expansion and the melting of ice sheets is accelerating due to climate change, sea levels are rising at an increasingly fast rate.[3] Although it is clear that sea-level rise is occurring and will continue to occur in the future, it is unclear how much sea levels will rise and the extent to which this will cause coastal flooding and cliff and beach erosion. For this reason, the California Coastal Commission (CCC) recommends planning for varying amounts of sea-level rise to protect coastal development based on the expected life span of development. Currently, Appendix A of the City's Local Coastal Program Implementation Plan, certified by the CCC in 2017, declares the City's commitment to undertake a proactive program to monitor sea-level rise, and also proposes the need to revise development standards in vulnerable areas. This commitment may serve as a preliminary action for the implementation of steps based on the CCC's guidance for effective sea-level rise planning in coastal areas. These steps are outlined below.



The first step in planning for sea-level rise is to identify a range of sea-level rise projections relevant to Newport Beach. The CCC recognizes the California Ocean Protection Council's (OPC) Sea Level Rise Guidance (2018 Update)

[2] National Climate Assessment. 2014. Climate Change Impacts in the United States. http://s3.amazonaws.com/nca2014/low/NCA3_Climate_Change_Impacts_in_the_United%20States_LowRes.pdf?download=1.

[3] National Climate Assessment. 2014. Climate Change Impacts in the United States. http://s3.amazonaws.com/nca2014/low/NCA3_Climate_Change_Impacts_in_the_United%20States_LowRes.pdf?download=1.

as the best available sea-level rise projections for California.[4] The OPC estimates amounts of sea-level rise in 2030, 2050, and 2100 based on assumptions about greenhouse gas (GHG) emission trends developed by the Intergovernmental Panel on Climate Change (IPCC) as well as one extreme scenario. The assumptions associated with each scenario are outlined below:

- **The low-emissions scenario,** also known as Relative Concentration Pathway (RCP) 2.6, assumes that emissions will be curbed significantly around the globe in the coming decades. However, the low-emissions trajectory would not begin until around 2050 due to "committed warming." Committed warming refers to the amount of warming resulting from past GHG emissions that can no longer be avoided. This means that, even if emissions are dramatically reduced in the coming decades, the effects of committed warming will continue to manifest even after reductions are made because natural systems are slow to respond to changes in GHG concentrations.[5] For this reason, the OPC does not provide low-emissions sea-level rise projections for 2030 or 2050.
- **The high-emissions scenario,** also known as RCP 8.5, assumes that global GHG emissions will continue as "business as usual." Because global emissions reductions have not been reduced by any significant amount since the Intergovernmental Panel on Climate Change developed the RCP 8.5 scenario, the potential for following this high-emissions trajectory is becoming more likely.
- **The extreme scenario,** also known as the H++ scenario, assumes continued high emissions and the rapid and complete melting of the West Antarctic ice sheet toward the end of the 21st century. The probability of this scenario is unknown, but it is thought to be extremely low. Furthermore, recent IPPC findings suggest this scenario is less plausible due to observations of increased surface mass balance in the Antarctic ice sheet. Nonetheless, the OPC recommends considering it when planning for coastal development with extreme risks, such as power plants, hazardous waste sites, and airports.

Under these assumptions, the OPC is able to project the amount of sea-level rise resulting from each scenario. Furthermore, the OPC has determined the probability of these different sea-level rise projections in 2030, 2050, and 2100, which can help to understand what amounts of sea-level rise are most likely to occur under each scenario. Table 4 shows the projected amounts of sea-level rise for Los Angeles, the closest National Oceanic and Atmospheric Administration tide gauge to Newport Beach. The projection ranges in the "Likely Range" column in Table 4 are most likely to occur, but least severe. For this reason, OPC recommends that projections in the "Likely Range" are appropriate to consider when planning for coastal development with shorter lifespans and higher risk tolerance (i.e., low risk aversion), such as local streets that are not part of evacuation routes, active transportation infrastructure, green infrastructure, parks, and green spaces. The projections in the "1-in-20 Chance" column have a 5% chance of occurring but are more severe than those in the "Likely Range" column. OPC recommends that the "1-in-20 Chance" projections should generally be used to plan for coastal development with medium risk aversion, such as maintenance facilities, industrial buildings, mechanical equipment, piers, and docks. The projections in "1-in-200 Chance" column have a 0.5% chance of occurring but are more severe than the projections in the "1-in-20 Chance" column. OPC recommends that the "1-in-200 Chance" projections should be used to plan for development

4 As of late 2023, the OPC, in collaboration with the California Ocean Science Trust, are in the process of convening a scientific Task Force to update future sea level rise scenarios based on two recent reports: the *IPCC Sixth Assessment Report*, which indicates that projections of extreme sea-level rise (i.e., H++ scenario) are less plausible yet also indicate increased certainty to 2050 sea-level rise projections, and the *2022 Sea-Level Rise Technical Report*, which has integrated findings from the IPCC report to better guide planning and decision-making guidance. The following assumptions are based on existing findings and guidance and are subject to change based on future OPC findings and guidance.

5 https://opc.ca.gov/webmaster/ftp/pdf/agenda_items/20180314/Item3_Exhibit-A_OPC_SLR_Guidance-rd3.pdf.

with medium-high risk aversion, such as homes and businesses, transportation centers, and some subterranean infrastructure. The projections in the "H++ Scenario" column are extreme and their probability of occurring is unknown. Nonetheless, the H++ Scenario projections are important to consider when planning for projects with extreme risk aversion, such as power plants, airports, wastewater treatment plants, and hazardous waste sites.

Table 4. Projected Sea-Level Rise in Los Angeles

	Likely Range (Low Risk Aversion)	1-in-20 Chance (Medium Risk Aversion)	1-in-200 Chance (Medium-High Risk Aversion)	H++ Scenario (Extreme Risk Aversion)	
	66% probability SLR is between:	5% probability SLR meets or exceeds:	0.5% probability SLR meets or exceeds:	(Probability unknown)	Selected CoSMoS Scenario
2030, High Emissions	0.2–0.5 ft	0.6 ft	0.7 ft	1.0 ft	0.8 ft (0.25 m)
2050, High Emissions	0.5–1.0 ft	1.2 ft	1.8 ft	2.6 ft	1.6 ft (0.5 m)
2100, Low Emissions*	0.7–2.1 ft	3.0 ft	5.4 ft	None**	4.1 ft (1.25 m)
2100, High Emissions	1.3–3.2 ft	4.1 ft	6.7 ft	9.9 ft	4.9 ft (1.5 m)

Source: Ocean Protection Council Sea Level Rise Guidance (2018 Update)
CoSMoS = Our Coast, Our Future's Coastal Storm Modeling System; SLR = sea-level rise; ft = feet; m = meters

* Low emissions trajectory is only included for 2100 projections because it is likely that the high emissions trajectory will continue until at least 2050 on a global scale due to committed warming.

** The H++ scenario assumes a high emissions trajectory and the complete melting of Antarctic ice sheets. Therefore, a low emissions trajectory projection does not exist for this scenario.

To understand the potential impact of sea-level rise on Newport Beach based on its topography, this analysis uses the Our Coast, Our Future's Coastal Storm Modeling System (CoSMoS), as is recommended by the CCC. CoSMoS was developed in partnership with the U.S. Geological Survey and uses the best available data and physical process models to predict coastal flooding extent and duration, wave runup and velocity, cliff retreat, shoreline position, and groundwater intrusion under different sea-level-rise scenarios. CoSMoS models sea-level rise in increments of 0.25 meters up to 5 meters. For this reason, it is not possible to model the precise amounts of projected sea-level rise associated with each of the scenarios listed in Table 4. Therefore, this analysis relies on the selected CoSMoS scenario projections listed in the right column of Table 4. Nearly all of these selected CoSMoS scenario projections fall between the 1-in-20 chance and 1-in-200 chance projections and, therefore, are medium to medium high risk averse scenarios. The only exception is the 2030 projection of 0.8 feet, which falls between the 1-in-200 chance and H++ scenario projections, making it a high-risk adverse scenario. This number was chosen because it is the smallest amount of sea-level rise modeled by CoSMoS other than 0 feet (i.e., the current sea level at the mean high-water line). Therefore, the City will be well-prepared even for unlikely high amounts of sea-level rise by planning for the selected CoSMoS scenario projections.

4.1.2 Potentially Affected Areas

The second step in planning for sea-level rise is identifying potentially affected areas. Using CoSMoS, this section identifies areas that would be affected by coastal flooding and cliff and beach erosion under the selected CoSMoS scenarios listed in Table 4.

4.1.2.1 Coastal Flooding

As sea levels rise, the potential for coastal flooding increases. This is especially true during storm surges and high tides.[6] For this reason, CoSMoS shows current sea levels and predicts future sea levels at the mean high water line, or the average location of the shoreline during high tide, and enables users to toggle the severity of storm events to demonstrate how more severe storms can cause more widespread flooding. For the sake of simplicity, however, this analysis only considers flooding under average storm conditions. Average storm conditions are equivalent to an annual storm of mild severity.

Figure 1, Coastal Flooding Citywide, shows the possible extent of coastal flooding during an average storm event under the selected CoSMoS scenarios in 2030, 2050, and 2100. The current extent of flooding during an average storm event is shown in light blue. Most of these areas are sandy beaches or wetland areas in Upper Newport Bay. Therefore, few developed areas are currently at risk during such an event. Under the selected CoSMoS scenarios, however, Newport Beach would experience 0.8 feet (0.25 meters) of sea-level rise by 2030, 1.6 feet (0.5 meters) by 2050, and 4.1 to 4.9 feet (1.25 to 1.5 meters) by 2100, depending on whether GHG emissions are reduced globally. The areas that could be flooded during an average storm event with 0.8 feet of sea-level rise are shown in medium blue. These include almost the entirety of Balboa Island and the western portion of Balboa Peninsula. With 1.6 feet of sea-level rise, flooding during an average storm event could extend into the areas shown in dark blue. These areas include much of the central portion of Balboa Peninsula, including the area near Newport Beach Pier. Finally, the areas shown in purple and magenta could flood during an average storm event with 4.1 to 4.9 feet of sea-level rise, respectively. These areas include the neighborhoods and beaches near the Santa Ana River jetty; Balboa Coves; Mariner's Mile; many of the remaining islands in Newport Harbor; and portions of Balboa Peninsula, Corona del Mar State Beach, and Little Corona del Mar Beach. Therefore, many of Newport Beach's most built-out areas, densely populated neighborhoods, and vibrant business communities are at risk of flooding during an average storm even with relatively small amounts of sea-level rise. This flooding could be even more severe during unusually large storm events, which are also likely to increase in frequency with climate change.

6 https://documents.coastal.ca.gov/assets/slr/guidance/2018/4_Ch4_2018AdoptedSLRGuidanceUpdate.pdf.

Figure 1. Coastal Flooding Citywide

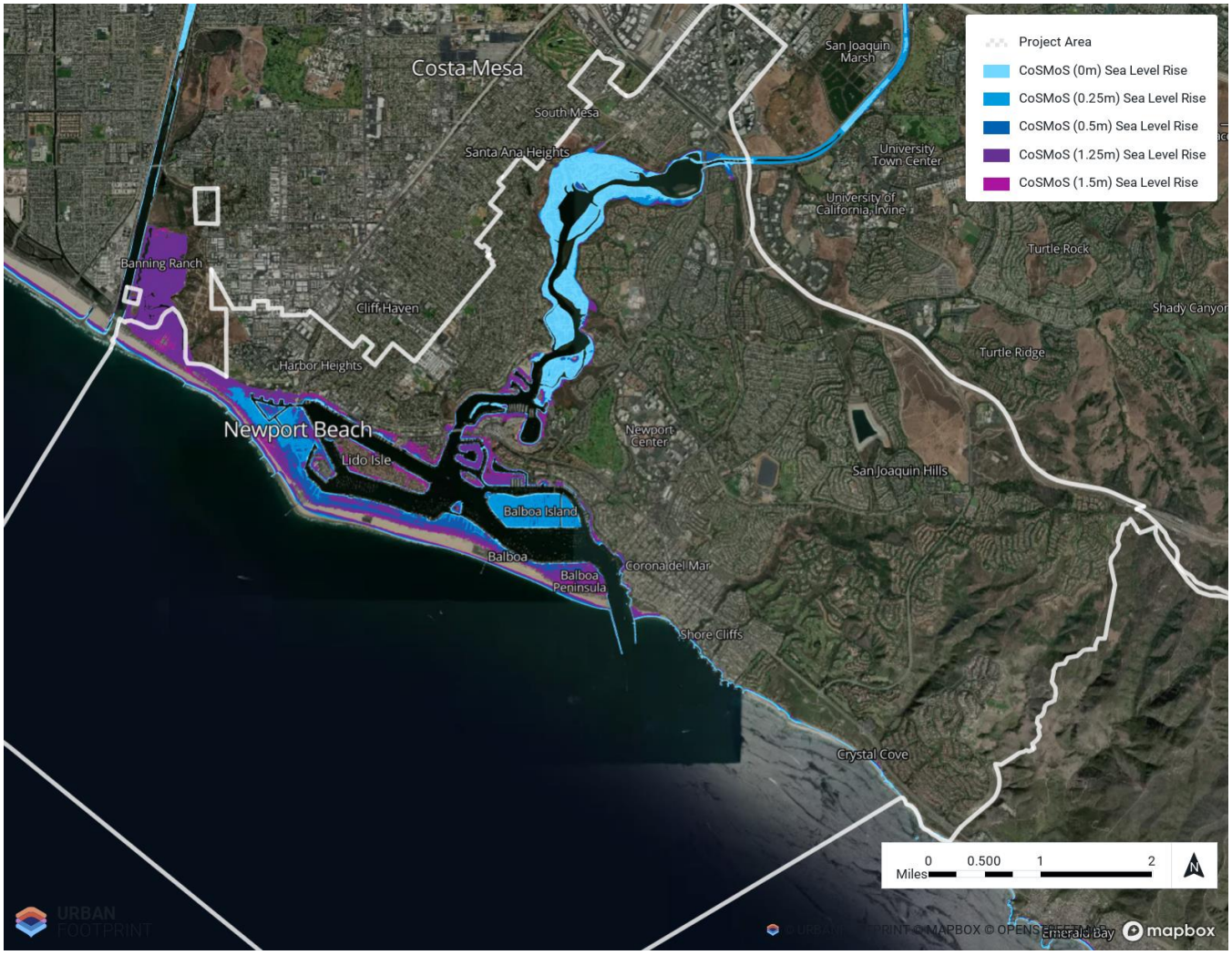


Figure 2, Coastal Flooding in Newport Harbor, and Figure 3, Coastal Flooding in Newport Bay, are subsets of Figure 1, Coastal Flooding Citywide. They show the extent of coastal flooding during an average storm event in Newport Harbor and Newport Bay. These are the two areas of Newport Beach where flooding is expected to be most widespread, even under low amounts of sea-level rise.

Figure 2. Coastal Flooding in Newport Harbor

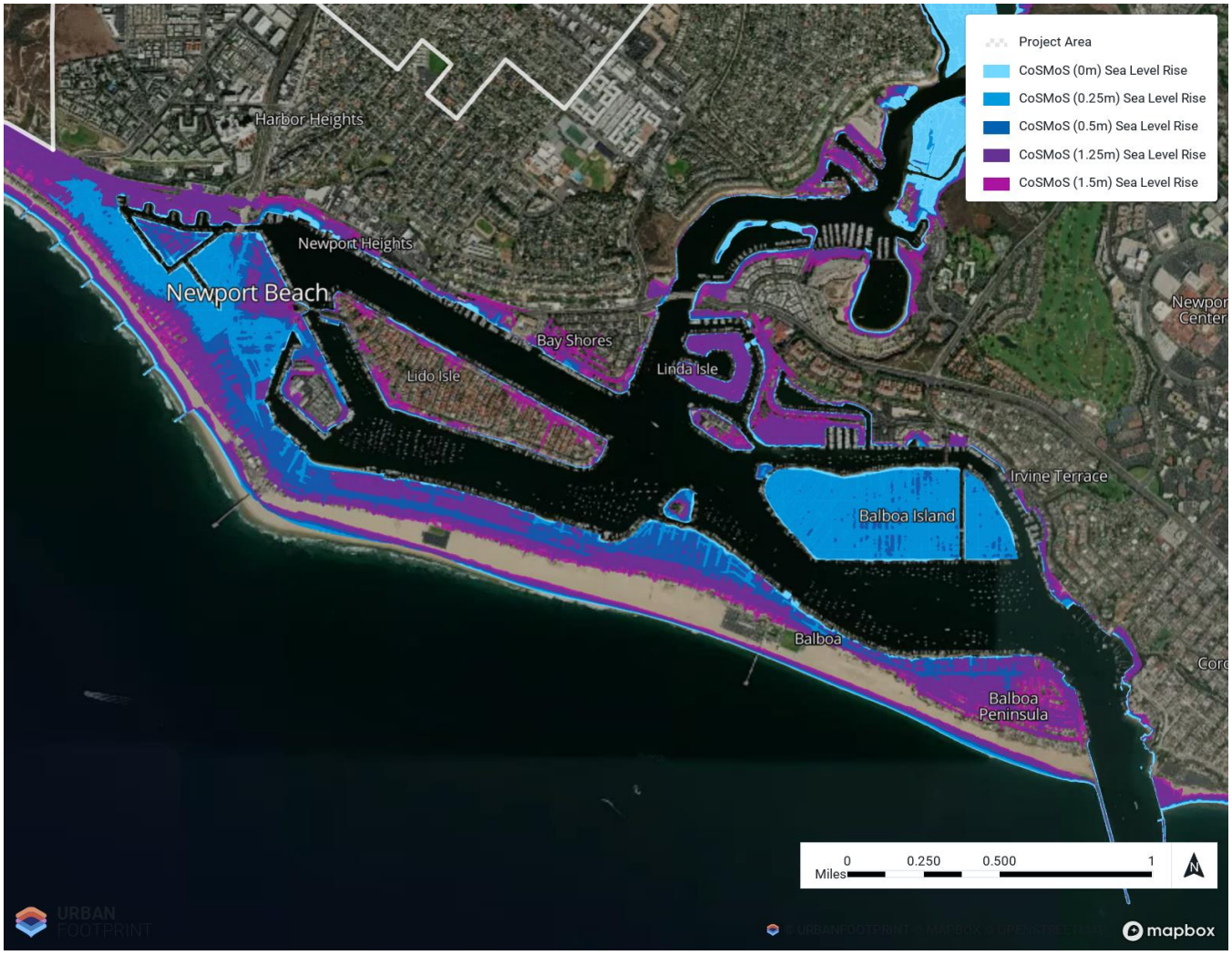
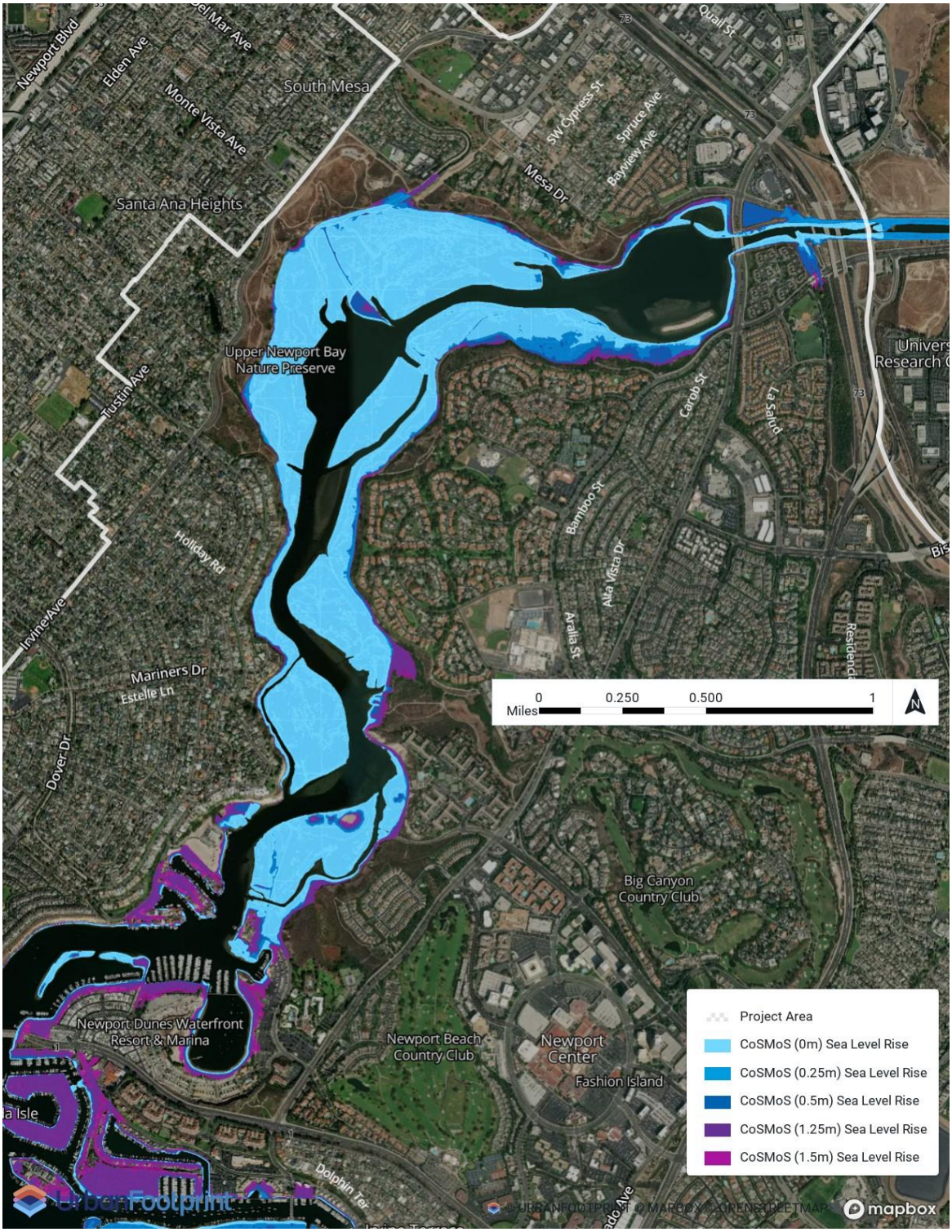


Figure 3. Coastal Flooding in Newport Bay



4.1.2.2 Beach and Cliff Erosion

In addition to causing coastal flooding, the higher tides and storm surges associated with sea-level rise can erode beaches and cliffs at faster rates.[7] Because Newport Beach is lined with both sandy beaches and coastal bluffs, coastal erosion the potential to affect many areas within Newport Beach.

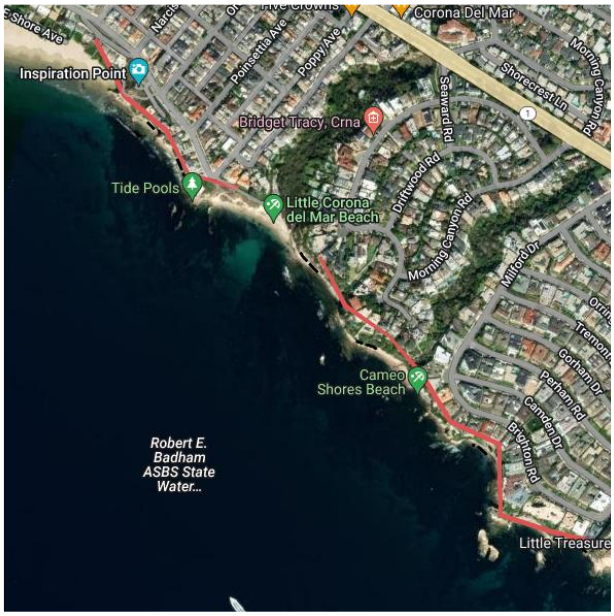
CoSMoS predicts the future position of cliff top edges and shorelines as they relate to wave patterns under different sea-level-rise scenarios and allows users to toggle between the "Hold the Line" and "Beach Nourishment" scenarios. Hold the Line assumes that erosion will not move past anti-erosion measures and into urban infrastructure. Therefore, Hold the Line necessitates the regular maintenance of anti-erosion measures which are collectively referred to as "cliff armoring." Cliff armoring includes sea walls, vegetation, and rockpiles that break waves before they reach cliff edges. Beach Nourishment assumes that local governments will implement beach nourishment programs in which sand is artificially transported to beaches, as needed. This analysis assumes that the City will continue to maintain coastal infrastructure and implement its beach nourishment program.

Corona del Mar is one of two areas in Newport Beach that has coastal cliffs and, thus, experiences cliff erosion. Figure 4, Cliff Erosion in Corona Mar, shows the location and extent of cliff retreat in Corona del Mar under the selected CoSMoS scenarios for 2030, 2050, and 2100. As shown in red, the cliff top edge moves farther inland as the amount of sea-level rise increases. Forecasted cliff retreat is especially extensive along Ocean Boulevard near Inspiration Point and the Cameo Shores neighborhood. As demonstrated by the black dashed line, some cliff areas are protected by infrastructure and may not experience as much erosion as they would otherwise.

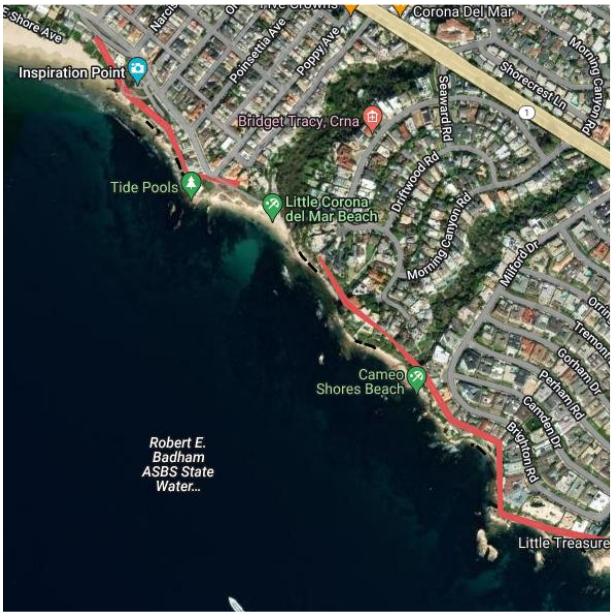
[7] https://documents.coastal.ca.gov/assets/slr/guidance/2018/4_Ch4_2018AdoptedSLRGuidanceUpdate.pdf.

Figure 4. Cliff Erosion in Corona Del Mar

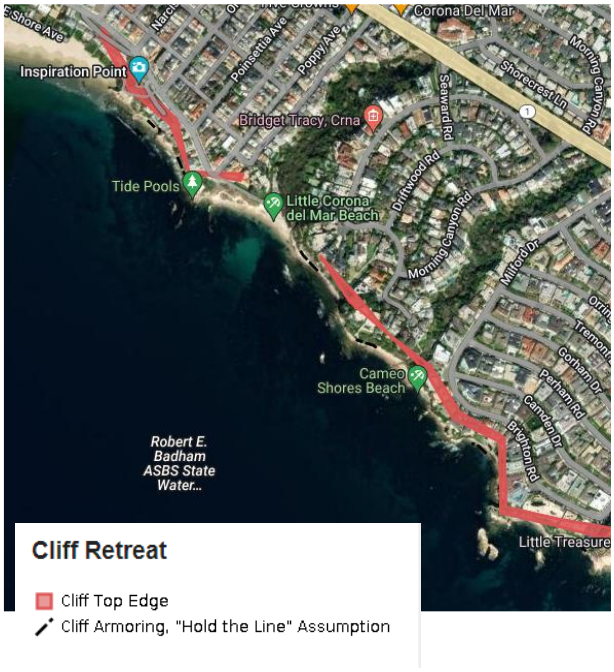
0.25m SLR (2030)



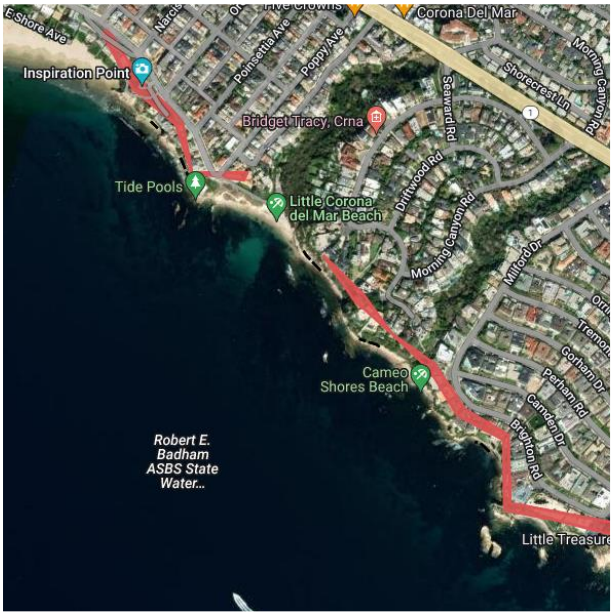
0.5m SLR (2050)



1.25m SLR (2100, low emissions)



1.5m SLR (2100, high emissions)



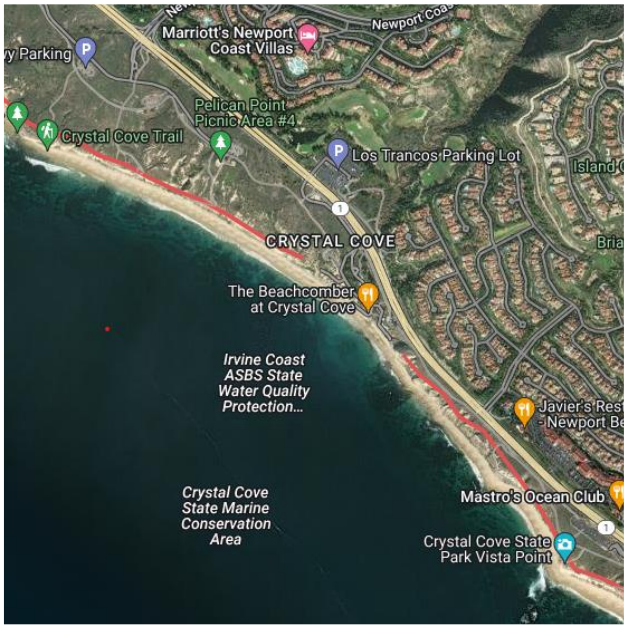
The second area that experiences cliff erosion is Newport Coast. Figure 5, Cliff Erosion in Newport Coast, shows the location and extent of cliff retreat in Newport Coast under the selected CoSMoS scenarios for 2030, 2050, and 2100. As shown in red, the cliff top edge moves farther inland as the amount of sea-level rise increases. The areas most likely to be affected are Crystal Cove State Park and Pacific Coast Highway near Crystal Cove Shopping Center. Moreover, the coastal cliffs in Newport Coast are largely undeveloped and have little to no infrastructure to hold the line.

Although sandy beach erosion occurs throughout most of Newport Beach, this section focuses on the beaches north of Newport Beach Pier and on the Balboa Peninsula because they are not lined by cliffs like the beaches in Corona del Mar and Newport Coast are. Figure 6, Beach Erosion North of Newport Beach Pier, shows the location and extent of shoreline retreat north of Newport Beach Pier under the selected CoSMoS scenarios for 2030, 2050, and 2100. As shown in orange, the shoreline (mean high water line) moves farther inland and changes shape as the amount of sea-level rise increases. The beaches in this area tend to experience the worst beach erosion in Newport Beach because they face southwest and are subject to strong currents that move sand northward. This erosion will likely accelerate with greater amounts of sea-level rise, creating smaller beaches in this area.

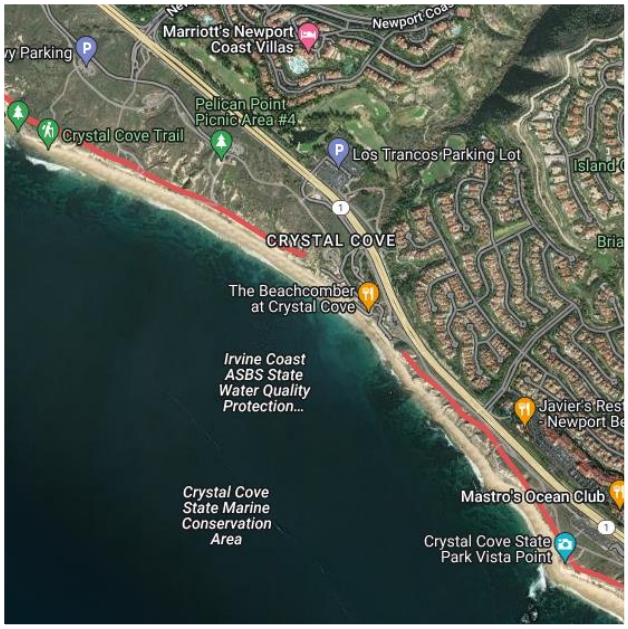
As shown in Figure 7, Beach Erosion on Balboa Peninsula, the extent of shoreline retreat on Balboa Peninsula is not as severe as on the beaches north of Newport Beach Pier. This is because the beaches on Balboa Peninsula are predominantly south-facing and currents cannot move sand northward as easily. Nonetheless, Balboa Peninsula will experience more beach erosion as sea levels rise and create smaller beaches. This is particularly the case near the south side of Newport Beach Pier.

Figure 5. Cliff Erosion in Newport Coast

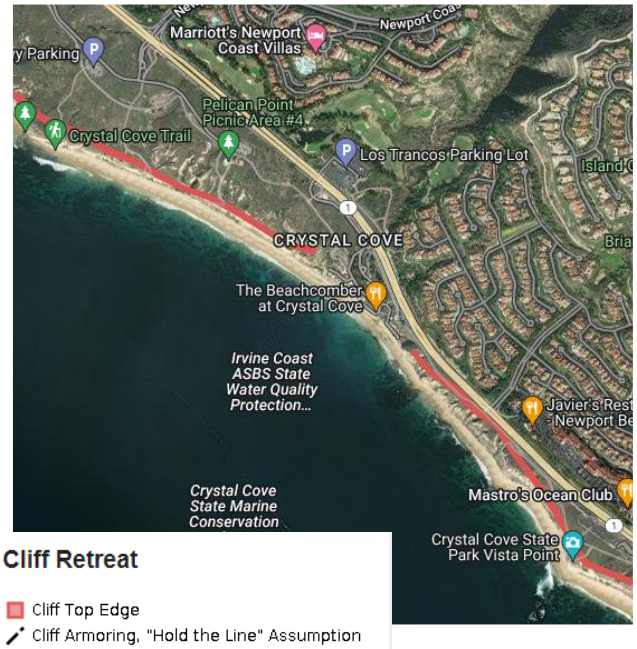
0.25m SLR (2030)



0.5m SLR (2050)



1.25m SLR (2100, low emissions)



1.5m SLR (2100, high emissions)

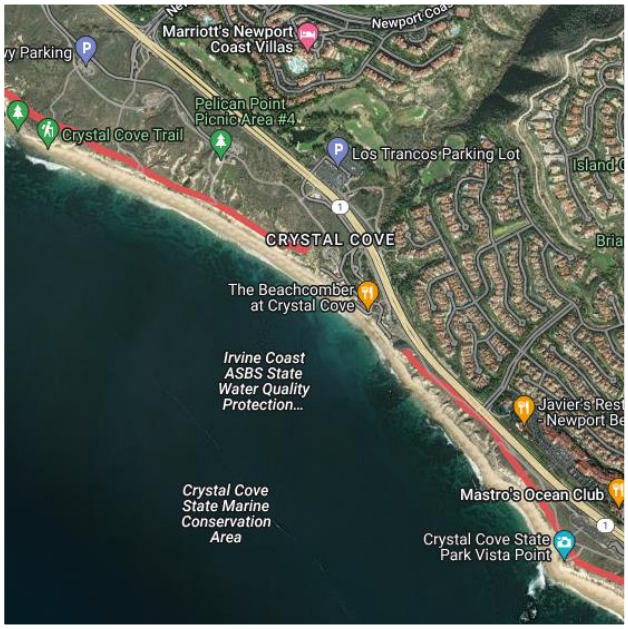
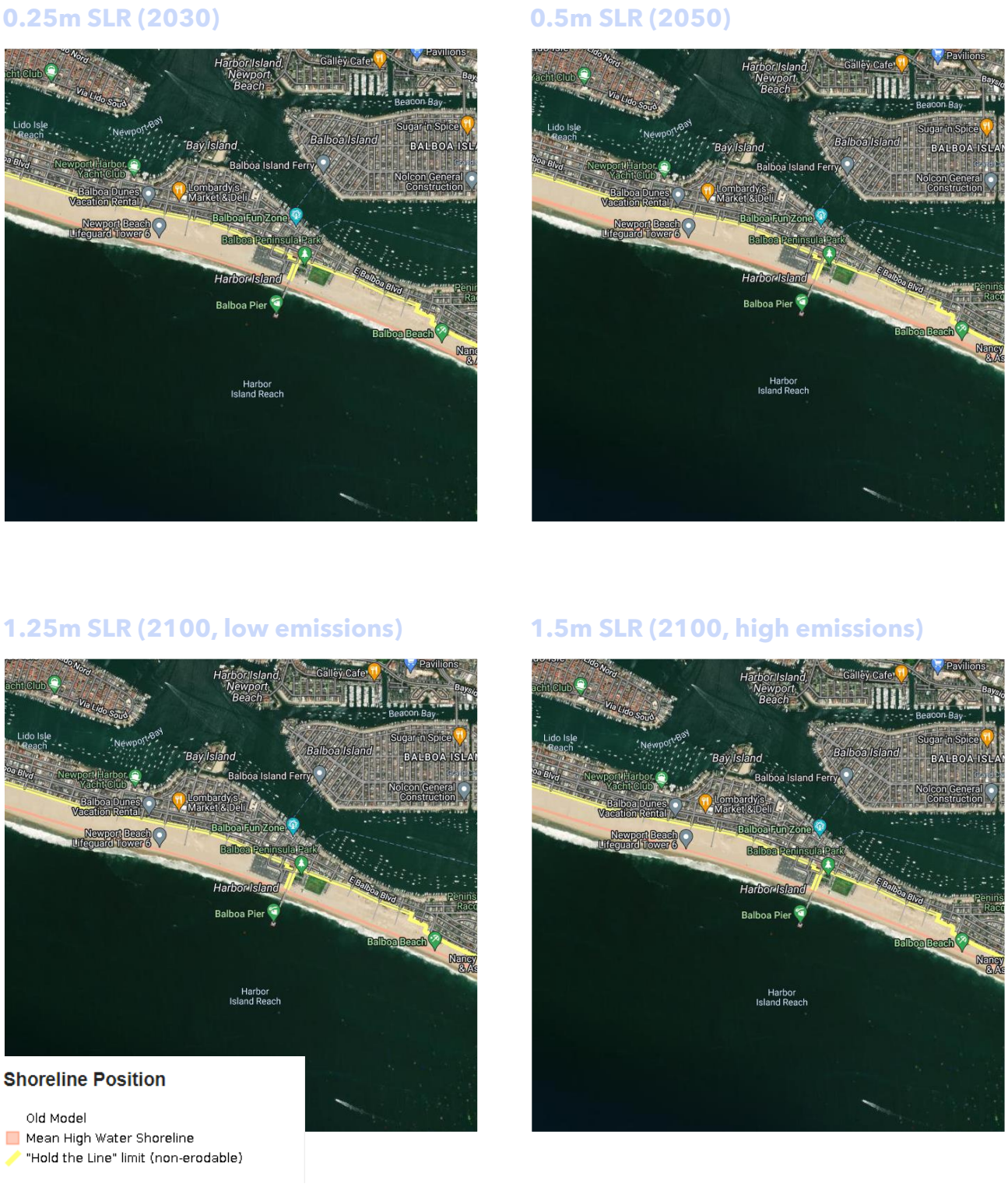


Figure 6. Beach Erosion North of Newport Beach Pier

Figure 7. Beach Erosion on Balboa Peninsula



4.1.3 Vulnerability Assessment

The third step in planning for sea-level rise is to assess risks to coastal resources and development. This section assesses the vulnerability of coastal development to coastal flooding and erosion under the selected CoSMoS sea-level rise scenarios.

3.1.3.1 Coastal Flooding

Figure 1, Coastal Flooding Citywide, shows the areas that would experience coastal flooding during an average storm event under the selected CoSMoS scenarios, but it does not assess potential loss and damage to development that could be caused by this flooding. Table 5, Development Vulnerable to Coastal Flooding, does this by estimating the number of dwelling units and the non-residential building area that could be affected by coastal flooding under each selected CoSMoS scenario. As shown, thousands of dwelling units and millions of square feet in non-residential structures could be affected by flooding even with relatively small amounts of sea-level rise. As the amount of sea-level rise increases, so does the number of affected structures. This flooding could result in costly damage to public and private property, displacement of residents, and structural failure. At worst, this flooding is a threat to public safety that could lead to injury and death.

Table 5. Development Vulnerable to Coastal Flooding

	2030	2050	2100	
	0.25-Meter SLR	0.5-Meter SLR	1.25-Meter SLR (low)	1.5-Meter SLR (high)
Residential dwelling units (number)	5,328	6,778	10,089	10,849
Retail services building area (square feet)	697,538	728,850	804,806	834,499
Restaurants building area (square feet)	562,088	599,327	742,083	776,667
Accommodation building area (square feet)	1,179,121	1,217,120	1,477,376	1,519,865
Arts and entertainment building area (square feet)	260,616	267,601	281,820	282,421
Other retail building area (square feet)	623,009	669,770	749,808	768,267
Office services building area (square feet)	554,635	595,427	901,830	944,177
Education building area (square feet)	4,720	4,720	9,681	9,681
Medical services building area (square feet)	269,209	305,678	564,659	568,230
Transportation/warehouses building area (square feet)	597,464	631,324	764,523	791,723
Wholesale building area (square feet)	107,063	111,414	127,601	131,453

Source: Urban Footprint Base Canvas
SLR = sea-level rise

The selected CoSMoS scenarios are considered to be between medium and medium-high risk averse, with the exception of the 2030 selected CoSMoS scenario, which is highly risk averse. This means that there is a less than 5% chance that the actual amount of sea-level rise experienced in 2030, 2050, and 2100 will meet or exceed the amount of sea-level rise modeled in the selected CoSMoS scenarios for each year. In other words, the data in Table 5 is likely an overestimate of the number of dwelling units and non-residential building area what will be affected. Nonetheless, it is important to plan for these unlikely yet extremely damaging scenarios.

3.1.3.2 Beach and Cliff Erosion

The extent to which beach and cliff erosion will affect existing coastal development varies greatly in different parts of Newport Beach. This is because some beaches and cliffs are more developed or adjacent to development than others.

As shown in Figure 4, Cliff Erosion in Corona Del Mar, the cliffs in Corona del Mar are densely developed with homes, roads, sidewalks, and beach access points. Therefore, cliff erosion in Corona del Mar has the potential to cause significant loss and damage to coastal development. This is especially true under scenarios with greater amounts of sea-level rise. By 2100, cliff erosion could encroach upon many homes in the Cameo Shores neighborhood and parts of Ocean Boulevard. Moreover, it could make it difficult or impossible to access Little Corona Beach.

Unlike Corona del Mar, the cliffs in Newport Coast are mostly undeveloped and are entirely within Crystal Cove State Park. Therefore, there is less potential for cliff erosion to cause loss or damage to homes and other buildings in Newport Coast. As shown in Figure 5, Cliff Erosion in Newport Coast, however, cliff erosion could disrupt beach access and encroach upon the portion of East Coast Highway directly in front of Crystal Cove Shopping Center. This is especially likely under either of the 2100 scenarios.

As shown in Figure 6, Beach Erosion North of Newport Beach Pier, beach erosion is extensive but does not necessarily encroach upon any development in the area. One exception is the public parking lot just north of Newport Beach Pier, which could be affected by beach erosion under higher amounts of sea-level rise. Similarly, beach erosion is projected to decrease beach area on the Balboa Peninsula, as shown in Figure 7, Beach Erosion on Balboa Peninsula. Again, however, little to no coastal development is at risk other than parking adjacent to Newport Beach Pier and basketball courts between the 13th street and 14th street public beach access points.

4.2 Education

Sustainability and resilience often require personal lifestyle choices and adjustments, and therefore also depend on successful public education campaigns to inform people about programs and incentives in which they may want to participate. As new information on sustainability and resilience topics continues to emerge, it is important for residents to have readily available, up-to-date information that equips them with the knowledge necessary to be prepared for climate hazards and, when necessary, take actions. The City relies on multiple channels, such as its website and social media accounts, to distribute information on these topics and others that may be relevant to residents, employees, and visitors. However, many of the City's in-house resources may not reflect current policies and regulations, resulting in potentially outdated information that could result in less-effective action from the community.

4.2.1 City of Newport Beach Website

The City website serves as the primary source of information for all citywide concerns. The "Living & Building 'Green'" section provides an overview of the City's green initiatives and provides residents with resources, such as green building strategies to help the environment.

In 2012, the City's Task Force on Green Development created the "City of Newport Beach Green Building Guidelines," a document with green building recommendations and regulations primarily intended for residential buildings. The guidelines are based on the 2008 California Green Building Standards Code (CALGreen) and are divided into five sections that highlight standards for planning and design, energy efficiency, water efficiency and conservation, material conservation and resource efficiency, and environmental quality. Each guideline is accompanied by a short description; an application (instructions); a description of the benefit(s) generated by the guideline; and, where applicable, additional references to the CALGreen and/or California Title 24, also known as the Building Energy Efficiency Standards. The City's guidelines also include a subsection indicating the number of Leadership in Energy and Environmental Design (LEED) points that determines if the building meets the requirements to become LEED certified. Although the City's guidelines provide a comprehensive overview of green building, it is not up to date with the most recent version of CALGreen, which was last updated in 2022. To retain relevance and usefulness for its users, the City's document could be regularly updated to be consistent with existing State code and any subsequent updates or could instead use links to State resources on CALGreen.

To assist users with implementation of these guidelines, the City's document provides users with a glossary of relevant terms, such as the Seasonal Energy Efficiency Ratio (SEER) and Title 24, and an extensive list of services and vendors for the materials referenced, including roofing, recycled-content flooring, engineered and salvaged lumber, and more. It is likely that some of the referenced businesses and services may no longer be in operation and that newer businesses have since emerged, further rendering the document as dated. A directory of sustainability-related vendors and service providers should be integrated into the City's website rather than provided as a document to facilitate updates and keep information relevant.

As of 2023, the City of Newport Beach Green Building Guidelines is the only document on the City's website that provides information that is specifically tailored to the City. The webpage also include links to green building certifications and programs; State resources and websites; organizations such as Southern California Edison and Building Green, an organization with multiple resources on building sustainable homes; and other related topics such as conservation, recycling, and water quality. However, unlike the City's green building guidelines, these resources lack local focus, and as such, may not be suited to meet the needs or address specific questions of City residents.

A subsection of the City's Energy Action Plan highlights the City's long-term vision and goals for citywide energy efficiency and lists the City's current energy efficiency projects but lacks direct access to relevant information. These resources are housed under the Building Division's webpage, a different section of the City's website that includes detailed information and forms related to CALGreen and solar energy systems. Although these resources do exist, there is no link that directs users to the appropriate webpage, making users search through the City's large directory to find the Building Division. The addition of a subsection with relevant information within the Energy Action Plan page or a link to the Building Division page would facilitate access to these resources and improve the online experience for users.

4.2.2 Social Media

The City's social media channels are used to share information pertaining to City matters and act as a supplement to the City's website. Currently, the City maintains four social media accounts: Facebook, X (formerly Twitter), Instagram, and YouTube.

The City's Facebook, X (formerly Twitter), and Instagram accounts share information related to City operations, notices, job postings, events and opportunities, and other community-related news. Posts are generally similar across the three social media feeds and intended to reach different demographics.

The City's YouTube channel is primarily used to share official City video communications, such as City Council meetings, Planning Commission meetings, lectures and programs hosted by the Newport Beach Public Library, and other similar events. Many of these videos are categorized by "playlists"; one such playlist is titled "Water Conversations" and includes content related to the City's water and conservation efforts. Topics addressed include water conservation tips, strategies that address drought, trash management, and gardening. The content primarily covers best practices related to the topic, and the content remains relevant despite many of the videos being released years ago. However, the playlist's "Water Conversations" title should be updated to address other topics of sustainability and resilience that are included in the playlist.

4.2.3 Other Resources

On occasion, the Newport Beach Public Library provides education on environmental topics that is catered to children and young teens. Hosted in partnership with the Environmental Nature Center, the "Wildlife in Our Own Backyard!" program is a hands-on learning experience that teaches children about nature and the ecosystems within and around Newport Beach. The library also provides book-lending services that residents can use to check out books on sustainability and resilience topics at no cost.

In addition to resources provided by the City, residents may visit educational centers throughout Newport Beach to learn more about the environment and sustainability and resilience topics. The Environmental Nature Center provides education on ecological responsibility and sustainable living practices through hands-on experiences with nature. The facility contains 15 plant communities native to California, a wildlife habitat, and natural walking trails that serve as the backdrop for the center's many programs, including school field trips, summer nature camps, a nature preschool with a nature-based curriculum, and several community programs and events intended for all ages.

As an official partner, the City collaborated with the Environmental Nature Center to develop programs at Buck Gully Reserve, a 300-acre nature preserve that is currently undergoing restoration by the City and the Irvine Ranch Conservancy. These programs provide the community with an immersive hiking experience and insight about the impacts of human development on the natural environment. Based in Upper Newport Bay, the Newport Bay Conservancy provides individuals of all ages with sustainability-focused education and hands-on experiences that help protect and preserve the bay's wildlife and natural resources. Programs include kayak tours, assisting with restoration projects, routine clean-up days, and community days.

Individuals may also learn about sustainable food practices at weekend farmer's markets, including the Newport Pier Farmers Market, held every Saturday from 9 a.m. to 2 p.m., and the Corona Del Mar Farmers Market, held

every Saturday from 9 a.m. to 1 p.m. Here, visitors can interact with farmers and learn about sustainable growing practices that can be adopted at home.

4.3 Buildings and Development

Climate impacts such as sea-level rise and extreme weather are projected to have a significant impact on the City's infrastructure, especially those located along the coast. Buildings that have not been retrofitted to account for these risks, along with typical wear and tear, are subject to significant property damage. For example, residential or commercial buildings that lack elevated building pads or elevated heating, ventilation, and air conditioning (HVAC) systems are significantly more likely to bear the impacts of coastal flooding than buildings that have been upgraded.

As such, the City's infrastructure and development guidelines are key considerations in citywide climate resilience. The City's existing building and fire codes ensure the environmental adaptability and strength of its neighborhoods. This section assesses the state of the City's existing building and fire codes, guidelines, and other resources that are pertinent to infrastructure resilience.

4.3.1 Green Building Standards Code

Per the California Green Building Standards Code (CALGreen) and the Newport Beach Green Standards Code, the City requires new residential and non-residential construction projects and certain additions and alterations to adhere to the most recent edition of CALGreen. Projects meeting specific criteria are subject to CALGreen's minimum requirements for residential construction, new commercial construction, or commercial addition and alterations. These requirements apply to all new residential and non-residential construction projects, any residential alteration or addition that increases the building's area or size, any non-residential addition of 1,000 square feet or more, and any non-residential alterations valued over $200,000. Regardless of type, each project must meet green building standard minimums in areas such as water efficiency, resource efficiency, and environmental quality. In addition to CALGreen minimums, projects must also fulfill builder and/or installer requirements via completion of the CALGreen Compliance Certification Package. The package contains numerous documentation forms and requests relevant project information, such as certificates of installation and emissions limits of gases and compounds such as formaldehyde and volatile organic compounds.

4.3.2 Energy Action Plan

Published in 2013, the City's Energy Action Plan (EAP) describes the City's long-term vision for citywide energy efficiency, and contains goals, strategies, and examples that demonstrate effective reduction of energy usage and GHG emissions. The EAP is intended to reduce the City's carbon footprint, conserve and reduce energy use in municipal facilities, and raise public awareness on energy conservation and techniques. The document provides data on then-current gas and electric energy consumption of municipal facilities and potential municipal energy efficiency projects, such as the optimization of the Newport Beach Central Library's HVAC system and installation of occupancy sensors for lighting in municipal buildings that were not installed at the time.

The EAP's framework is centered around compliance with Assembly Bill (AB) 32, the California Global Warming Solutions Act of 2006, which requires the State to reduce GHG emissions to 1990 levels by 2020. In the years since the EAP was published, the State of California has enacted numerous climate change policies that build on

target reductions established by AB 32. For example, Senate Bill (SB) 32, which passed in 2016, requires the state to reduce GHG emissions to 40% below 1990 levels by 2030. In December 2022, the California Air Resources Board released its Scoping Plan that aims to reduce GHG emission to at least 85% below 1990 levels by 2045. This new target was enacted as State law under AB 1279, the California Climate Crisis Act.

As such, the EAP would benefit from an update that considers the new reduction targets established by State agencies, as well as other recent local, regional, and State energy policies. The new EAP could include an update on municipal energy projects that were identified in 2013, as well as a list of new projects that the City may seek to further progress on the State's reduction goals.

4.3.3 Wildfires

Wildfires could reach Newport Beach through ember cast, which is when firebrands from a wildfire shoots off and are carried by wind currents.[8] According to the California Department of Forestry and Fire Protection (CAL FIRE) 2022–2023 Regulatory Adoption, neighboring Crystal Cove State Park on the eastern border of Newport Beach is characterized as a Very High Fire Hazard Severity Zone for the Local Responsibility Area and the State Responsibility Area, meaning properties in the eastern sections of Newport Beach, such as San Joaquin Hills and Shore Cliffs, are susceptible to wildfire exposure. Figure 8 shows the Fire Hazard Severity Zones in and near the City's jurisdiction.

Figure 9 shows the local history of fires within and adjacent to Newport Beach. Of those mapped, the largest fire was the Laguna Beach Fire of 1993, which burned more than 14,000 acres across Crystal Cove State Park, Laguna Beach, Irvine, and Newport Beach; it caused an estimated $528 million in damages.[9] Although fires have occurred in the years since the Laguna Beach Fire, many of these have been contained before they could spread further.

To reduce wildfire risk, the City and the Newport Beach Fire Department have implemented a variety of measures and policies to ensure the safety of its residents and infrastructure. These policies apply to specific wildland/urban interface areas, where property lines interact with wildland or vegetative fuels, and include Very High Fire Hazard Severity Zones and Hazard Reduction Zones, per CAL FIRE. The Newport Beach Fire Chief has designated areas of Newport Beach that are most at-risk of wildfires as Hazard Reduction Zones, which are residential or commercial areas directly adjacent to natural open space in Newport Beach's eastern area. There are approximately 260 Hazard Reduction Zones within the City's jurisdiction, including parcels in the Newport Coast, Morning Canyon, and Big Canyon communities. Affected property owners are subject to additional construction requirements defined in the Newport Beach Fire Code, or Chapter 9.04.380 of the Newport Beach Municipal Code, which requires fire-resistant ventilation screening for existing structures in Newport Beach's wildland/urban interface areas.

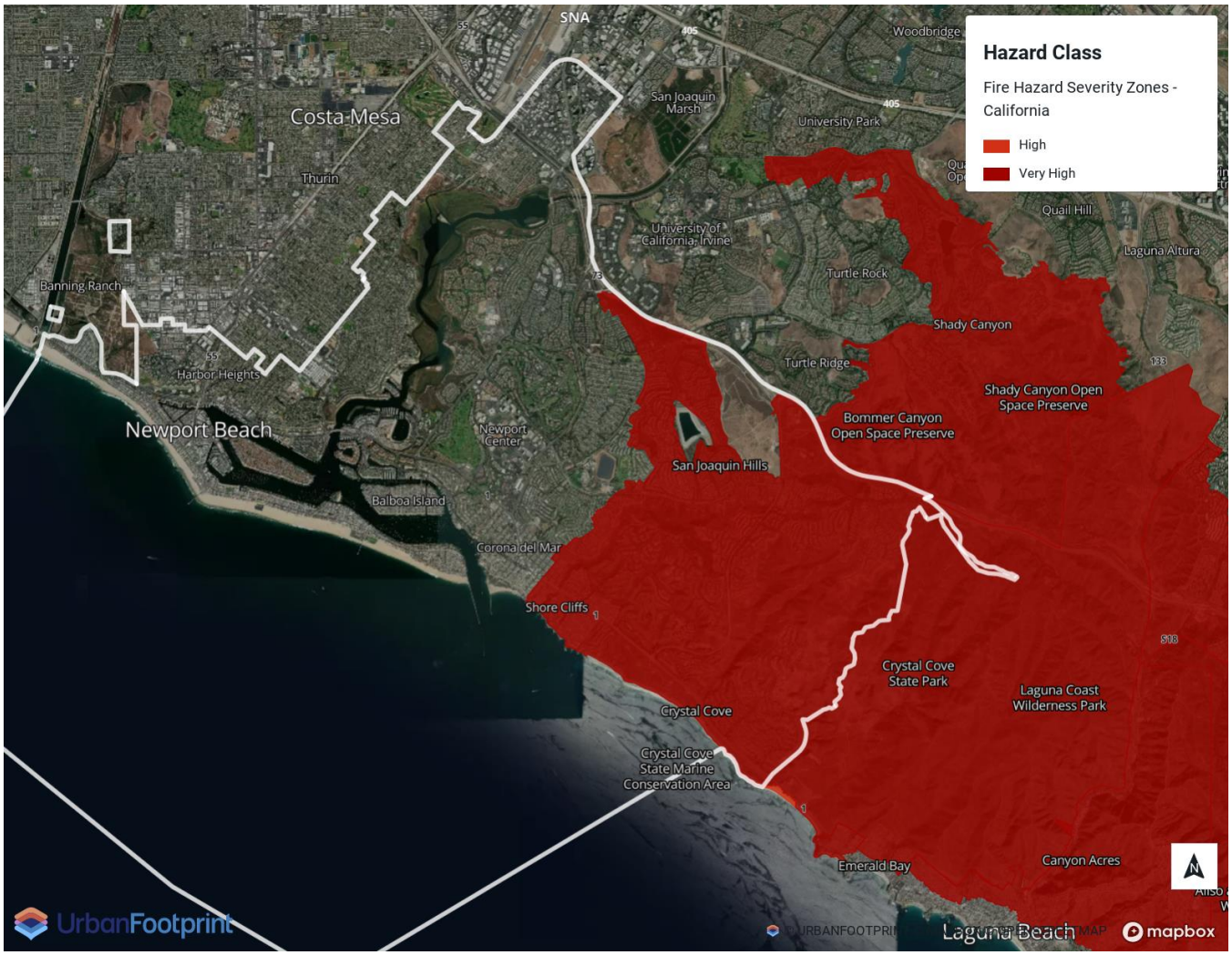
Additionally, the Newport Beach Fire Department Fire Prevention Division manages a series of vegetation management programs to reduce the risk of wildfires entering Newport Beach, and to manage the growth of dry vegetation and weeds that pose as fire hazards. The City's weed abatement program reduces the amount of potential fire hazards through routine inspections of the 82 properties within designated weed abatement parcels. Per Chapter 10.48 of the Newport Beach Municipal Code, the Fire Marshal may declare a public nuisance and abate weeds, dry grass, brush, poison oak, and all rubbish and refuse on public and private property in Newport Beach. The Fire Prevention Division also manages the City's fuel modification zones, which are specific areas that

8 As of 2023, CAL FIRE is updating its fire hazard severity mapping. It is anticipated that the hazard zones will expand as a result of ember-cast fires.

9 https://www.ocfa.org/Uploads/Transparency/OCFA-AAR-Orange%20County%20Firestorm.pdf.

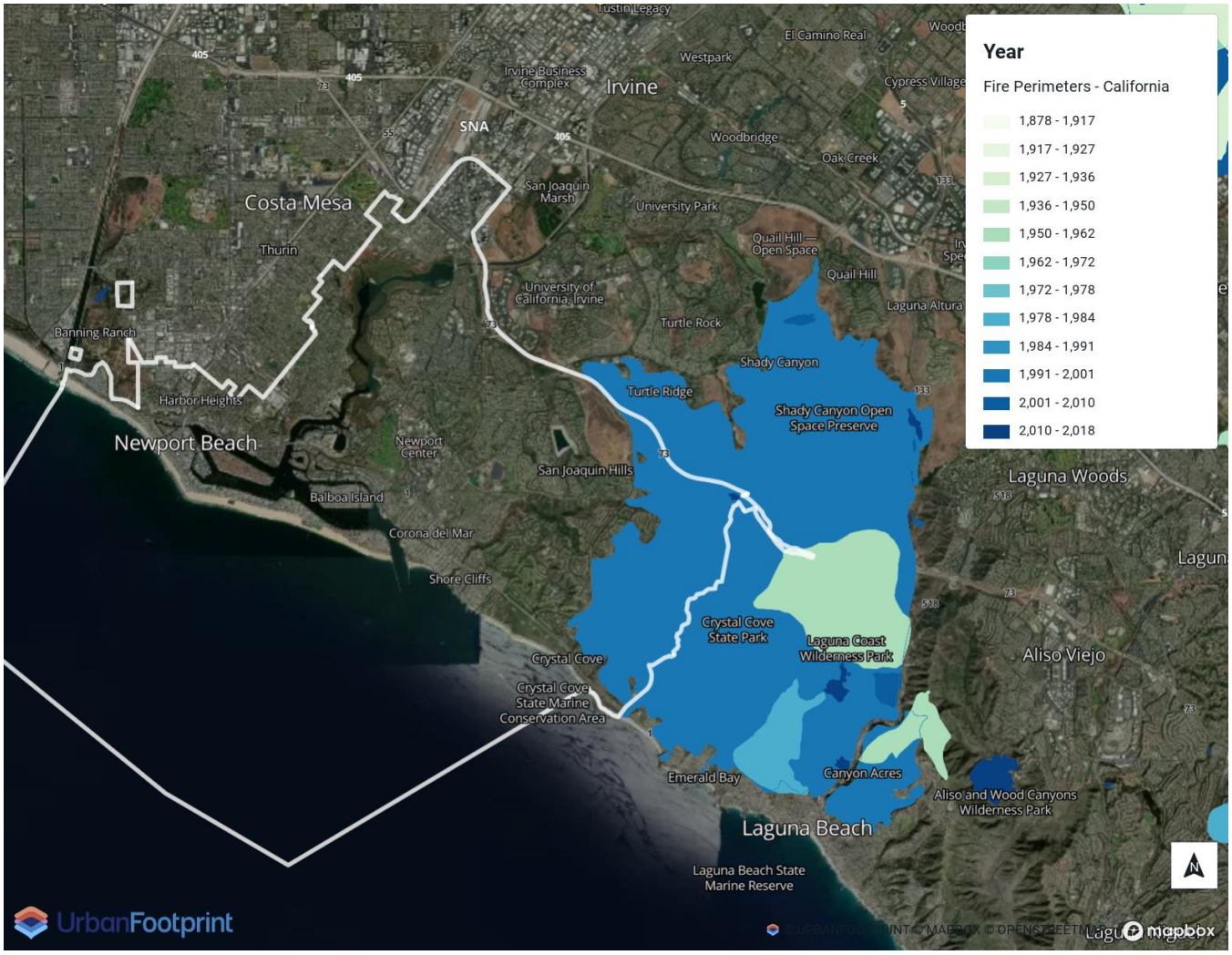
have been treated to increase a development's resistance to fire and to improve its surrounding defensible space. Similar to the weed abatement program, City staff conduct inspections every spring and fall to ensure affected property owners are in compliance with regulations.

Figure 8. Very High Fire Hazard Severity Zones in Newport Beach



Source: CAL FIRE Urban Footprint.

Figure 9. Fire History in Newport Beach



Source: CAL FIRE, Urban Footprint.

4.4 Transportation

Newport Beach's development into a prime tourist destination in recent years has resulted in increased vehicle miles traveled (VMT) along the road network and principal intersections, especially during the summer. Connectivity in Newport Beach is further hindered by natural barriers such as the Pacific Ocean and Newport Bay on the west, and neighboring John Wayne Airport in the north. Increasing trips and VMT will lead to increasing traffic and traffic-related emissions if not addressed.

Reducing VMT on Newport Beach's existing network of roads and providing additional mobility options will alleviate these impacts, even as the population of local residents, workers, and visitors grows. Relevant topics addressed in this section include land use compatibility, public transportation, active transportation, and parking.

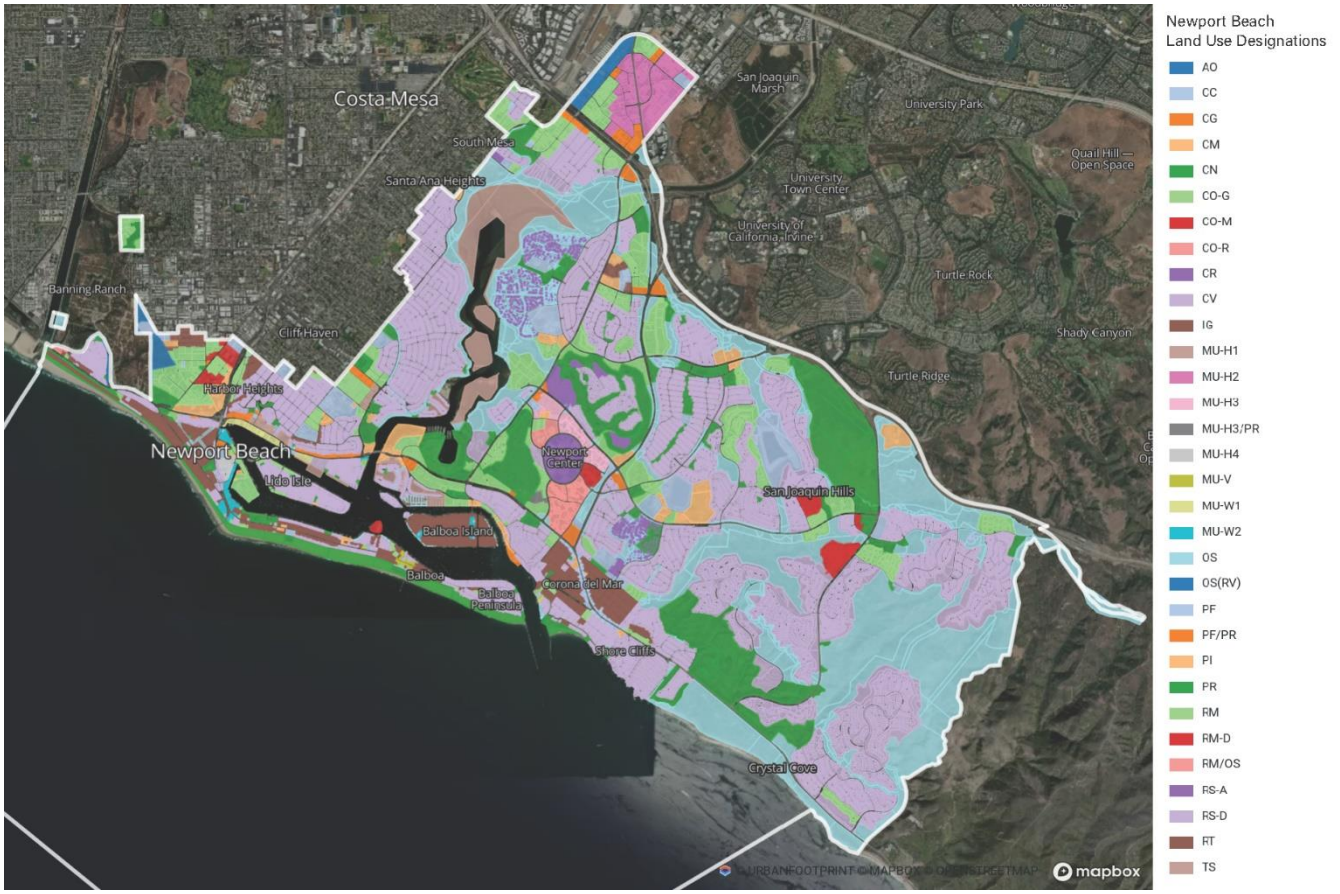
4.4.1 Land Use Compatibility

Land use has a significant impact on an individual's mobility options and trends. For example, mixed-use districts and close clusters of compatible residential and commercial land uses enable residents and visitors to move around with ease. Such communities are often successful in reducing congestion and emissions because active and public transportation are more viable and car trips are relatively short. Conversely, individuals residing in communities that are separated from services by large distances are more likely to rely on their cars and will thus contribute more to congestion and emissions than those in compact areas.

Figure 10, Land Uses in Newport Beach, indicates that the highest land use diversity in Newport Beach is in the Balboa Peninsula and the areas bordering the City of Costa Mesa. The majority of the City's land uses are reserved for detached single-family residential use (labeled RS-D in Figure 10). Communities in the southern part of Newport Beach along the Balboa Peninsula contain more amenities and services relative to inland communities because early development of Newport Beach was centered around the Bay and the shipping industry, prior to the tremendous growth of automobile use and infrastructure in the early 20th century. Residential communities, such as those in East Bluff and the San Joaquin Hills, contrast with the denser harbor communities with minimal access to businesses and services. This may correlate to a high number of car trips and higher VMT where such services are located.

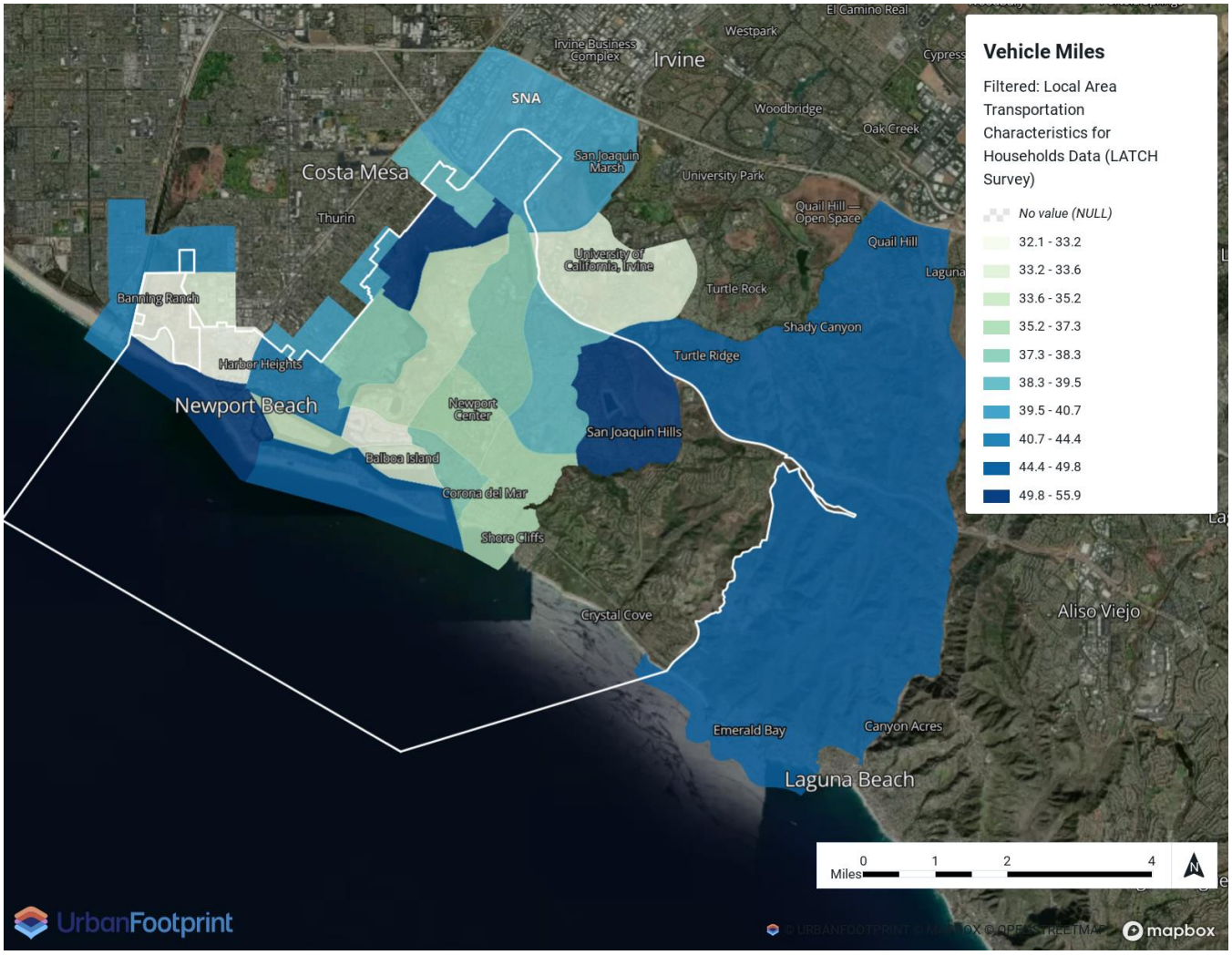
Figure 11 shows the VMT per population, which refers to the total annual miles divided by the total population of the urbanized area. The analysis indicates that VMT is highest along the Balboa Peninsula, in the east where several parks and natural landscapes are located, and in the west in areas adjacent to State Highway 55. These corridors could be priority areas for implementation of innovative mobility and land use strategies that would decrease VMT and increase mobility options for individuals. Implementation of efficient land use patterns in residential neighborhoods that lack convenient access to goods and services may redirect congestion and VMT away from the communities bearing most of the emissions, and may also result in shorter trips overall. Although this may not be feasible for areas with rich natural resources, the City should consider implementing innovative mobility strategies, such as free or low-cost micromobility shuttles, that can remove strain from more congested areas and result in lower citywide emissions and VMT.

Figure 10. Land Uses in Newport Beach



Source: Southern California Association of Governments (2018), Urban Footprint.

Figure 11. Vehicle Miles Traveled in Newport Beach

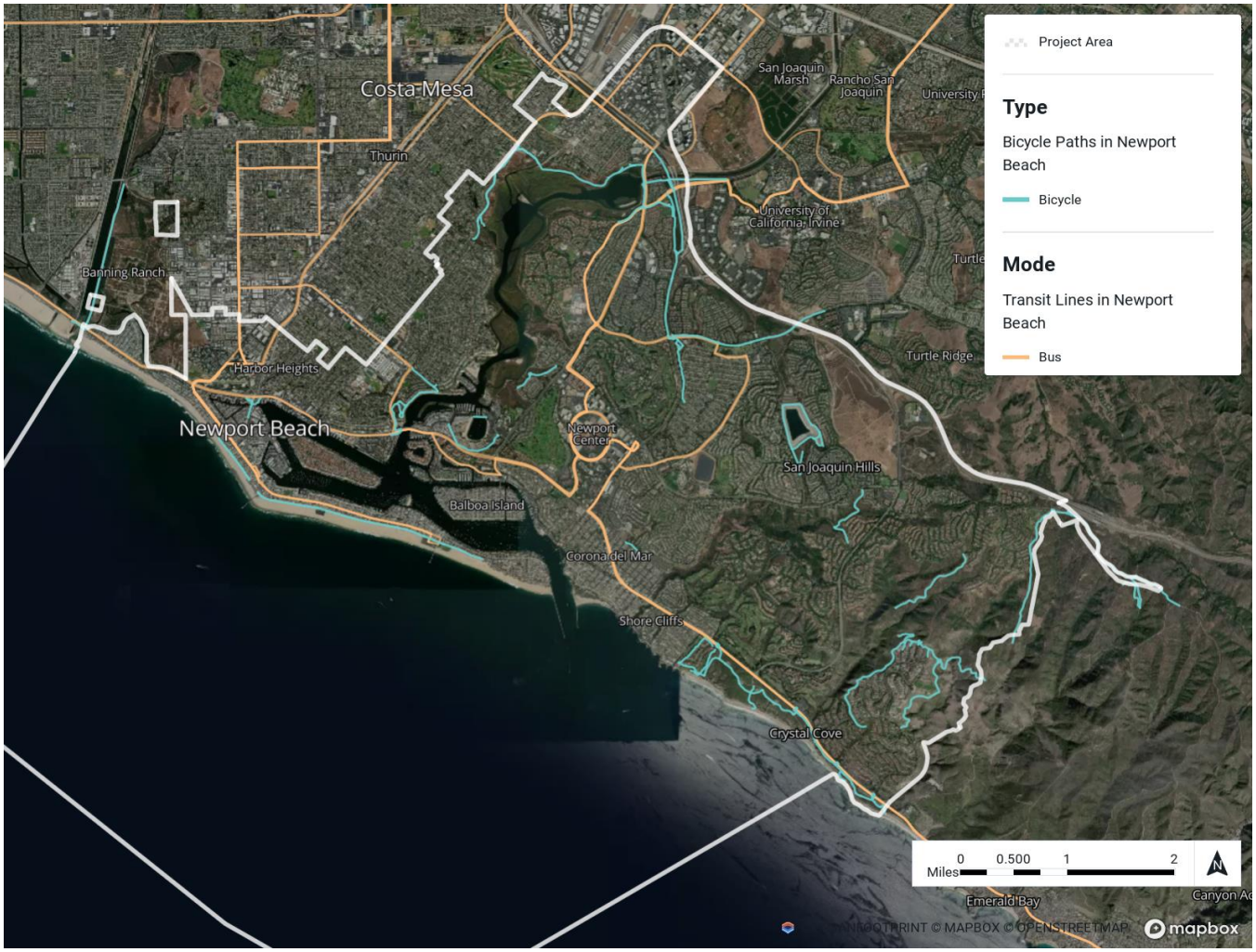


Source: Bureau of Transportation Statistics (2018), Urban Footprint.

4.4.2 Public Transportation

The Orange County Transportation Authority (OCTA), the regional agency responsible for funding, implementing, and operating transit projects, is the primary provider of public transportation services in Newport Beach. Local bus routes provide service to and from popular destinations such as Balboa Island, Fashion Island, and the Newport Transportation Center, where four OCTA bus lines connect to OCTA's network of local and specialty bus routes throughout Orange County. Route alignments are shown in Figure 12.

Figure 12. Transportation Routes in Newport Beach



Source: Transitland (2021) and OSM Road Network (2021), Urban Footprint.

Per OCTA policy, local bus routes must operate at least every 30 minutes, and certain routes with higher ridership have reduced headways (i.e., the duration between vehicles in a transit system) to accommodate more riders and improve overall service. This applies to OCTA Route 57, which ranked as the busiest route in the system in December 2018, with a total of 244,749 boardings.[10] Job centers along this route include California State University, Fullerton; the UC Irvine Medical Center; the Segerstrom Center for the Arts; and Fashion Island, making Route 57 a critical lifeline for the workforce. As of August 2023, Route 57's headways averaged less than the 30-minute minimum; during peak operating hours, most stops receive service every 13 to 20 minutes.[11]

In addition to the standard bus routes, the City, in partnership with the OCTA, operates the Balboa Peninsula Trolley, a free weekend paratransit service throughout Balboa Peninsula during the summer. Although OCTA Route 47

10 https://www.octa.net/news/publications/bus-boarding-reports/.
11 Orange County Transportation Authority. "Route 57 Schedule." Accessed September 25, 2023. https://octa.net/ebusbook/RoutePDF/route057.pdf?n=202308.

operates in Balboa Peninsula, service is limited to Balboa Boulevard and 23rd Street, and the Balboa Peninsula Trolley extends much farther into the community and provides services to and from Balboa Pier. Free park-and-ride accommodations are provided to car users at the Avon Street Parking Lot, facilitating connections to the area. The service's accessibility and 15-minute headways make this a great mobility alternative for residents and visitors looking to spend time in Balboa Peninsula. In addition to reducing VMT in this neighborhood, the trolley also reduces congestion in the Balboa Peninsula from car users searching for available parking spaces.

Although private cars are the dominant means of moving around Newport Beach, further investments in efficient transit and paratransit, especially those concentrated around popular points of interest, should be considered to reduce VMT.

4.4.3 Active Transportation

Active transportation routes allow non-motorized users, with the exception of electric bicycle users, to move around safely and efficiently, and also facilitate connections to transit routes. In Newport Beach, there are three types of active transportation routes:

- **Class I:** Shared-use paths or trails fully separated from vehicular roadways, intended for exclusive use by pedestrians, cyclists, and other non-motorized users.
- **Class II:** Bike lanes that are defined by pavement striping and signage, shared with vehicle users. Buffered bike lanes include buffer striping to provide greater separation between cyclists and vehicles.
- **Class III:** Bike routes, also known as bike boulevards, which are characterized by their location on low-stress residential streets and by traffic-calming measures, such as roundabouts and neighborhood traffic circles.

As shown in Figure 12, there are gaps in the City's active transportation network, which limits connectivity for non-motorized users. Most bicycle routes in Newport Beach are Class II or Class III, which require people who bike to share the road with cars, which may deter newer or inexperienced users from riding their bicycles, especially on busy roads. According to Transportation Injury Mapping System (TIMS) data, 77 bicycle crashes were reported in Newport Beach in 2021, resulting in two deaths and 82 injuries. In total, 38 of these incidents were recorded on or in areas adjacent to Pacific Coast Highway, a major thoroughfare that connects Balboa Peninsula, Balboa Island, Corona Del Mar, and Crystal Cove, and thus experiences high traffic volumes.

Many bicycle lanes in Newport Beach lack enhanced safety features, such as buffers or bollards, as shown in the image of the Back Bay Loop, below. Increased safety features could encourage more people, especially those who are less experienced or traveling with children, to bike more, when creating an off-street path is infeasible.

Basic striping is pictured here as a solid white line on the Back Bay Loop, a hybrid active transportation trail and roadway with Class I, Class II, and Class III segments, in Newport Beach.

Several State programs, such as the Active Transportation Program, the Local Streets and Roads Program, and the State Transportation Improvement Program, can provide the City funding to build and improve upon existing bike and pedestrian facilities. Potential improvements may include speed bumps, roundabouts, neighborhood traffic circles, enhanced pedestrian crossings, and other traffic-calming measures. Such improvements would facilitate non-motorized mobility, and provide residents and visitors with new and safe opportunities to experience Newport Beach through active transportation infrastructure.

4.4.4 Parking

4.4.4.1 Public Parking

High parking demand in Newport Beach's coastal neighborhoods, such as Corona Del Mar, Balboa Peninsula, and Balboa Island, often cause parking shortages during peak periods in the summer. On Balboa Island, for example, visitors may struggle to patronize local businesses or visit those who reside on the island due to the lack of off-street public parking. Weekend peak occupancy can reach up to 99% of more than 1,900 parking spaces on the island.

Currently, the City uses paid parking lots and on-street metered parking that are primarily concentrated along beach and harbor areas to address parking congestion. Depending on the site, time of day, and time of year, rates for private cars can range from $1.30 to $7.05 per hour. Higher rates take effect during the summer and may prompt individuals to carpool or seek alternatives, such as public or active transportation. Newport Beach Municipal Code Chapter 20.28 includes the Balboa Village Parking Management Overlay District, which establishes regulations specific to parking in the Balboa Village. These regulations allow shared parking and the use of private parking facilities, and intends to implement an employee permit program that would reduce parking fees and designate parking for employees of businesses in the neighborhood. As the City's first and only parking management district,

the Balboa Village Parking Management Overlay District provides a foundation for other communities in Newport Beach facing similar challenges.

Additional parking management strategies may be able to reduce the difficulties associated with finding an available space in these areas. Short-term and medium-term strategies, such as shared parking, additional on-street parking regulations and cost, and the conversion of private lots into public parking, were a few examples suggested in the Balboa Village Master Plan and Mariners' Mile Revitalization Master Plan. Further research into and implementation of these strategies might help alleviate issues of limited parking and congestion in the Balboa Village, Mariners' Mile, and similar neighborhoods. These strategies should consider existing programs, such as the Balboa Village Parking Management Overlay District and the Balboa Peninsula Trolley, to maximize overall effectiveness.

4.4.4.2 Bicycle Parking

In addition to safe active transportation corridors, parking provisions are necessary to increase the use of bicycles because users need secure places to store their bicycles when not in use. CALGreen establishes minimum short-term and long-term bicycle parking requirements for new, non-residential projects.

Anchored bicycle racks intended for short-term use should be built within 200 feet of a new project or building alteration expected to generate visitor traffic. The number should be equivalent of 5% of vehicle parking spaces being added and should, at minimum, provide capacity for two bicycles.

Short-term bicycle parking, such as anchored bicycle racks (pictured left), and long-term bicycle parking, such as bicycle lockers (right), provide users with safe storage options when not using their bicycles.

Secure long-term bicycle parking facilities take several forms and may include bicycle lockers; locked bicycle rooms with anchored racks; or locked, covered enclosures with anchored racks. For new buildings with 10 or more tenant-occupant parking spaces, alterations that add 10 or more tenant-occupant parking spaces, or new shell buildings, long-term bicycle parking spaces must be equivalent to at least 5% of the vehicular parking spaces and must, at a minimum, provide one bicycle parking facility.

Chapter 15.11 of the Newport Beach Municipal Code fully adopts the 2022 Edition of CALGreen as the Newport Beach Green Standards Code, and includes all requirements related to bicycle parking. Chapter 21.40 of the Municipal Code details additional requirements for bicycle parking that, in some cases, are stricter than what the State requires. For example, short-term bicycle parking spaces must be within 100 feet of a project's entrance, as opposed to the State's 200 feet requirement. The Municipal Code requires that long-term bicycle parking spaces be located in a well-lit, secured, and covered area that is accessible to and from public streets. Short-term and long-term bicycle parking must also be accompanied by appropriate signage indicating their location.

4.4.4.3 Electric Vehicles

As EVs become more popular, it is important that the City's charging equipment keeps pace with the needs of new EV and NEV (neighborhood electric vehicle) owners. The City currently provides 23 public EV charging stations at key community centers, such as the Newport Beach Civic Center and Park, and the Marina Park Community and Sailing Center.

See Table 6 for a description of the types of charging equipment available.

Table 6. Types of Electric Vehicle Charging Equipment

EV Capable	Requires installation of a raceway and adequate panel capacity to sustain a dedicated branch circuit and a charging station for electric vehicles.
EV Ready	In addition to EV Capable requirements, parking space must install a dedicated branch circuit, circuit breakers, and other electrical components to support installation of a charging station.
EV Chargers	In addition to EV Ready requirements, parking space must include the equipment needed to charge an electric vehicle.

EV = electric vehicle

CALGreen requires that new construction and major alterations, where feasible, include a specific number or percentage of EV Capable parking spaces (see Table 6). This mandate does not apply to accessory dwelling units or junior accessory dwelling units. Per State code, new one- and two-family residential units and townhomes with attached garages must install one raceway for each dwelling unit. New multifamily dwellings, hotels and motels, and residential parking facilities are subject to different percentage-based regulations that include additional EV Ready and EV Chargers requirements. These requirements are described in Table 7.

Table 7. Electric Vehicle Infrastructure Requirements for New Residential Development

	Projects Less Than 20 Units	Projects Greater Than or Equal to 20 Units
EV Capable	10% of total parking spaces	10% of total parking spaces
EV Ready	25% of total parking spaces	25% of total parking spaces
EV Chargers	No requirement	5% of total parking spaces

EV = electric vehicle

The number of required EV Capable parking spaces for non-residential projects are subject to the total number of parking spaces on site.[12] Depending on the number of spaces, certain projects may also have to provide dedicated EV charging stations, which count toward meeting the requirement of EV Capable spaces (see Table 8).

Table 8. Electric Vehicle Infrastructure Requirements for Non-Residential Development

Total Number of Spaces	Required EV Capable Spaces	Required EV Charging Stations
0 –9	0	0
10–25	4	0
26–50	8	2
51–75	13	3
76–100	17	4
101–150	25	6
151–200	35	9
≥201	20% of total (rounded up)	25% of EV Capable spaces

EV = electric vehicle

The City has adopted CALGreen into its Municipal Code as the Newport Beach Green Standards Code, meaning the City meets all minimum requirements established by the State, although the City may work with developers to build spaces beyond what is legally required to further incentivize the use of EVs.

4.5 Waste Reduction

Proper waste reduction and management are necessary to reduce significant methane emissions generated by local landfills, reduce costs associated with transporting waste, and ultimately create a cleaner and healthier environment.

The City, in partnership with its contracted waste hauler CR&R Environmental Services, recently restructured residential trash collection services to provide households with separate containers for trash, recycling, and organic waste, in addition to a 2-gallon organic waste pail intended for use in the kitchen. These changes to residential trash collection were made in accordance with SB 1383, which aims for a 75% reduction in organic waste in landfills and to recover at least 20% of edible food by 2025.

Per AB 341, all businesses and multifamily developments with at least 5 units that generate 4 or more cubic yards of solid waste per week are required to recycle. To successfully comply with AB 341, business and multifamily development property owners can coordinate with trash collectors to implement a recycling program, sign up for a recycling service, or self-haul their recycling, the last of which may require a permit or proof of routine recycling. Commercial businesses in Newport Beach are also required to properly dispose of organic waste, similar to the SB 1383 mandates imposed on residential units. AB 1826 states that all businesses that generate at least 2 cubic yards of any kind of waste must implement organics recycling that includes food waste, landscaping, and other types of green waste.

[12] 2022 California Green Building Standards Code, Title 24, Part 11 (CALGreen), with January 2023 Errata.

The City complies with all pertinent State laws per Chapter 6.06 of the Newport Beach Municipal Code, which lists all requirements and regulations related to State-mandated solid waste diversion programs. The Municipal Code also provides additional direction for AB 341 on how to comply with self-hauler requirements and regulations for waste management at special events.

4.6 Energy

Newport Beach is within the Southern California Edison (SCE) service area; thus, the electricity that powers residential and non-residential buildings reflects SCE's power mix in the Southern California region. Table 9 shows SCE's power content label for 2022, which shows the share of various energy sources that composed SCE's total power supply.

Table 9. Southern California Edison 2022 Power Mix

Energy Resource	2022 Power Mix
Renewable Energy Sources	**35.8%**
Biomass and Biowaste	2.1%
Geothermal	4.7%
Hydroelectric	1.1%
Solar	17.0%
Wind	10.8%
Coal	**2.1%**
Large Hydroelectric	**9.2%**
Natural Gas	**36.4%**
Nuclear	**9.2%**
Other	**0.1%**
Unspecified	**7.1%**

Source: Southern California Edison: Power Content Label.

From 2017 to 2022, the share of renewable energy sources in the SCE power mix rose from 29% to 35.8%. The reliance on coal has reduced from 4% in 2017 to 2.1% in 2022; the share of natural gas increased from 34% in 2017 to 36.4% in 2022; and the share of large hydroelectric has decreased from 15% in 2017 to 9.2% in 2022. Energy from nuclear power has been relatively stable.[13]

Aside from increasing renewable energy composition in the overall power mix, an important part of reducing GHG emissions is electrification of buildings, vehicles, and other energy users. This involves reducing the use of natural gas for power in residential and non-residential buildings. The State and Local Planning for Energy (SLOPE) tool shows a potential decrease of 49.14% (compared to 2005 levels) of energy-related carbon dioxide emissions for Orange County under a moderate electrification scenario (i.e., the effects of electrifying cost-competitive

[13] Southern California Edison. 2023. "Power Content Label." https://www.sce.com/sites/default/files/custom-files/PDF_Files/SCE_2022_Power_Content_Label_B%26W.pdf.

opportunities in buildings and transportation with a business-as-usual projection for the evolution of electricity supply). This model assumes that 96.33% of electricity will be provided by renewable energy by 2050.[14]

Through its involvement in the Orange County Cities Energy Partnership, the City coordinates with SCE, the Southern California Gas Company, and neighboring local governments to identify and create projects to improve energy efficiency and sustainability. Actions include installing energy-efficient lighting, HVAC improvements, installing Energy Star rated appliances, and conducting technical energy audits of the City's major facilities, among others.

The City's EAP, finalized in 2013, provides a roadmap for the City to reduce its energy consumption and GHG emissions. Included in the EAP are energy audits of major City facilities, including City Hall, the Fire Department, Library Services, Municipal Operations, the Police Department, Public Works, and Recreation and Senior Services. Within municipal operations, the EAP includes electricity use for water production and wastewater, oil and gas, parks and trees, streetlights, traffic control, operations support, and several other General Fund activities.

4.7 Water Conservation

Per the City's 2020 Urban Water Management Plan, the City's water supply comes from a combination of imported water, which includes water from the Colorado River and the State Water Project; recycled water; and local groundwater, with groundwater from the Orange County Basin comprising the largest share.[15] In fiscal year 2019/2020, water supplies consisted of 68% groundwater, 28.5% imported water, and 3.5% recycled water. By 2045, groundwater is expected to total 82% of water supply, followed by imported water (14.5%) and recycled water (3.5%). This indicates a growing reliance on groundwater and a shrinking dependence on imported water. However, the City's 2020 Urban Water Management Plan also refers to the Metropolitan Water District of Southern California's Seawater Desalination Program, which provides incentives for developing new seawater desalination projects in the Metropolitan Water District of Southern California's service area. Desalination projects would help to reduce reliance on imported water and increase local resilience.

Water use within the City's service area has been relatively stable, with an average of 15,413 acre-feet per year, of which potable water use accounted for 97%. Of this usage in fiscal year 2019/2020, residential use comprised 58.9%; commercial, institutional, and industrial comprised 18.2%; and large landscape/irrigation comprised 18.1%; with the remaining other uses comprising 4.8%. In compliance with SB 7 as part of the Seventh Extraordinary Session (SBx7-7), known as the Water Conservation Act of 2009, the City more than met its 2020 water use target of 207 gallons per-capital per day, achieving an average of 160 gallons per-capital per day.

To plan for the event of water shortage due to drought, a catastrophic event (e.g., earthquake), or other circumstances, the City has created a Water Shortage Contingency Plan, the most recent in 2020, to help maintain adequate, reliable supplies and reduce impacts of supply interruptions. The Water Shortage Contingency Plan provides real-time water supply availability assessments and strategic steps to respond to actual conditions.[16]

14 National Renewable Energy Laboratory. 2023. "SLOPE: State and Local Planning for Energy." https://maps.nrel.gov/slope/.
15 City of Newport Beach. 2020. *2020 Urban Water Management Plan: Final Draft*. May 2020. https://www.newportbeachca.gov/government/departments/utilities/water-services.
16 City of Newport Beach. 2021. *2020 Water Shortage Contingency Plan*. June 2021. https://www.newportbeachca.gov/government/departments/utilities/water-services.

4.8 Water Quality

Recreational waters – including nearly 10 miles of sandy beaches, tidepools, Newport Harbor, and Newport Bay – are central to Newport Beach's economy, culture, and landscape. Therefore, ensuring that these recreational waters experience good water quality year-round is of great importance to the community. However, recreational water quality varies throughout the city and is threatened by contaminated storm runoff, trash, and boating-related pollution. The City is aware of these issues and has some programs and infrastructure in place to address them.

4.8.1 Recreational Water Quality Concerns

According to Heal the Bay, a trusted nonprofit organization that regularly collects water quality information from nearly 500 locations along the West Coast, Newport Beach experiences good water quality overall. In general, water quality is best when the weather is dry and worst during and immediately following rainy weather. This is because stormwater runoff collects bacteria, pollution, and debris from urban areas. This runoff eventually flows into Newport Bay and the ocean via creeks and rivers, including the Santa Ana River and San Diego Creek, as well as stormwater drains and channels. For this reason, water quality tends to decline after it rains near the terminus of the Santa Ana River and in Newport Bay where San Diego Creek, Big Canyon Creek, and other stormwater channels drain.

According to Heal the Bay's 2021-2022 and 2022-2023 Beach Report Cards, water near the Santa Ana River jetty and Newport Bay experienced good water quality when the weather was dry, receiving grades of A and A+ in nearly every location sampled[17,18]. However, these locations experienced poor-to-fair water quality after rain events, mostly receiving grades of C, D, and – especially during the unusually wet winter of 2022 – a grade of F. One exception is Vaughn's Launch in Newport Bay which received a grade of F during both wet and dry weather and was featured on the 2021-2022 statewide "Beach Bummers" list. This location is affected by polluted runoff from Big Canyon Creek which is known to carry pollutants from residential areas and Jamboree Road, a major thoroughfare. In contrast, water quality tends to be consistently good in Corona del Mar and Crystal Cove. Nearly all locations sampled in these areas earned grades of A and A+ on the 2021-2022 and 2022-2023 Beach Report Cards during both wet and dry weather, earning them a spot on Heal the Bay's "Honor Roll."

Another concern for recreational waters is trash. Significant amounts of trash end up in Newport Beach's recreational waters via the Santa Ana River, San Diego Creek, and other creeks and stormwater channels, ocean currents, and littering – both intentional and unintentional. While the exact quantities of trash are unknown, volunteers pick up trash along beaches and in Upper Newport Bay each year[19].

Other water quality concerns in Newport Bay are related to boating. Chemicals used to paint and clean boats as well as fuel leaks from watercraft can contaminate the Bay. In recent years, copper contamination from hull cleaning and painting has been a topic of concern for the Santa Ana Regional Water Quality Control Board which has jurisdiction over Newport Bay. In December 2022, the Board adopted a Basin Plan amendment to reduce the water

17 Heal the Bay. 2022. *2021-2022 Beach Report Card*. June 2022. https://healthebay.org/wp-content/uploads/2022/06/Beach-Report-Card-2021-2022.pdf?utm_medium=email&utm_source=govdelivery.

18 Heal the Bay, 2023. *2022-2023 Beach Report Card.* June 2023. https://healthebay.org/wp-content/uploads/2023/06/Beach-Report-Card-2022-2023.pdf

19 City of Newport Beach. n.d. "Make A Splash, Pick Up Trash." https://www.newportbeachca.gov/government/departments/public-works/ocean-water-quality/make-a-splash-pick-up-trash.

quality limit, or total maximum daily load, for copper and developed a plan to reduce boating-related copper contamination by 60% over the course of 12 years[20]. According to a bay-wide water sampling effort conducted in 2019, the bay-wide average concentration of copper is 2.6 micrograms per liter which is below the USEPA water quality limit for copper of 3.1 micrograms per liter[21]. Still, concentrations of copper in 5 out of the 47 locations sampled exceeded 4.0 micrograms per liter. It is expected that Basin Plan implementation of programs to reduce copper contamination, including educational campaigns for hull cleaning, will begin soon.

4.8.2 Efforts to Improve Recreational Water Quality

In an effort to address recreational water quality concerns, the City created the Water Quality/Coastal Tidelands Committee to advise City Council on decisions with the potential to impact water quality. Additionally, the City has been improving stormwater infrastructure and has led several educational campaigns to reduce the amount of trash and pet waste that ends up in recreational waters.

As discussed in the 2017-2018 Resource Efficiency and Water Quality Annual Report, the City has completed or begun working on several stormwater management projects intended to improve water quality in Newport Bay. Perhaps the most impactful of these projects is the Lower Big Canyon Water Quality and Restoration which, as discussed in the previous section, is in an area of Newport Bay with a known stormwater pollution problem. Phase 1 of this project involved diverting stormwater flows from Jamboree Road and contaminated groundwater seeps into a new bioswale basin that naturally filters out pollutants from stormwater before it enters Big Canyon Creek. Phase 2 involves restoring wetland habitat near the terminus of Big Canyon Creek which will provide additional filtration as the water enters Newport Bay[22]. Another notable project is the San Diego Creek Water Wheel. This project will use innovative technology to create a self-sustained debris removal system at the terminus of San Diego Creek. It will consist of a water wheel that removes trash from water flowing into Upper Newport Bay and transfers it to a large trash bin using a conveyer belt. This trash is eventually collected by waste management staff and is properly disposed. The project is expected to reduce the amount of trash entering Newport Bay by 50-80% upon completion in Spring 2024[23].

4.9 Urban Outdoors

Natural landscapes, such as beaches and parks, are defining characteristics of Newport Beach that are at the core of recreational experiences for residents and visitors, and also provide habitat and refuge for wildlife. The protection of these resources is necessary to maintain quality of life and Newport Beach's position as a popular tourist destination.

The City's Parks & Trees Division is responsible for maintenance of Newport Beach's natural environment and related issues, including parks, landscaping, irrigation, pest mitigation, and the urban forest, and also provides assistance on matters related to plant selection for new City projects and parks. The division is divided into two

20 Santa Ana Regional Water Quality Control Board. 2022. *Substitute Environmental Document for Proposed Basin Plan Amendment for Total Maximum Daily Load (TMDL) for Copper in Newport Bay, Orange County, California.* October 2022. https://www.newportbeachca.gov/home/showpublisheddocument/72561/638023698939070000.

21 City of Newport Beach. 2021. "Copper Total Maximum Daily Load for Newport Bay City of Newport Beach Factsheet." August 2021. https://www.newportbeachca.gov/home/showpublisheddocument/70483/637667929237170000.

22 City of Newport Beach. 2018. *Resource Efficiency and Water Quality Annual Report 2017-2018. https://online.anyflip.com/cgexi/jggd/mobile/index.html*

23 California Natural Resources Agency. n.d. "Newport Bay Water Wheel Project." https://bondaccountability.resources.ca.gov/Project.aspx?ProjectPK=23038&PropositionPK=48

types of staff: Parks personnel maintain more than 605 acres of landscaping, including 204 acres of parks, and Trees personnel maintain more than 35,000 public trees throughout Newport Beach through routine trimming, planting, and inspections.[24]

Interactive maps for the City's parks and trees are publicly available via the City's GIS portal. The parks and facilities map contains every park and recreational facility, and lists each facility's amenities and locations (see also Table 10). The Tree Inventory lists every tree in Newport Beach, along with details such as its location, species name, recent and upcoming service dates, height, and condition. Newport Beach is home to many tree species and types, including acacia, birch, eucalyptus, magnolia, palm, sycamore, and willow families.

Table 10. Non-Municipal Parks and Open Space in the City of Newport Beach

Park	Total Acreage	Managing Agency
Upper Newport Bay Nature Preserve	135	County of Orange
Upper Newport Bay Ecological Reserve	752	California Department of Fish and Wildlife
Laguna Coast Wilderness Park	7,000	County of Orange
Santa Ana River County Beach	42.48	County of Orange
Crystal Cove State Park	2,400	California Department of Parks and Recreation

Multiple organizations, such as the Newport Bay Conservancy and the Orange Coast River Park, are dedicated to maintaining and expanding open space in Newport Beach through efforts such as creating a multi-jurisdictional park near the Santa Ana River and restoring Big Canyon east of Newport Bay. These organizations are supported by many agencies and departments that include the City, the Orange County Water District, California State Parks, and the U.S. Fish and Wildlife Service.

Protection and preservation efforts in Crystal Cove State Park, a California State Park within City limits, are managed by the State with support from the Crystal Cove Conservancy. Located within the park is the Crystal Cove State Marine Conservation Area (SMCA), a 3.53-square-mile Marine Protected Area containing coves, beaches, reefs, and forests that are home to a variety of marine species, including dolphins, sea lions, and garibaldi fish. Crystal Cove is one of two SMCAs in the City—the other being the 1.24-square-mile Upper Newport Bay SMCA, one of the region's few remaining natural estuaries. Both SMCAs are part of a statewide network of Marine Protected Areas that are legally protected by the State, per California's Marine Life Protection Act of 1999.

The Marine Life Protection Act mandates the protection of the State's marine life and resources, and establishes regulations that include prohibiting individuals from removing or inflicting harm on any marine resource and limiting certain recreational activities. These coastal and marine ecosystems play an important role in limiting climate change impacts, and are often referred to as "blue carbon" ecosystems due to their efficiency in sequestering carbon. Damage to these ecosystems can result in a significant release of carbon into the atmosphere, making the protection of the City's SMCAs a priority.

[24] City of Newport Beach. n.d. "Parks & Trees." https://www.newportbeachca.gov/government/departments/public-works/municipal-operations/parks-trees-20371.

5 Issues and Opportunities

5.1 Findings

This chapter summarizes the findings from each of the nine topics described in Chapter 3, Existing Conditions. It identifies resilience issues in Newport Beach and policy needs to be addressed in the General Plan Update.

5.1.1 Coastal Hazards

Although Newport Beach has always experienced coastal flooding, cliff erosion, and beach erosion, and has programs, policies, and infrastructure in place to minimize their effects, these coastal hazards are projected to increase in frequency and severity as sea levels rise. As discussed in Section 3.1, Coastal Hazards, even relatively small amounts of sea-level rise have the potential to cause widespread flooding in low-lying areas during storms and high tides. Some of the most densely developed areas of Newport Beach could be affected, including areas in and near Newport Harbor and portions of Balboa Peninsula. By 2050, sea-level-rise-related flooding could affect thousands of dwelling units; millions of square feet of non-residential structures, including local businesses, industries, and public facilities; and public spaces, including beaches and parks. Sea-level rise will also accelerate beach and cliff erosion. According to CoSMoS models, cliff faces in Corona del Mar and Newport Coast, and beaches north of Newport Beach Pier will move inland at faster rates with projected amounts of sea-level rise. This poses a threat to cliffside development in Corona del Mar and portions of Pacific Coast Highway in Newport Coast, and may reduce beach access throughout Newport Beach. Moreover, existing infrastructure, programs, and policies do not sufficiently address these emerging threats.

The City issues coastal development permits based on policies and standards of its certified Local Coastal Program (LCP), approved in 2016. In reviewing coastal development permit applications for development in low-lying land, eroding coastal bluffs, or shoreline properties, the City considers best available sea level rise projections, and continues to reassess sea level rise implications for such permits as the science continues to evolve. Additional factors considered in coastal development permit review include wave uprush and wave impacts, geologic stability, erosion, flooding and inundation, and other impacts such as saltwater intrusion. These reviews apply to new developments or significant remodels, and occur on a permit-by-permit basis. Therefore, additional coastal armoring, land use changes, and updated safety programs and policies will help to protect coastal residents, resources, and development from these hazards. Transportation and open space must also be considered because projected sea-level rise could disrupt the existing transportation system and access to coastal open space and recreational areas.

A proposed nature-based shoreline adaptation project for Capistrano and Doheny State Beaches, south of Newport Beach, demonstrates options for shoreline protection beyond traditional shoreline armoring. The project includes a hybrid, vegetated dune covering a 60-foot-wide buried cobble berm system, which will reduce shoreline erosion and the impacts of coastal flooding and sea level rise on critical infrastructure, including regional transportation infrastructure, by raising the shoreline elevation to reduce flooding and capture wind-blown sand. In addition, the vegetated sand dune will restore native habitat for wildlife. Nature-based shoreline adaptation is an option for the City to reduce the impacts of coastal flooding, sea level rise, and sand loss, while attaining ancillary ecological benefits. Aside from vegetated dunes, project types range from living shorelines (e.g., clam and muscle beds), living breakwaters, and artificial reef (such as by using reef balls).

The California Coastal Conservancy implements programs across California's coast, including the Southern California region. Project priorities include improving coastal access, coastal wetlands preservation and restoration, nonpoint source water pollution reduction, and climate change resilience. Towards this end, the Conservancy has been working to implement living shoreline projects, including dune restoration, oyster beds, living breakwaters, etc. and offers funding opportunities for implementation of living shoreline and other resilience-building projects.

Although much sea level rise planning occurs on the local level through LCPs, adaptation plans, and specific projects, strategic regional planning is needed to address cross-jurisdictional coastal issues. For example, the South Orange County Regional Coastal Resilience Strategic Plan, funded by Proposition 68 grant funding from the Ocean Protection Council, coordinates public entities, private landowners, Orange County Transit Authority, Metrolink, State Parks, Orange County Parks, and the public to form solutions to beach sand loss and coastal erosion, prioritizing coastal access while balancing the needs of private landowners and transportation, including rail. This effort demonstrates the importance of collaborating with an array of stakeholders involved in coastal protection, access, and development on a regional scale, given issues such as sea level rise, coastal flooding, and beach erosion are affecting many coastal jurisdictions in similar ways. Moreover, collaboration can result in more effective, comprehensive coastal adaptation and access to more funding sources.

5.1.2 Education

The City keeps a detailed and user-friendly website, but some resources are out of date and do not reflect the latest State guidelines. The City maintains diverse social media to reach a range of community members, and the Public Library system offers resources targeted at younger audiences. Policies bolstering education, outreach and engagement, and maintenance of resources will result in better educational tools for the community.

5.1.3 Buildings and Development

The City is consistent with stringent State standards that require all buildings to be net-zero energy buildings (i.e., energy efficient buildings that produce as much clean, renewable energy as they consume in 1 year). These standards only apply to new buildings, and the aging building stock, including municipal buildings, require incentives to reduce energy demand. There are currently no programs to encourage these changes. Policies targeting strategies to facilitate green building rehabilitation and upgrades can help to make older buildings more energy efficient.

5.1.4 Transportation

The City's transportation network is primarily focused on car travel, and needs a focus on safety to encourage people to walk, bike, and take transit, including connections to natural resource areas and commercial areas where car traffic is an issue. The OCTA provides public transit along main routes, which are connected to walking and biking infrastructure. Newport Beach is characterized by many large areas containing only single-family homes that are separated from everyday uses within reasonable walking or biking distance. As such, public transportation may not be as viable for residents in these areas. Increasing mixed uses and safe walking and biking routes for common trips, such as to school, library, or grocery store, could reduce dependance on car travel. In addition, innovative mobility strategies, such as the Balboa Peninsula Trolley, may be effective in reducing the reliance on private

vehicles. Policies related to enhanced mobility in single-unit neighborhoods can help to better connect residents to community resources.

5.1.5 Waste Reduction

The City is consistent with State standards through its solid waste hauler. Specific waste reduction programs, such as school and park on-site composting, could reduce dependance on waste hauling and associated emissions. Waste reduction policies are closely connected to education and an overlap in policies on waste reduction and education can work collaboratively to reduce waste in the community.

5.1.6 Energy

The City has adopted CalGreen standards for greater energy efficiency and electrification for residential and non-residential buildings. However, the City could pursue opportunities to increase its EV fleet, as well as build off its technical energy audits of municipal facilities by adopting standards for energy efficiency for municipal buildings or pursuing certifications, such as LEED. The City could also explore the potential energy efficiency benefits of installing solar units on public buildings or parking lots, which could supply energy to buildings and EV chargers.

5.1.7 Water Conservation

The City has adopted plans to ensure reliable water supply during water shortages, established a water supply shortage program, and developed plans to reduce reliance on imported water. The City has also adopted ordinances that create requirements to save water, including CALGreen, which includes provisions for water efficiency. A City ordinance also established water-efficient landscaping standards for new and rehabilitated landscape projects, which, among other items, sets a maximum applied water allowance for individual irrigation systems. There is opportunity to increase the use of recycled water in landscaping. Currently only about 3% of water usage is recycled water, yet large landscaping/irrigation as a use category comprises 18% of water use. Water conservation policies could build on water-efficient landscaping standards to require the use of recycled water, wherever feasible, in new or rehabilitated landscaping projects. Public education and enforcement of standards is also necessary for effective water conservation.

5.1.8 Water Quality

In general, Newport Beach experiences good recreational water quality in Newport Bay and along its many beaches. However, some areas experience temporary declines in water quality during and immediately following storms due to contaminated runoff and there are mild concerns about copper contamination from boat maintenance. The City has some programs and infrastructure in place to mitigate the effects of contaminated runoff and works with the Santa Ana Regional Water Quality Control Board to implement programs to achieve water quality standards. The City has also established urban runoff control requirements for new development and significant redevelopment in accordance with the Drainage Area Management Plan for Orange County. Policies ensuring the continued maintenance of potential sources of water pollution and public education campaigns will help to protect the recreational waters of the bay and harbor.

5.1.9 Urban Outdoors

The City's Parks & Trees Division regularly maintains all of its public tree stock through routine trimming and planting, as well as tree removal and other specialized activities, such as hazard removal and root pruning. The City complies with all Federal and State laws, and coordinates with multiple jurisdictions and agencies to preserve natural resources and protect wildlife, including marine life. As the population grows, opportunities to expand parks and recreational facilities to meet the needs of residents will be limited. Policies to meet such future needs should consider park and open space access, as well as the quality of recreation and amenities offered by parks and open spaces.

5.2 Best Practices from Other Local Governments

Local governments pursing additional general plan elements are generally trying to achieve other legislative ends that are not included in the general plan guidelines from OPR. Standalone elements work well to weave in these requirements, such as guidance from the CCC or GHG reductions to meet State targets. Furthermore, resilience relates to many existing OPR requirements, most notably for Newport Beach, those relating to safety, conservation, and the harbor and bay. Consistency between general plan elements may be best achieved by an integrated focus, unless there is a clear legislative end goal of a standalone element.

5.2.1 Plans and Elements

Local governments in California address environmental resilience across a range of plans and general plan elements. Although general plans must comply with certain State requirements, there is no requirement that general plans be organized in a certain format, including consolidated elements. Therefore, local governments address the components of environmental resilience variously in land use, mobility, conservation and open space, safety, environmental justice, and air quality elements. Plans outside of the general plan, such as a Climate Action and Adaptation Plans and Water Conservation Plans, often address issues such as building and development, energy, and water supply and water quality. Local Coastal Programs cover adapting to sea-level rise and other coastal hazards, and protecting natural coastal resources.

The following highlights the approaches some local governments have taken to address environmental resilience, particularly the topic areas most important to the community (for Newport Beach, see Section 2.2, Resilience in the Adopted General Plan). These approaches include standalone sustainability plans and general plan elements, plans that have been expanded to include resilience and/or sustainability topics, and multiple general plan elements that have been combined. Rather than recommend a specific approach, the following aims to highlight approaches other local governments have taken and examine how they are implemented to help inform how the City could proceed in addressing environmental resilience.

City of Chico: 2030 General Plan Sustainability Element (2017)

The City of Chico: 2030 General Plan Sustainability Element[25] is a framework designed to guide development and growth in Chico while balancing environmental, economic, and equity considerations. In the General Plan the City

[25] https://chicosustainability.org/what-the-city-has-done/general-plan/.

of Chico envisions a resilient and vibrant community with reduced GHG emissions, sustainable transportation options, enhanced local food systems, effective citizen participation, and a balanced urban environment that improves quality of life for residents. The Sustainability Element is notable for the wide range of issues it addresses, some of which are outside of the topic areas commonly addressed in general plans. Although the Sustainability Element does not have an accompanying implementation plan, the goals, policies, and actions described provide a concrete vision for how the City of Chico plans to improve resilience and reduce environmental impacts. Various components of sustainability are also addressed in other elements of the general plan. Thus, the Sustainability Element is not intended to be comprehensive, but it serves to further the vision for sustainability for the City of Chico and to cohere the various other elements of the general plan in as far as they address sustainability.

The Sustainability Element follows from and builds off the City of Chico Mayor's Climate Protection Agreement (2006), Greenhouse Gas Emissions Inventory (2008), and Climate Action Plan (CAP) (2011), each of which sought to reduce GHG emissions consistent with the goals set out in the Sustainable Community Strategy of the Butte County Association of Governments, as required under SB 375 (2008). The Sustainability Element is not, however, a required general plan element.

Placer County: Sustainability Plan (2019)

The Placer County Sustainability Plan[26] is a comprehensive road map that outlines various programs and policies the County of Placer will undertake to achieve lower GHG emissions for the unincorporated parts of Placer County and to improve resilience to climate hazards. As such, the Sustainability Plan is similar to CAPs, expanded to address both climate mitigation and climate adaptation. It includes strategies to reduce GHG emissions from building energy, land use, transportation, water consumption, and other waste generation sectors. Concerning adaptation, the Sustainability Plan includes a vulnerability assessment to identify the areas, populations, and assets that are most vulnerable to climate hazards, including wildfire, drought, extreme heat, flooding, severe winter weather, and bark beetle infestation, among others, as well as goals, policies, and objectives to address identified vulnerabilities. The County of Placer's Health and Safety Element, which must include the required content of safety elements, was updated to reflect the vulnerability assessment undertaken as part of the Sustainability Plan.

The Sustainability Plan includes five implementation strategies, each with action items. The list includes monitoring and reporting of GHG emissions reductions, updates to vulnerability assessments, partnership-building with agencies and community organizations, and seeking new funding sources, among others. Appendices to the Sustainability Plan detail a more specific implementation program, presented in three matrices: community GHG reduction targets, government operations GHG reduction strategies, and adaptation strategies. These matrices help staff assess how successful adaptation measures and GHG reductions strategies are, how strategies might need to be adjusted, and which strategies are most feasible according to current funding opportunities and implementation timeframes (i.e., ongoing, near-term, mid-term, long-term, and very long-term).

Marin County: Climate Action Plan (2015 Update)

The Marin County Climate Action Plan[27] goes beyond the typical topics covered in a CAP. CAPs commonly address how GHG emissions reductions will be achieved across contributing sectors, such as transportation, construction,

[26] https://www.placer.ca.gov/2927/Sustain-Placer.

[27] https://www.marincounty.org/-/media/files/departments/cd/planning/sustainability/climate-and-adaptation/execsummarymarincapupdate_final_20150731.pdf?la=en.

and energy. This CAP includes not only energy-related and GHG emissions reduction goals, but objectives to conserve ecosystems, preserve and restore natural areas, protect wildlife and habitat connectivity, manage invasive species, protect water quality, and improve ecosystem resilience to climate hazards. Additionally, the CAP assesses vulnerabilities and potential impacts of climate change. The content of Marin County's Conservation Element overlaps somewhat with that of the CAP; however, their purposes and scope differ. The General Plan and its associated elements focus on long-term land use strategies, and the CAP is more specifically concerned with responding to, mitigating, and adapting to climate change.

To implement its strategies, the County of Marin has designated a Sustainability Team, which leads and coordinates implementation, management of projects, and monitoring. In addition, the CAP identifies a suite of action items and their responsible parties, and notes obstacles to implementation, each categorized by sector (i.e., energy efficiency and renewable energy; land use and transportation; waste reduction, reuse, and recycling; water conservation and wastewater treatment; and agriculture). Further, the CAP identifies funding strategies and an extensive list of potential community funding sources for capital improvements and for operations and maintenance costs of implementation. Finally, the CAP lists several regional partners with which the County of Marin will coordinate to leverage resources, support CAP management, and share information. These partners range from an Air Quality Management District to transportation authorities to utility providers to agricultural interests.

City of Huntington Beach: Environmental Resources and Conservation Element (2017)

This combined Conservation and Open Space Element[28] meets the requirements of each of these elements. It establishes goals and policies to protect and conserve the Huntington Beach's environmental resources, open spaces, and beaches; improve air quality by reducing GHG emissions; improve water quality; preserve recreational uses of open space; and address environmental justice concerns by locating any new air pollutant sources away from sensitive uses and disproportionately affected communities. The element aims to ensure sustainable growth and development while preserving Huntington Beach's unique environmental characteristics.

The implementation chapter of the General Plan provides robust details for how the City of Huntington Beach will implement the Environmental Resources and Conservation Element, among other elements. For each policy of the element, the City of Huntington Beach provides a policy description, the involved City of Huntington Beach departments, other related policies, funding sources (e.g., Capital Improvement Fund, General Fund, grant funding), and the timeframe for implementation.

City of Los Gatos: General Plan 2040 Environment and Sustainability Element (2022)

The Los Gatos General Plan Environment and Sustainability Element[29] includes the required content of a conservation element and addresses a series of additional issues. The Environment and Sustainability Element addresses conservation of natural resources, including biological, water, and energy resources; preservation of visual and historical (including tribal) resources; energy conservation; and GHG reduction strategies, among other topics. As such, this Environment and Sustainability Element is an expanded conservation element that addresses topics commonly included in separate plans, such as CAPs. The range of topics this element addresses are as follows:

- Aesthetics
- Agricultural and forestry resources

[28] https://huntingtonbeachca.gov/government/departments/planning/gp/index.cfm.
[29] https://www.losgatosca.gov/2138/General-Plan.

- Biological resources
- Air quality
- Climate change/GHG emissions
- Energy
- Cultural and historical resources
- Tribal cultural resources
- Geology and soils
- Hydrology and water quality
- Noise

To implement the goals, policies, and actions specified, this Environment and Sustainability Element provides 27 implementation programs, which include ordinances, feasibility studies, strategies for compliance with certain State laws, vulnerability assessments, education programs, design and development standards, and additional plans and/or plan updates. As such, this element represents a highly detailed, concrete vision for achieving the goals established therein.

5.2.2 Notable Projects, Programs, and Policies

Resilient Coastlines Project of Greater San Diego

The Greater San Diego Resilient Coastlines Project embodies a comprehensive and multifaceted strategy aimed at enhancing coastal resilience. Its purpose is to unify various sea-level rise endeavors initiated by different local governing bodies into a cohesive regional strategy. Toward this aim, the San Diego Regional Collaborative, Climate Science Alliance–South Coast, and Tijuana River National Estuarine Research Reserve partnered to design and implement the project, which includes 14 initiatives across the San Diego area coast, including living shorelines projects, vulnerability assessments, and the creation of community strategies to build resilience and adapt to increased coastal flooding and erosion. Furthermore, by addressing existing knowledge deficiencies that have hindered resilience efforts in the past and engaging scientific experts and local communities, the project bolsters the San Diego region's ability to withstand coastal challenges. Its inception was made possible through backing from a 2015 National Oceanic and Atmospheric Administration Regional Coastal Resilience Grant specifically intended to provide direct assistance for community-centered planning to mitigate coastal hazards.[30]

San Francisco Bay Living Shorelines: Nearshore Linkages Project

The California State Coastal Conservancy, along with consultants from San Francisco State University, UC Davis, U.S. Geological Survey's Western Ecological Research Center, Environmental Science Associates/Philip Williams & Associates, ENVIRON, and Isla Arena Consulting, began this project in 2012 by exploring how the restoration and creation of new native ecosystems, such as oyster reefs and eelgrass beds, could protect the shoreline from erosion, maintain coastal ecosystem functions, and provide habitat for aquatic plants and wildlife. The study found that living shorelines reduce wave energy by 30%, that mounds of clean Pacific oyster half shell provide an effective material to build reefs for oyster recruitment (however, given the low availability of these half shells in California, the study recommended creating shell recycling programs with restaurants), and that restoration projects that incorporate oyster reef and eelgrass together can maximize habitat value. Based on its initial findings, the project then set a goal of creating biologically rich and diverse subtidal and low intertidal habitats, including eelgrass and oyster reefs, to support a self-sustaining estuary system that is resilient to changing environmental conditions, including sea-level rise and increased coastal storm frequency and intensity. As the project was implemented over the years following its inception, ecological and biological health of the project area were monitored with high

[30] Resilient Coastlines Project for Greater San Diego: 2015–2018.

frequency. This monitoring allowed the project team to assess the performance of the project. The conclusions drawn from this assessment, including details about the conditions that led to greater survival rates of eelgrass and greater accumulation of oysters, both of which support the larger goals of the project, will help to inform future living shorelines projects.

County of San Diego Cool Zones Program

The Cool Zones Program, established more than 20 years ago, provides a network of air-conditioned settings across San Diego County that are free and open to the public during the months of higher temperatures, typically June through October. Although open to all, Cool Zones were established out of concern for older adults, people with disabilities, and those with health concerns that make them more vulnerable to the effects of heat. As such, to help community members access Cool Zones, no-cost rideshare services are available to provide residents transportation to and from Cool Zone locations. An additional benefit of the program is that residents can lower their individual air-conditioning usage, conserving energy for the community. The Cool Zones Program is managed by the County of San Diego Health and Human Services Agency in partnership with San Diego Gas & Electric. Through the partnership, the County of San Diego also provides free electric fans to individuals on limited incomes who are 60 years and older and/or who have a disability.

City of Virginia Beach, VA: Sea Level Wise Adaptation Strategy

The City of Virginia Beach, Virginia, is projected to experience some of the greatest amounts of sea level rise on the East Coast. For this reason, the City developed its Sea Level Wise plan which outlines a comprehensive adaptation approach[31]. While the legislative framework and planning processes in Virginia Beach are different than in California, many of the strategies discussed in the city's Adaptation Framework can be employed in Newport Beach. Virginia Beach's Adaptation Framework focuses on four main areas: natural mitigations, prepared communities, engineered defenses, and adapted structures, as outlined below.

- **Natural mitigations** include efforts to protect and expand natural lands and infrastructure that helps mitigate sea level rise-related flooding and wave action including wetlands, open space, and vegetation. These lands help absorb flood waters, prevent erosion, and protect developed areas from waves and rushing water.
- **Prepared communities** involve providing information, resources, and incentives to help residents and businesses prepare for and recover from flood events. These include things like emergency warnings, supplies, resource centers, and shelters.
- **Engineered defenses** include non-natural infrastructure intended to defend development against floodwaters and wave activity. These include permanent infrastructure like seawalls and temporary defenses like seasonal earthen levees.
- **Adapted structures** involve restricting development in areas projected to flood and designing structures to withstand flooding of certain magnitudes. This includes retrofitting existing structures and prioritizing adaptive uses on the first floor of buildings.

[31] City of Virginia Beach. 2020. *Virginia Beach Sea Level Wise Adaptation Strategy*. March 2020. https://s3.us-east-1.amazonaws.com/virginia-beach-departments-docs/pw/Stormwater-Planning/Sea-Level-Rise/Virginia-Beach-Sea-Level-Wise-Adaptation-Strategy-March-2020.pdf

Each strategy in the plan was developed based on a needs assessment, cost-benefit analysis, and community member priorities identified through outreach, making it an exceptionally well-researched and widely supported plan.

City of Charleston, SC: 2023 Flooding and Sea Level Rise Strategy Update

The City of Charleston, South Carolina, has continually updated its Flooding and Sea Level Rise Strategy since it was first developed in 2015 to use the best available science, respond to resident concerns and priorities, and track overall progress[32]. The 2023 update identifies Five Critical Components to plan implementation: infrastructure, land use, governance, resources, and outreach.

- The infrastructure component is focused mainly on public infrastructure that can help protect both public and private property. It identifies a list of essential projects – proposed, underway, or completed – that are necessary to protect structures from floodwaters and enhance drainage and absorption.
- The land use component is focused on restricting development in low-lying and isolated areas and incentivizing development in higher-elevation areas away from water bodies. It informed a zoning code update that requires adaptation measures to be incorporated in certain flood-prone areas.
- The governance component is focused on identifying regulatory pathways for implementation as well as critical plans and policies to be updated.
- The resources component is focused on identifying funding and staffing for implementation and related projects. It also outlines roles and responsibilities for different city departments and lists existing resources for residents.
- The outreach component is focused on community partnerships and educational initiatives to help residents prepare for and respond to sea level rise.

Because this plan has existed for nearly a decade, some progress has already been made. The City has taken an innovative approach to showcase this progress and keep residents informed by creating an online StoryMap. This StoryMap is regularly updated with project information and resources.

Miami-Dade County, FL: Miami-Dade County Sea Level Rise Strategy

Because the entirety of Miami-Dade County is just a few feet above sea-level and flooding will be widespread, sea level rise strategies there are focused almost exclusively on adaptation or "living with water."[33] These adaptation strategies are organized into five approaches: build on fill, build like the Keys, build on high ground around transit, expand greenways and blueways, and create green and blue neighborhoods. These strategies are outlined as follows.

- Build on fill involves artificially raising the elevation of land to be developed by filling it with soils, sediments, or other materials.
- Build like the Keys involves employing architectural features common in the Florida Keys such as pilings that elevate buildings off the ground. These are intended to keep the structure itself above floodwaters.

[32] City of Charleston. 2023. *2023 Flooding and Sea Level Rise Strategy Update.* https://storymaps.arcgis.com/collections/5f03a3cd61d244908eed5be10489d9a4?item=2

[33] County of Miami-Dade. 2021. *Miami-Dade County Sea Level Rise Strategy.* February 2021. Miami-Dade_County_Sea_Level_Rise_Strategy_Final.pdf (ago-item-storage.s3.amazonaws.com)

- Build on high ground above transit involves incentivizing higher density development in areas near existing and planned transit that are less flood-prone.
- Expand greenways and blueways involves embracing adaptive waterfront land uses that can continue to be used and enjoyed during flooding. It also includes plans for converting some roads into canals.
- Create green and blue neighborhoods involves creating a network of basins and canals to collect floodwater in residential areas, along streets, and in parks.

Moreover, the County acknowledges the unique challenges and character of each of its many communities by allowing individual implementation plans to be developed in partnership with community members and businesses.

5.3 Implementation Considerations

5.3.1 Staffing Needs and Responsible Agencies

Resilience and sustainability affect many City departments, plans, and requirements, and therefore involve cooperation and coordination. Many cities have opted for clearly identifying a resilience/sustainability lead. This roll typically sits in the Planning Department or Public Works Department. Sustainability managers oversee implementation of specific sustainability plans, such as a CAP, and coordinate with all relevant departments on data tracking and implementation. Additionally, resilience/sustainability leads can do the following:

- Build partnerships with other government agencies, businesses, nonprofits, and academic institutions. These collaborations can lead to shared resources, expertise, and funding for sustainability projects.
- Write grant proposals and work with city budgets to allocate funds for sustainability initiatives.
- Promote economic development opportunities tied to sustainability, such as green jobs, clean technology innovation, and sustainable tourism.
- Advertise recycling programs, energy-efficient technologies, and sustainable transportation options.

Resilience is a cross-cutting issue that affects most departments as they update plans, standards, and practices to meet State standards, and is therefore integrated into many current positions at the City.

Approach to Resilience Planning

Whether a local government adopts a standalone Adaptation or Resilience Element or addresses resilience through several distinct elements in its general plan need not impact cross-departmental coordination. Effective coordination between departments is equally possible under either scenario.

The California Office of Emergency Services' Adaptation Planning Guide[34] recommends that local agencies form a project team of local agency staff from departments such as Planning, Community Development, Engineering, Public Works, Police, Fire, Public Health, and Finance, among others. This project team would be involved in assessing vulnerabilities and developing, vetting, and prioritizing resilience strategies. In the implementation phase, the project team takes the lead on monitoring, evaluation, and adjustment as well. As a result, each of the phases of the Adaptation Planning Guide are a coordinated effort of the project team.

[34] California Office of Emergency Services. 2023. *Adaptation Planning Guide*. https://resilientca.org/apg/.

5.3.2 Funding Opportunities

Funding for resilience-related topics come from a variety of sources, including property owners; local, State, and Federal government agencies; and external funds. Although many resilience projects on private property will need to be funded by the property owner, this section describes potential funding sources for public resilience projects and programs.

5.3.2.1 Inflation Reduction Act Investments in Clean Energy and Climate Action

The Federal Inflation Reduction Act of 2022 included a $370 billion investment in clean energy and climate action programs. This makes the Inflation Reduction Act the largest single investment in climate action and resilience in the history of the United States. Although these investments span a wide range of topics, they are mainly focused on advancing renewable energy infrastructure and production; alternative fuels and vehicles; energy efficiency in homes and buildings; resilience to climate hazards, including drought, flooding, sea-level rise, and wildfire; and restoring natural areas and ecosystems. These investments come in the form of Federal grants and programs for which the City, its residents, and its businesses can apply. The programs and grants associated with the Inflation Reduction Act can help fund projects in every topic addressed in this report. For a full list of investments, grants, and programs, see the Building a Clean Energy Economy Guidebook.[35]

5.3.2.2 Special Funding Districts

In accordance with California law, the City may establish Special Funding Districts. Special Funding Districts are geographically defined areas within a jurisdiction where a tax or fee can be collected from property owners to generate revenue for public improvements or programs. They can only be established through popular vote. There are many different types of special funding districts, the most pertinent of which are outlined below.

Climate Resilience Districts

California SB 852 (2022) enables local governments to establish Climate Resilience Districts to raise and allocate funding for projects related to sea-level rise, extreme heat, extreme cold, wildfire risk, drought, and flooding. Climate Resilience Districts are considered a type of Enhanced Infrastructure Financing District (EIFD), and thus must comply with the requirements of EIFDs, including the requirement for local governments to adopt resolutions to allocate tax revenue to the Climate Resilience District (see the subsection below under “Enhanced Infrastructure Financing Districts”). Established Climate Resilience Districts may raise funds through benefit assessments, special taxes, property-related fees, and other fees and service charges allowed by the State. They may also accept funding from private, local, State, and Federal sources. This may be the most relevant type of special funding district for projects and programs related to climate change and hazard resilience in Newport Beach.

Assessment Districts

Assessment Districts are intended to generate revenue for improvements to public property, rights-of-way, and easements. All property owners in the district must pay for improvements that provide more general public benefits,

[35] https://www.whitehouse.gov/wp-content/uploads/2022/12/Inflation-Reduction-Act-Guidebook.pdf.

but individual property owners who benefit from specific or targeted benefits may be assessed for the costs of those benefits proportionally.

Local governments may establish Assessment Districts per the following laws:

- Improvement Bond Act of 1915 (Streets and Highways Code Sections 8500 et seq.)
- Improvement Act of 1911 (Streets and Highways Code Sections 5000 et seq.)
- Municipal Improvement Act of 1913 (Streets and Highways Code Sections 10000 et seq.), which contains provisions for establishing Assessment Districts

These laws outline the process for establishing an Assessment District in detail, and include a provision that prohibits the establishment of such a district if a majority of affected property owners object. There are also limitations regarding the use of Assessment District revenue. Although Assessment Districts may help finance construction of public infrastructure improvements, they cannot be used to fund operations, maintenance, or future improvements to the same infrastructure. However, another Assessment District may be established for the purpose of making additional improvements. Assessment Districts are often established to finance construction of the following infrastructure:

- Local streets
- Streetlights
- Parks
- Landscaping
- Sidewalks
- Sanitary sewers
- Water supply and distribution facilities
- Gas and electric power facilities
- Flood control and drainage improvements
- Parking facilities

Parking Management Districts

To finance construction of new parking facilities and changes to existing ones, the City may consider establishing a Parking Management District. Per Streets and Highways Code Section 31500, the City may use the revenue generated from a Parking Management District to finance any of the following:

- Acquisition of land
- Construction, operation, and maintenance of parking facilities and garages
- Associated project costs, including professional staff.

Per Streets and Highways Code 11000, the City may also use Parking Management District revenue to finance pedestrian improvements, including the following:

- Street paving
- Water lines, flood control facilities, sewers, and drainages
- Street lighting
- Fire protection facilities
- Statues, fountains, and decorations
- Landscaping and tree planting

- Childcare facilities
- Public assembly facilities

Special assessments, fees, parking meter charges, and property taxes are all potential revenue sources within Parking Management Districts. Parking meter charges have become particularly favorable to local governments due to new technology that allows users to pay electronically, and enables parking rates to be adjusted instantly throughout the day and week. Revenue from meters can be used to fund physical improvements to the district, including improvements to sidewalks and landscaping. Although parking districts may contract out for services, they are typically responsible for the following:

- Enforcement of parking regulations
- Parking permits
- Parking meter operations (including revenue collection)
- Day-to-day management of shared parking areas
- Researching parking usage and developing parking pricing strategies

Business Improvement Districts

Business Improvement Districts (BIDs) are public/private partnerships designed to improve the attractiveness and functionality of a business district, improve the business climate, help existing businesses grow and prosper, attract new businesses, and attract more visitors and customers to the district.

Business Improvement Districts (BIDs) are partnerships between businesses and local governments; the two work together to finance and complete infrastructure improvement projects within the district. Local governments will either assess individual businesses (B-BIDs) or real property owned by businesses (P-BIDs) and levy taxes or fees accordingly. Revenue generated from these taxes or fees is then used to finance physical improvements to the district and programs that promote business growth and improve the community. There are important differences between B-BIDs and P-BIDs that should be considered when deciding which type of BID to establish.

B-BIDs are authorized by the Parking and Business Improvement Area Law of 1989. They are best used to provide direct benefits to businesses within the BID, such as advertising, marketing, and events that promote tourism and the businesses themselves. Although B-BIDs can also be used to fund certain physical improvements, P-BIDs tend to be better serve this purpose.

P-BIDs are authorized by the Property and Business Improvement District Law of 1994. They function similarly to Assessment Districts and tend to be more impactful than B-BIDs, especially when it comes to infrastructure finance. Revenue from P-BIDs can be used to finance the following (improvements shown with an asterisk [*] can also be funded with a B-BID):

- Parking facilities*
- Benches*
- Trash receptacles*
- Street lighting*
- Decorations*

- Parks*
- Fountains*
- Closing, opening, widening, or narrowing of existing streets
- Facilities and equipment to enhance security of people and property within the area
- Ramps, sidewalks, plazas, and pedestrian malls
- Rehabilitation or removal of existing structures
- Promotion of public events that take place on or the district's public places*
- Furnishing of music in any public place*
- Promotion of tourism*
- Activities that benefit businesses located and operating in the area*
- Marketing and economic development, including retail retention and recruitment
- Supplemental security, sanitation, graffiti removal, street and sidewalk cleaning, and other municipal services
- Activities that benefit businesses and real property located in the district

To establish a B-BID, a majority of businesses in the proposed district must be in support of it. Similarly, a majority of commercial property owners must be in support of establishing a P-BID in order to do so. One important difference, however, is that P-BIDs must be initiated via a petition by commercial property owners in the proposed district, whereas B-BIDs can be initiated by the local government. Moreover, P-BIDs must be operated by a non-profit property owners association that is contracted by the local government. This property owners association is responsible for managing the BID and proposing an annual work plan.

Both types of BIDs are required to have an annual public hearing before the governing council. At this hearing, the council or board decides whether or not to approve the proposed BID workplan for the upcoming year. Businesses or commercial property owners are not allowed to vote unless the proposal includes an assessment increase. If such an increase is proposed, the annual workplan can only be approved with a majority vote by businesses or property owners in the BID.

Community Facilities Districts

A local government's ability to establish a Community Facilities District (CFD) is authorized by the Mello-Roos Community Facilities Act of 1982. Unlike other types of special funding districts, CFDs operate based on a special tax based on property value rather than a special assessment based on the level of benefit received. Because CFDs are tax-based, a two-thirds majority vote of property owners within a proposed CFD must vote in favor of the district in order to establish it. This can be difficult when proposed CFDs include only a few property owners. In the case that there are fewer than 12 registered voters who own property in the proposed district, votes may be weighted based on the amount of property each voter has. In the case that there are 12 or more registered voters who own property in the proposed district, all votes are weighted equally. Moreover, establishing a CFD only requires a general overview of the infrastructure and services the district will fund and benefit from, rather than a detailed report like that required by an Assessment District.

CFDs may fund construction of the following types of facilities:

- Local park, recreation, parkway, and open space facilities

- Elementary and secondary school sites and structures
- Libraries
- Childcare facilities
- Transmission/distribution facilities for water, natural gas, telephone, electrical energy, and cable television
- Flood and storm protection, and storm drainage facilities
- Other governmental facilities that the legislative body creating the district is authorized by law to contribute revenue toward, construct, own, or operate
- Work to bring public or private buildings or real property into compliance with seismic safety standards and regulations

CFDs may also fund the following types of services:

- Police protection services
- Fire protection and suppression services and ambulance and paramedic services
- Recreation program services, library services, maintenance services for elementary and secondary school sites and structures, and the operation and maintenance of museums and cultural facilities
- Maintenance of parks, parkways, and open space
- Flood and storm protection services, including the operation and maintenance of storm drainage systems and sandstorm protection systems
- Removal or remedial action services for the cleanup of any hazardous substance released or threatened to be released into the environment

Enhanced Infrastructure Financing Districts

Enhanced Infrastructure Financing Districts (EIFDs) are special districts that can collect additional tax revenue from any agency or organization in the district with the ability to be taxed (except for county offices of education, school districts, and community college districts). This is known as tax increment financing and involves "freezing" tax revenues in a particular tax year and collecting any additional revenue generated from tax increases that year. This additional revenue can then be shared with the EIFD and used to fund any of the following infrastructure improvements:

- Highways, interchanges, ramps and bridges, arterial streets, parking facilities, and transit facilities
- Sewage treatment and water reclamation plants and interceptor pipes
- Facilities for the collection and treatment of water for urban uses
- Flood control levees and dams, retention basins, and drainage channels
- Childcare facilities
- Libraries
- Parks, recreational facilities, and open space
- Facilities for the transfer and disposal of solid waste, including transfer stations and vehicles
- Brownfield restoration and other environmental mitigation
- Development of projects on a former military base

- Acquisition, construction, and rehabilitation of housing for people of very low, low, and moderate income, as defined in Sections 50105 and 50093 of the Health and Safety Code, for rent or purchase
- Acquisition, construction, and repair of industrial structures for private use
- Transit priority projects, as defined in Section 21155 of the Public Resources Code, that are within a transit-priority area
- Projects that implement a sustainable communities strategy
- Port or harbor infrastructure, as defined by Section 1698 of the Harbors and Navigation Code Community Revitalization and Investment Authorities

Community Revitalization and Investment Authority

Another potential financing option that uses tax increment financing is establishing a Community Revitalization and Investment Authority (CRIA). CRIAs are public agencies, separate from any local government that creates them, which use property tax increment financing for the purpose of planning and financing improvements and affordable housing in disadvantaged communities. In many ways, CRIAs are similar to the redevelopment agencies that preceded them. They were first authorized by the AB 2 in 2015, which made many changes to redevelopment law.

CRIAs function similarly to EIFDs. Any agency or organization with the ability to use property tax funds, with the exception of school districts, may direct a portion or the entirety of its tax increment funds to a CRIA with jurisdiction over the same area. The CRIA then has the authority to use the revenue for any of the following activities:

- Adopt community revitalization and investment plans
- Provide funding for infrastructure
- Provide for affordable housing
- Oversee Brownfield remediation and clean-up
- Oversee seismic retrofits of existing buildings
- Acquire and sell property
- Issue bonds
- Borrow funds and make loans
- Receive cap-and-trade funds designated for disadvantaged community funds or enter agreements with a qualified community development entity to coordinate the investment of Federal New Market Tax Credit Funds
- Provide direct assistance to businesses within the plan area
- Receive funds allocated to it pursuant to a resolution adopted by a city, county, or special district to transfer these funds from the following:
    - The increased property tax revenues that a city, county, or special district receives from the dissolution of redevelopment agencies
    - Property taxes received by a city or county in lieu of former vehicle license fee funds
    - Funds derived from various assessments that may be imposed by special districts

As part of their essential duties, CRIAs must adopt a formal plan that outlines the implementation of revitalization programs and the uses of the tax increment revenue received. This plan must include all of the following:

- Statement of principal goals and objectives
- Description of the deteriorated or inadequate infrastructure and the program for repair and upgrade
- A housing program
- A program to remedy or remove the release of hazardous substances
- A program to provide funding for or otherwise facilitate the economic revitalization of the area
- A fiscal analysis setting forth projected receipt of revenues and expenses over a 5-year planning horizon
- Time limits to establishing loans, advances, and indebtedness, and for fulfilling all the authority's housing obligations

CRIAs may purchase or lease property and may also acquire it through a conveyance or through eminent domain.

5.3.2.3 Developer Contributions

Development Impact Fees

Development impact fees are a common way to generate revenue to provide infrastructure improvements and public services. They involve collecting a fee directly from developers during the local permitting process. The revenue is then used to finance improvements and services that are usually directly related to the type of fee collected. For example, a water impact fee may be used to improve water infrastructure or support the additional public resources needed to serve new development. The City already collects several impact fees, including a fire impact fee, water impact fee, and sewer impact fee. The City is also considering implementing a traffic impact fee as part of its 2040 General Plan implementation strategy.

Local governments are authorized to implement development impact fees per the Fee Mitigation Act. To do so, they must first complete a nexus study. A nexus study helps to determine what share of impact costs the developer should cover (via the impact fee) based on the level of impact the development will have on public infrastructure and services. By law, a city cannot require developers to pay an impact fee greater than what is determined to be fair by the nexus study, nor can a city require developers to pay an impact fee for something their project will not have an impact on.

Development impact fees can help finance improvements in an area, and they can also deter developers from building there. Therefore, both the costs and benefits of implementing new impact fees should be considered when deciding whether or not to use them to help finance improvements and services. Cities may also consider reducing development impact fees within a specific plan area to attract more development.

5.3.2.4 Municipal Funding

General Fund Revenue

A city's General Fund is used for resources and expenditures for general governmental activities, except those that are required to be accounted for in separate, usually restricted, funds (e.g., special revenue, enterprise, internal services, and trust and agency funds, and private-purpose trust funds). Newport Beach's General Fund can be used for a wide variety of public resources and services, but its ability to fund implementation of resilience projects and programs may be limited. This is because resilience projects would have to compete with other important projects

and services financed by the General Fund. Moreover, the General Fund is intended to be used to continue existing public services and maintain existing infrastructure. Nonetheless, there are cases in which it may be feasible to look to the General Fund to help finance resilience project implementation. For example, when a resilience project involves retrofitting or maintaining an existing public facility or space, the General Fund may be able to fund some or all components of the project.

Special Revenue Funds

Special Revenue funds account for the proceeds of legally restricted resources earmarked for specific purposes. For implementing resilience projects, the most relevant special revenue funds are described below.

Parking Fund

This fund only accounts for parking-related revenues and expenditures.

Gas Tax Street Improvement Fund

This fund accounts for construction and maintenance of a city's street system. Financing is provided by the State and is restricted to street expenditures.

Community Development Block Grant Fund

The Community Development Block Grant fund was established to account for financing and rehabilitation of homes and government structures. Financing is provided by the U.S. Department of Housing and Urban Development. Use of Community Development Block Grant funds is discussed in Section 4.3.2.5, Grant Funding.

General Special Revenue

This fund was established to account for receipt and disbursement of special revenue required to be segregated from General Fund revenues. These are primarily development impact fees and park in-lieu fees, which are discussed in Section 4.3.2.3, Developer Contributions.

Landscape Maintenance Assessment Districts

This fund accounts for the activities of landscape maintenance assessment districts. A landscape maintenance assessment district collects assessments to pay for landscape maintenance in the assessment area.

5.3.2.5 Grant Funding

There are many Federal, State, and private grant opportunities that may help fund resilience-building policies and strategies. Some especially relevant grants and other potential grant opportunities are discussed below.

Community Development Block Grants

The Community Development Block Grant Program is administered by the U.S. Department of Housing and Urban Development. It is intended to provide funding to states and local governments to improve communities, especially

those of low and moderate incomes. Over a 1-, 2-, or 3-year period, as selected by the grantee, no less than 70% of Community Development Block Grant funds must be used for activities that benefit low- and moderate-income individuals. The City of Newport Beach has received funds from the Community Development Block Grant Program for a range of activities relating to economic development, housing and homelessness, and special needs programs. Funds may also be used for construction of public facilities and improvements, such as water and sewer facilities, streets, neighborhood centers, and the conversion of school buildings for eligible purposes, and for activities related to energy conservation and renewable energy resources.

Climate Ready Program

The Climate Ready Program is administered by the CCC and provides grants for projects that use natural systems to help coastal communities adapt to climate change. Through this program, the CCC has supported local governments in planning and redesigning their communities in preparation for sea-level rise, and allocated a significant portion of funding to projects that demonstrate benefits to disadvantaged communities.

Proposition 68 Grant Programs

The California Drought, Water, Parks, Climate, Coastal Protection, and Outdoor Access for All Act, or Proposition 68, was passed by California voters in 2018. It funds various grant programs that are administered by several State agencies, including the CCC. The grants are intended to fund a variety of natural resource improvement and climate resilience projects, including coastal climate adaptation efforts. They may be awarded to coastal city governments, such as the City of Newport Beach, to complete projects promoting lower-cost coastal accommodations and climate resilience.

Active Transportation Program

The Active Transportation Program is administered by the California Department of Transportation. It awards grants to local governments for implementing programs and infrastructure projects that promote walking and biking. Eligible projects satisfy the following criteria:

- Increase the percentage of trips completed on foot or by bike
- Increase the safety and accessibility of walking and biking
- Support regional GHG reduction efforts
- Improve public health
- Promote social equity by ensuring that disadvantaged communities benefit from the project
- Support a variety of active transportation users

Affordable Housing and Sustainable Communities Program

The Affordable Housing and Sustainable Communities Program is administered by the California Strategic Growth Council. Affordable Housing and Sustainable Communities grants and affordable housing loans are intended to provide funding for infrastructure projects that reduce transportation-related GHG emissions and produce affordable housing units. Therefore, eligible projects must reduce VMT through infill, mixed-use, and transit-oriented development, and must promote affordable housing development.

Infill Infrastructure Grant Program

The Infill Infrastructure Grant Program is administered by the California Department of Housing and Community Development. Infill Infrastructure Grant funds are awarded for capital improvement projects that qualify as infill development, per program guidelines. The grants can be used for any physical improvements to capital assets or to facilitate development of the project.

Land and Water Conservation Fund

The Land and Water Conservation Fund is administered by the U.S. Department of the Interior. There are many grant programs funded by the Land and Water Conservation Fund, and some award funding to local governments for creating new outdoor recreational opportunities, such as parks, coastal access areas and trails, and active transportation infrastructure.

Ocean Protection Council Grant Programs

The Ocean Protection Council (OPC) administers several grant programs established through ballot propositions.

The Safe Drinking Water, Water Quality and Supply, Flood Control, River and Coastal Protection Bond Act, or Proposition 84, was passed by California voters in 2006. It led to the creation of the OPC Proposition 84 Grant Program, which is intended to fund a variety of resilience and coastal resource-related projects, including sea-level rise adaptation projects.

Similarly, the Water Quality, Supply, and Infrastructure Improvement Act, or Proposition 1, was approved by voters in 2014. This led to the establishment of the OPC Proposition 1 Grant Program, which aims to provide funding for multi-benefit coastal restoration and resilience projects.

5.3.2.6 Access to Grant Funds

A primary concern is whether a consolidated Resilience Element would improve access to grant funding for the City. An important consideration for the City is whether to address resilience through a consolidated Resilience Element or across various general plan elements.

OPR identifies the Safety Element as the “home” of the general plan’s discussion of adaptation and resilience. However, OPR’s General Plan Guidelines acknowledge that the scope of adaptation and resilience extend beyond the required contents of the Safety Element. Local governments typically address resilience through several types of plans and general plan elements because resilience is an important consideration for several different spheres of planning. As summarized in Section 2.1, Resilience in State Regulations and Guidance, local governments may address resilience in not only their Safety Elements, but also in their Land Use, Recreation/Open Space, and Natural Resource/Conservation Elements. Among the City’s General Plan elements, the Harbor and Bay Element, Safety Element, Natural Resources Element, Circulation Element, and Recreation Element address various components of the analyzed topics related to resilience, as described in Section 2.2, Resilience in the Adopted General Plan. Given this, the aim of a standalone Resilience Element would not be to comprehensively address resilience, but to consolidate City policies and strategies in one planning document.

None of the grant funding sources listed above include criteria relating to which general plan elements must address resilience. Rather, grant applicants are evaluated based on project need and benefit, including whether the project would benefit disadvantaged communities, and alignment of the project with grant program purposes and priorities. Therefore, the approach the City takes in addressing resilience in its General Plan would have no effect on its eligibility for grant funding.

6 Recommendations

6.1 General Plan Organization

Resilience policies and programs can be implemented throughout the existing elements of the General Plan, or in a new Resilience Element. The organization of the General Plan does not have any legal or funding implications, and therefore should be based solely on how City staff anticipate the daily use of the updated General Plan. Given resilience touches on many required elements, it is recommended to address resilience comprehensively throughout the General Plan elements rather than as a standalone document.

6.2 Resilience Staff Lead

Staff throughout City departments can help develop policies and programs that reflect current needs and legislative requirements and can coordinate on available grant funding and financing options. Establishing a new resilience staff lead could improve this coordination between departments and lead efforts to pursue funding and implement measures.

6.3 Resilience in the Built Environment

Where feasible, the City's General Plan should focus on green enhancements to the existing building stock and landscapes where State standards do not apply, such as energy efficiency retrofit programs, streamlined EV charger permitting and installation, and lawn reduction programs. Moreover, the City should focus on policies and programs that enhance changes residents and visitors may be interested in, such as walking their children to school, reducing in-home water use, and using electric cars. The General Plan should also plan for nature-based coastal adaptation projects, such as living shorelines and artificial reefs; street design and innovative mobility strategies to improve pedestrian and cyclist safety and connect residents to natural resource areas.

6.4 Addressing Resilience in General Plan Elements

Actionable measures would be best achieved by creating a network of policies throughout the General Plan that outline funding, regulatory changes, incentives, public education, and enforcement. This network of policies should address the various components of resilience detailed throughout this report as well as other topics identified through the General Plan Update process. The following lists the General Plan elements in which each identified component of resilience could be addressed:

- **Harbor and Bay Element.** The Harbor and Bay Element should include policies related to coastal hazards, waste reduction, prioritizing preventing waste from reaching the harbor, bay, and other natural resource areas, water quality, and education and outreach.
- **Safety Element.** The Safety Element should include policies related to coastal hazards, energy efficiency and generation, and education and outreach.
- **Land Use Element.** The Land Use Element should include policies related to building and development, including green building design and retrofits; waste reduction, prioritizing preventing waste from reaching

the harbor, bay, and other natural resource areas; energy efficiency and generation; access to parks and open space; and education and outreach.

- **Circulation Element.** The Circulation Element should include build off its recent update to include additional policies related to transportation, active mobility, pedestrian safety, and education and outreach.
- **Natural Resources Element.** The Natural Resources Element should include policies related to waste reduction, prioritizing preventing waste from reaching the harbor, bay, and other natural resource areas, water quality, and education and outreach.
- **Recreation Element.** The Recreation Element should include policies related to access to parks and open space and education and outreach.

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