



General Plan Parks and Open Space Element and Conservation Element

Open Space and Conservation Assessment

prepared for

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1 Introduction

The City of Foster City's (City) open space, natural resources, and conservation management are integral to the city's environmental sustainability, climate resilience, and quality of life. As an urbanized shoreline community distinguished by a unique network of parks, lagoons, and shoreline areas including the adjacent Redwood Shores Ecological Reserve, Foster City faces specific challenges and opportunities in preserving and enhancing its natural and recreational assets. This Open Space and Conservation Assessment evaluates existing parks, amenities, and recreational programs to highlight opportunities for enhancement and growth. Serving as an essential resource, it guides policy development and identifies multi-benefit opportunities aligned with the Parks Master Plan, ultimately informing the update to the Parks and Open Space Element.

This assessment is based on a detailed review and analysis of existing data sources, relevant literature, and local findings. It inventories and evaluates key biological resources, identifies special status species and habitats, maps ecological reserves, and highlights opportunities for ecological restoration and habitat connectivity. Furthermore, the assessment examines open spaces such as parks, lagoons, and shoreline areas, assessing their contributions to ecological health, recreation, community well-being, and climate resilience. It also identifies vulnerabilities and threats facing these spaces, particularly from flooding and sea-level rise.

Beyond biological and shoreline resources, the assessment explores critical sustainability topics, including air quality, water quality, water supply, energy conservation, and renewable energy. By evaluating existing conditions and regulatory compliance, it identifies ongoing challenges and highlights opportunities for strengthening environmental resilience.

Through this synthesis of current conditions, regulatory contexts, and identification of key data gaps, the assessment outlines strategic priorities and essential policy considerations. These insights are intended to guide General Plan policy development, positioning Foster City to sustainably manage and protect its natural assets, bolster community resilience, and maximize multi-benefit environmental and social outcomes for present and future generations.

2 Regulatory Triggers

The following California regulations mandate an update to the Parks and Open Space Element and the Conservation Element. A full regulatory setting is provided in the Appendix.

Senate Bill 1425 Open-space element: updates

Senate Bill (SB) 1425 requires that every city and county review and update its local open space plan by January 1, 2026.¹ The bill requires the local open space plan to include plans and an action program that address specified issues, including climate resilience, equitable access, and rewilding opportunities, correlated with the Safety Element, Environmental Justice Element, and Land Use Element respectively. The requirements set forth in SB 1425 may be best met by pursuing policies that promote multi-benefit approaches.

Fundamental to the multiple benefits of open space is the provision of natural areas that provide human and ecological benefits through habitat, recreation, natural resources, historic and tribal resources, water management, and aesthetics. In the context of climate change, open space provides a form of natural infrastructure, for which a definition is provided in Gov. Code § 65302(g)(4)(C)(v). Natural infrastructure utilizes natural ecological systems or processes to reduce vulnerability to climate change related hazards, or other related climate change effects, while increasing the long-term adaptive capacity of natural areas by perpetuating or restoring ecosystem services.

Assembly Bill 1889 Conservation element: wildlife and habitat connectivity

Assembly Bill (AB) 1889, known as the Room to Roam Act, requires the Conservation Element of a city's general plan to include an identification and analysis of connectivity areas, permeability, and natural landscape areas within its jurisdiction by January 1, 2028.² It further requires an assessment of existing or planned wildlife passage features, such as wildlife crossings or underpasses, to ensure planned developments do not comprise these critical habitats or wildlife movement corridors.

Specifically, the bill directs local governments to consider the impacts of existing and future development on wildlife connectivity, emphasizing the importance of protecting and enhancing wildlife corridors, particularly in response to the challenges posed by climate change and habitat fragmentation. Local jurisdictions are required to:

- Identify connectivity areas, permeability, and natural landscape areas.
- Inventory and analyze existing or planned wildlife passage features, aligning efforts with state-level connectivity assessments and plans.
- Evaluate how development may create barriers to wildlife movement.
- Develop strategies to avoid, minimize, or mitigate impacts to wildlife connectivity from land-use decisions.
- Explore opportunities to remediate existing barriers and restore degraded habitats, integrating best available science and datasets from regional habitat connectivity assessments, wildlife movement studies, and other relevant resources.

¹ Stern. 2022. Senate Bill No. 1425. https://leginfo.ca.gov/faces/billTextClient.xhtml?bill_id=202120220SB1425 (accessed March 2025).

² Friedman. 2024. Assembly Bill No. 1889. https://leginfo.ca.gov/faces/billNavClient.xhtml?bill_id=202320240AB1889 (accessed March 2025).

3 Data Gaps and Limitations

This assessment draws on a diverse set of data sources, including local documents such as Foster City's Climate Action Plan and Lagoon Management Plan, regional datasets like those from the Bay Area Air Quality Management District (BAAQMD) and San Mateo County, and statewide resources such as the California Natural Diversity Database (CNDDDB) and State Water Resources Control Board. Despite the breadth of data utilized, several key data gaps and limitations emerged during the preparation of this assessment. Some of these gaps can be addressed within the context of updating the Parks and Open Space Element and Conservation Element of the General Plan, while others require broader, long-term efforts beyond the scope of this study. The following subsections identify key data gaps within each topic area, along with recommendations for improving future data collection, analysis, and policy development. These recommendations are intended to illustrate potential methods for obtaining additional information that could strengthen this report's findings. However, it is recognized that the City may face constraints in time, staffing, or funding that limit its ability to pursue these efforts in the near term. As such, the recommendations are not presented as immediate action items, but rather as context for what could be pursued to develop a more comprehensive understanding of Foster City's natural resources.

3.1 Natural Open Space Inventory

Identified Gaps and Limitations

- **Community Usage Data:** While there is information on park access available, there is limited data specific to open spaces throughout the city. Often the data available to evaluate park access includes urban parks alone or urban parks and open space together. Isolated information on open space access is more challenging to identify.

Recommendations to Address Gaps

- Implement user surveys or data collection mechanisms, such as park attendance counters, to gather information on park utilization, demographics of visitors, and patterns of use.

3.2 Biological Resources

Identified Gaps and Limitations

- **Wildlife Presence Data:** Although State and federal resources provide data on the recorded occurrences of various species, there is a lack of recently collected information regarding the current presence of some of the rarer species.
- **Wildlife Movement Data:** Data is available on the presence of certain species, but there is insufficient information regarding their specific movement patterns, migration corridors, and population sizes within Foster City.
- **Wildlife Corridor Information:** Due to the difficulty in finding information on the city's existing wildlife movement infrastructure, the analysis on the adequacy of this infrastructure is limited.

Recommendations to Address Gaps

- Involve local communities and stakeholders in wildlife monitoring efforts. Their knowledge and participation can enhance data collection and ensure the success of conservation initiatives.
- Identify and map key wildlife movement corridors through field studies. This involves tracking migration patterns and identifying critical areas where wildlife is likely to move. Field studies can provide valuable data on habitat use and connectivity.
- Work with partners and subject matter experts to perform more frequent and detailed biodiversity assessments in marine and coastal environments to track trends in key species and assess ecosystem resilience.
- Work with partners and subject matter experts to establish key performance indicators related to biodiversity, habitat quality, and ecosystem health to track progress and adjust strategies accordingly.
- Consider additional methods to gather data for future natural resource planning efforts, such as camera trapping, integrating data from other sources such as roadkill surveys and habitat suitability models, and/or advanced analytical tools such as spatial capture-recapture models.

3.3 Water Resources

Identified Gaps and Limitations

- **Impacts of Bay-Delta Plan Amendments:** The projections regarding water supply availability under the Bay-Delta Plan Amendment reflect a worst-case scenario but do not account for the implementation of the San Francisco Public Utilities District's Alternative Water Supply Program or a Voluntary Agreement with the State Water Resources Control Board. There is uncertainty regarding the actual impacts of these policies.
- **Future Projections for Multiple Dry Years:** Projections of water supply and demand for multiple dry years are based on the assumption of significant supply shortfalls. These projections may change with improved regional coordination and better data about supply reliability. However, the exact magnitude of these shortfalls and the effectiveness of mitigation measures remain uncertain.

Recommendations to Address Gaps

- Establish a shallow-groundwater monitoring program with EMID to install dedicated wells for sampling water levels and chloride/bromide concentrations. Although Foster City already sits below sea level, rising Bay water can push salty groundwater farther inland and upward, increasing corrosion risks for buried utilities and affecting landscape irrigation quality; tracking these trends will inform future infrastructure design and maintenance..
- Refine projections and assess water supply availability in cooperation with San Francisco Public Utilities Commission, especially considering the possibility of a Voluntary Agreement and the Alternative Water Supply Program. This would provide more accurate estimates of water supply reliability in both normal and dry years.
- Work with the Estero Municipal Improvement District to update the Urban Water Management Plan periodically to reflect new data and regional water supply reliability projections. Models could incorporate different future climate scenarios and their specific impacts on water supply availability.

3.4 Climate Resilience

Identified Data Gaps and Limitations

- **Groundwater Rise Projections:** While sea level rise and coastal flooding hazards are well-documented, data on shallow groundwater rise and its interactions with infrastructure, soil stability, and stormwater systems are limited.
- **Localized Flood Modeling:** Current flood mapping primarily focuses on large-scale regional models (e.g., CoSMoS). More localized, high-resolution flood modeling is needed to assess inland ponding risks, stormwater drainage capacity, and the potential for compound flooding events.
- **Ecosystem-Based Adaptation Strategies:** While the City's Climate Action Plan (CAP) outlines adaptation priorities, there is limited site-specific analysis on the role of nature-based solutions such as marsh expansion, permeable surfaces, or urban forestry for flood mitigation and cooling.
- **Heat Vulnerability Mapping:** While regional climate models predict increasing extreme heat days, Foster City's neighborhood-level vulnerability assessments (e.g., tree canopy gaps, heat mapping for specific streets) remain incomplete.

Recommendations to Address Gaps

- Collaborate with the U.S. Geological Survey (USGS) and regional water agencies to integrate shallow groundwater rise projections into future hazard planning.
- Develop a localized stormwater and flood risk model in partnership with regional hydrologists to evaluate drainage vulnerabilities and compound flood risks.
- Expand partnerships with OneShoreline, San Francisco Bay Conservation and Development Commission (BCDC), and BayAdapt to conduct feasibility studies on nature-based adaptation, particularly for shoreline resilience and water retention strategies.
- Work with a regional agency, an academic partner, or an external consultant to complete a high-resolution urban heat assessment, such as NOAA's CAPA *HeatWatch* campaign or comparable remote-sensing/ground-sensor study, so the City can pinpoint priority streets and neighborhoods for cooling interventions (tree planting, cool paving, shade structures).
- Foster City is exploring a citywide tree canopy study. Completing that inventory would close a key portion of the neighborhood level data gap by quantifying shade coverage and pinpointing streets or blocks with the greatest canopy deficits. To create a fully robust heat vulnerability assessment, the canopy study would best be paired with (1) high resolution surface temperature or satellite heat mapping and (2) sociodemographic data that highlight concentrations of heat sensitive populations. Together, these layers would identify priority areas for tree planting and other cooling interventions (e.g., cool pavements, shade structures).

3.5 Air Quality

Identified Data Gaps and Limitations

- **Limited Localized Air Monitoring:** Foster City does not have dedicated long-term air monitoring stations; instead, it relies on nearby stations (e.g., Redwood City, San Mateo), which may not fully capture localized conditions near highways, industrial zones, or major pollution sources.

- **Insufficient Data on Indoor Air Quality Impacts:** While outdoor air pollution (e.g., wildfire smoke, vehicle emissions) is a known concern, there is little available data on indoor air quality trends, particularly in vulnerable buildings such as schools and senior centers.
- **Cumulative Exposure Assessments:** While individual sources of air pollution (traffic, industry, airport) are recognized, a cumulative exposure analysis integrating multiple pollutants is lacking.

Recommendations to Address Gaps

- Work with BAAQMD or secure AB 617 Community Air Grants to co-fund and install additional air quality sensors (such as PurpleAir) in Foster City, particularly in high-traffic and high-exposure areas (e.g., near Highway 101, community centers).
- Contract a qualified HVAC/industrial-hygiene consultant to measure particulate filtration performance during wildfire-smoke events at the Recreation Center, Library, and Senior Center and to prepare a phased list of ventilation upgrades.
- With consultant or academic support, develop a cumulative exposure risk map that overlays pollution sources, population vulnerabilities, and health indicators to pinpoint “high-impact” blocks for land use or mitigation action.

3.6 Energy Conservation and Renewable Energy

Identified Data Gaps and Limitations

- **Limited Granular Energy Consumption Data:** Current energy usage statistics rely on aggregate data from Pacific Gas & Electric (PG&E) and Peninsula Clean Energy (PCE), which do not provide detailed insights at the neighborhood or building level.
- **Lack of Data on Energy Efficiency Potential:** While the Climate Action Plan outlines energy reduction targets, data on energy efficiency potential across building types (e.g., how much energy could be saved through retrofits) is incomplete.
- **Grid Resilience and Energy Storage Planning:** There is limited publicly available data on the resilience of the local grid to power disruptions, renewable energy storage capacity, and microgrid feasibility for Foster City.

Recommendations to Address Gaps

- Build upon the municipal and commercial energy audits completed during the Climate Action Plan process by:
 - refreshing the audits every 5 years (or when major building system replacements are planned) to capture new efficiency and electrification incentives;
 - adding any facilities or large private buildings that were not examined in the original study (e.g., newer retail/office developments); and
 - translating audit recommendations into a prioritized retrofit action list with cost, payback, and potential Greenhouse Gas (GHG)-reduction estimates, suitable for grant or rebate applications.
- Coordinate with PCE on phased grid resilience studies, exploring the following:
 - Work with PCE and the City’s Building Maintenance Division to scope battery-storage retrofits at critical facilities (e.g., the Civic Center, Fire Stations, the Senior Center) to maintain essential services during outages.

- With Engineering as lead and consultant support, evaluate a microgrid serving the Civic Center / Recreation Center complex; include capital-improvement-program (CIP) cost ranges, payback, and funding options.
- If the facility-scale projects prove cost-effective, expand the study to identify neighborhood or private-sector sites (business parks, multifamily complexes) that could host microgrids, leveraging PCE or state resilience grants.

4 Natural Open Space

4.1 Open Space Inventory

The City of Foster City offers an extensive array of open spaces and recreational facilities, enhancing the quality of life for its residents and visitors. In addition to the city's 24 parks (see the Parks and Recreation Assessment), Foster City provides approximately 22 acres of publicly accessible open space, primarily along the city's bike and pedestrian trails, and 41 acres of open space with restricted access. Much of the restricted access open space is either protected by the California Department of Fish and Wildlife (CDFW) or privately owned and operated, and public access is generally discouraged as these areas consist of sensitive habitat along the levee pedway. Additionally, Foster City maintains a 218-acre man-made lagoon system, designed for both drainage and recreational purposes. This lagoon offers opportunities for various water activities, including kayaking, paddle boating and windsurfing. In addition, the city contains natural preservation areas such as the Belmont Slough, a protected region that serves as a vital estuarine environment supporting diverse wildlife and offering scenic trails for public enjoyment.

Figure 1 shows all parks and open spaces within the City of Foster City. Figure 2 identifies publicly accessible open space within and directly adjacent to the city.

Figure 1 Parks and Open Space in Foster City

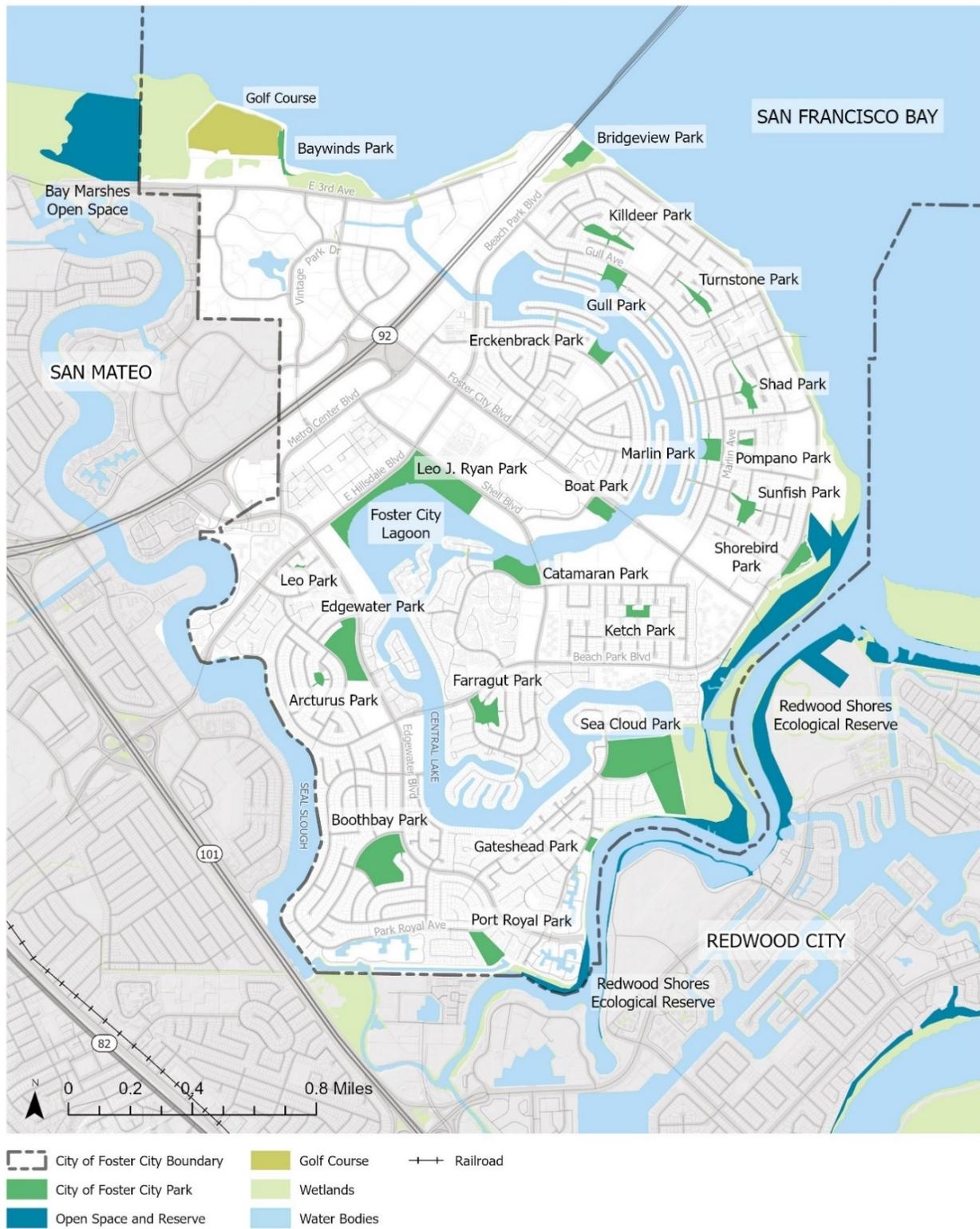


Figure 2 Public and Private Accessible Open Space in Foster City



Data provided by City of Foster City, 2025;
 CPAD, 2023.

4.2 Open Space Access

4.2.1 Regulatory Considerations

SB 1425 is a California law aimed at promoting climate resilience, biodiversity, and equitable access to natural resources through sustainable land use planning. It encourages local governments to integrate nature-based solutions and prioritize open space preservation, particularly in underserved communities. In Foster City, SB 1425 supports efforts to enhance equitable access to parks, shorelines, and recreational areas by ensuring that all residents, regardless of socioeconomic background, can enjoy accessible natural spaces, which includes open space on land and water.

Access to parks and open space is discussed in the Parks and Recreation Assessment.

4.3 Rewilding Potential

4.3.1 Regulatory Considerations

SB 1425 also requires a city or county consider opportunities for rewilding as part of the Open Space Element, in correlation with the Land Use Element. Per Gov. Code § Section 65565.5 (b)(1), rewilding opportunities may include but are not limited to:

- Opportunities to preserve, enhance, and expand an integrated network of open space to support beneficial uses, such as habitat, recreation, natural resources, historic and tribal resources, water management, and aesthetics.
- Establishing a natural communities conservation plan to provide for coordinated mitigation of the impacts of new development.

4.3.2 Expansion and Rewilding Opportunities

There are several existing areas near or within close proximity to the City that could be expanded, further naturalized, or provided with improved protections.

Belmont Slough

Belmont Slough borders Foster City to the east and south, separating it from Redwood Shores. The surrounding wetlands, characterized by cordgrass and pickleweed, serve as feeding grounds for various shorebirds. It acts as a natural boundary between Foster City and Redwood Shores. The shorelines along the Belmont Slough are protected as a part of the Redwood Shores Ecological Reserve. The CDFW oversees the ecological health and wildlife protection in the area.³ However, some of the area is also privately owned and managed. Both the private and public parcels along the Belmont Slough could be improved through naturalization. The City of Foster City is responsible for maintaining the adjacent trails and stormwater facilities. Strategies that could be used to protect and enhance this area include:

- **Wetlands Expansion:** Work with the CDFW, BCDC, OneShoreline and private landowners to identify areas where marshlands can be restored or expanded, such as converting low-lying or underutilized land into tidal marshes.

³ California Department of Fish and Wildlife. 2025a. Redwood Shores Ecological Reserve. <https://wildlife.ca.gov/Lands/Places-to-Visit/Redwood-Shores-ER#10597124-history> (accessed March 2025).

- **Buffer Zones:** As a part of capital improvement projects along the levee, create buffer strips with native grasses and shrubs along the inboard side of the levee to improve habitat quality and reduce runoff pollution.
- **Habitat Restoration:** Collaborate with the regulatory agencies (e.g., CDFW, BCDC), restoration ecologists, private landowners, and other stakeholders to plant native vegetation that supports bird species and promotes fish spawning. Develop a detailed restoration plan with a clear timeline and secure funding from grants, government programs, and private donations to cover costs for materials, labor, equipment, and maintenance.
- **Public Access Improvements:** Develop boardwalk trails or observation decks that allow residents to enjoy the natural spaces with minimal disruption to local wildlife.

Seal Slough

Seal Slough, also known as Marina Lagoon, is a tidal channel running through San Mateo and Foster City. The surrounding marshes are productive brackish wetlands dominated by cordgrass, supporting a mix of saltwater and freshwater habitats. The area has been partially developed, and some marshes have been lost to urbanization. While the Seal Slough is largely managed by the City of San Mateo, there are opportunities for collaboration to naturalize the area. The City of San Mateo has included the Seal Slough as an ongoing focus of wetland restoration projects aimed at enhancing wildlife habitats. These efforts include creating a scenic paved path along the slough's east bank, providing recreational opportunities for the community. Some strategies to naturalize the areas within Foster City include:

- **Riparian⁴ Habitat Restoration:** Collaborate with the City of San Mateo on establishing plans to remove invasive species and replant native vegetation along the banks to stabilize the shoreline and enhance biodiversity.
- **Wildlife Corridors:** Establish small pocket habitats along the slough to allow species movement and work with the City of San Mateo to do the same on the side of the slough shared by the city.
- **Stormwater Management Improvements:** Use bioswales, native rain gardens, and other green infrastructure when planning projects near the slough to filter runoff before it reaches the waterway.

Urban Green Spaces

Foster City has parks and open spaces, such as Boothbay Park and Port Royal Park, primarily designed for recreational use. Although expanding these existing park spaces may be challenging, several strategies could be implemented to naturalize some areas:

- **Native Plant Landscapes:** Replace ornamental lawns with drought-tolerant, pollinator-friendly plants to reduce water usage and increase habitat diversity.
- **Small Space Rewilding:** Convert sections of parks into wildflower meadows or mini-wetlands, especially in areas that line the city's existing coastal wetlands.
- **Community Gardens and Native Plant Education:** Provide public spaces where residents can grow native plants and learn about local ecology.
- **Green Infrastructure for Climate Resilience:** Add tree canopies and permeable surfaces to reduce heat islands and stormwater runoff.

⁴ Riparian areas are plant communities contiguous to and affected by surface and subsurface hydrologic features of perennial or intermittent lotic and lentic water bodies (rivers, streams, lakes, or drainage ways). Riparian areas are usually transitional between wetland and upland.

Shoreline Areas

Foster City's shoreline along the San Francisco Bay is largely shaped by levees, bulkheads, and flood control structures, which have historically been engineered for storm protection and land stability. While effective for flood prevention, these hardened structures reduce habitat availability for shorebirds, fish, and marine organisms. Restoring and naturalizing portions of the shoreline can provide ecological, recreational, and climate resilience benefits while maintaining necessary flood protection.

While the shoreline areas are within the city, strategies and policies relating to shoreline management must be aligned with the goals of the San Francisco Bay Conservation and Development Commission (BCDC). BCDC oversees any construction or modification along the Bay shoreline, ensuring it meets environmental standards and provides public access. The commission also plays a vital role in protecting sensitive habitats, promoting habitat restoration, and guiding the city's response to challenges such as sea-level rise and storm surges. Foster City must comply with BCDC's permitting process for coastal infrastructure projects, and the commission collaborates with local authorities on long-term planning efforts to ensure sustainable, climate-resilient development along the coast. In addition to BCDC, some areas, such as the open space near the Belmont Slough, is privately owned and protected by the CDFW.

Some strategies to consider include:

- **Public-Private Collaboration:** Work with property owners along the shoreline to integrate native shoreline plantings.

In addition, the City can consider integrating with existing large-scale open space and conservation programs in the region, such as OneShoreline. The San Mateo County Flood and Sea Level Rise Resiliency District operates OneShoreline, working with jurisdictions within San Mateo County to identify opportunities to improve the shorelines and prevent harm from future sea level rise. By collaborating, the City of Foster City and OneShoreline can plan and implement projects that address sea level rise, flooding, and coastal erosion, thereby improving the city's resiliency and enhancing the quality of wildlife habitat simultaneously.

5 Biological Resources

5.1 Biological Resources

5.1.1 Vegetation and Land Cover

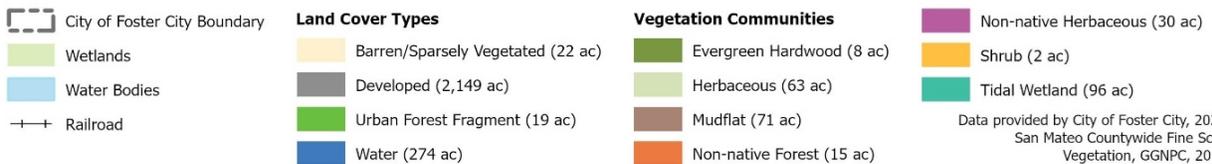
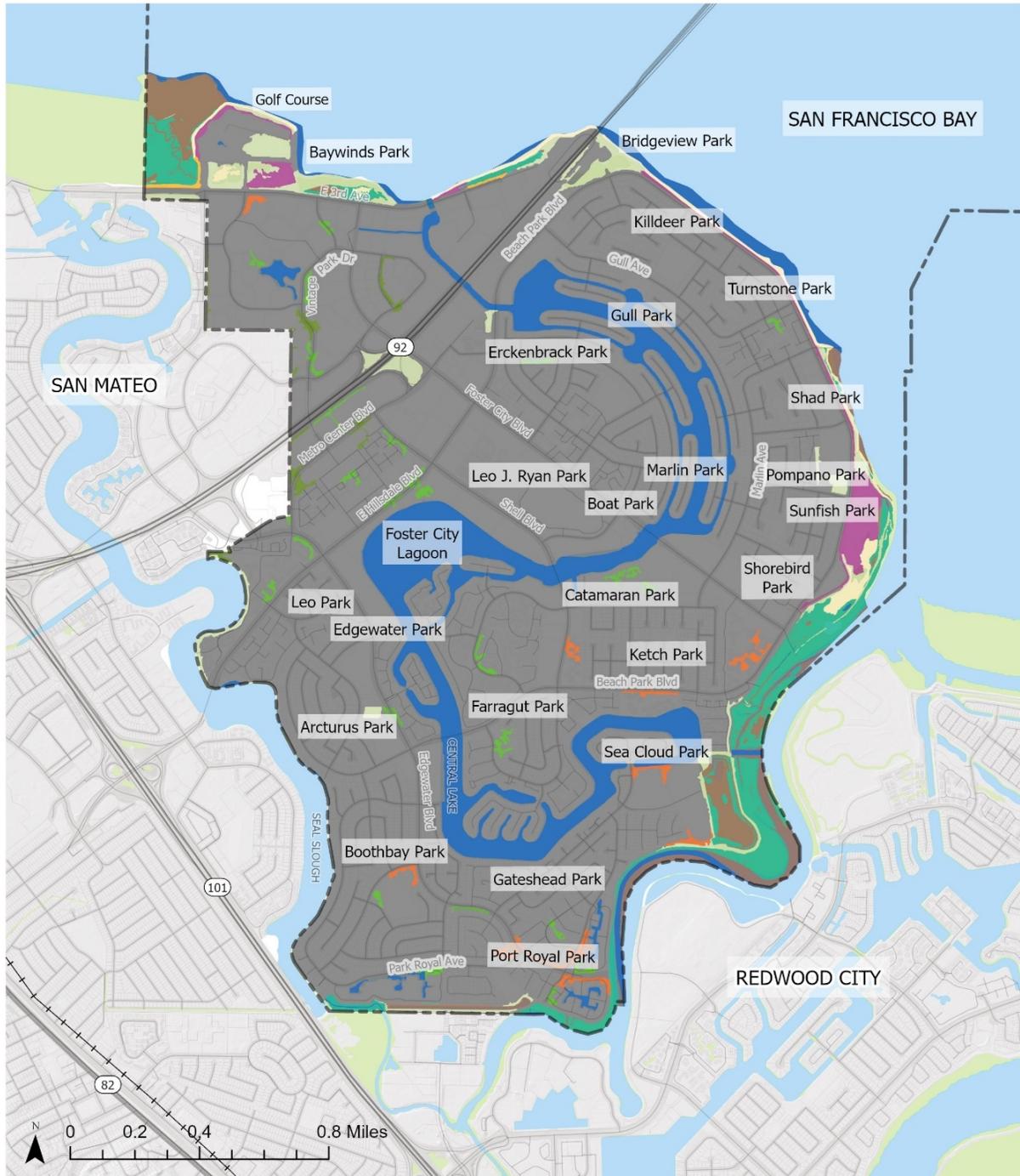
In 2022, the Golden Gate National Parks Conservancy, a non-profit support partner to the National Park Service (NPS) Golden Gate National Recreation Area (GGNRA), completed a fine-scale vegetation map that details vegetation communities and agricultural land cover types, including forests, grasslands, riparian vegetation, wetlands, and croplands.⁵ Most of the city contains developed land according to this mapping. The city has approximately 2,149 acres of developed land, 19 acres of fragmented urban forest, 22 acres of bare or sparsely vegetated areas, and 274 acres of water, primarily consisting of the Foster City Lagoon that runs centrally through the city (Figure 3). Descriptions of each vegetative community found within Foster City are as follows:⁵

- **Tidal Wetland (96 acres).** Salt marsh areas dominated by salt-tolerant wetland species.
- **Mudflat (71 acres).** Areas in the intertidal zone that are unvegetated and exposed during low tide.
- **Herbaceous (63 acres).** Areas where herbaceous vegetation (i.e., vegetation consists of plants with non-woody stems, such as grasses, flowers, and herbs) is at least 10 percent absolute cover; absolute tree and shrub cover is less than 10 percent.
- **Non-native Herbaceous (30 acres).** Areas where non-native herbaceous vegetation is at least 10 percent absolute cover; non-native herbaceous species dominate the herbaceous stratum; absolute tree and shrub cover is less than 10 percent.
- **Non-native Forest (15 acres).** Areas where trees are at least 10 percent absolute cover; tree cover dominated by ornamental non-native species (above 50 percent relative tree cover).
- **Evergreen Hardwood (8 acres).** Areas where trees are at least 10 percent absolute cover; fine scale map class is a non-riparian⁶ evergreen hardwood type (e.g., oaks, madrone, tanoak).
- **Shrub (2 acres).** Areas where native woody shrubs are at least 10 percent absolute cover; absolute tree cover is less than 10 percent.

⁵ Golden Gate National Parks Conservancy. 2022. San Mateo Countywide Fine Scale Vegetation Map Final Report. <https://tukmangeospatial.egnyte.com/dl/9AdMcciYe9> (accessed March 2025).

⁶ A non-riparian area refers to land that does not border a river, stream, or other water body.

Figure 3 Vegetation and Land Cover in Foster City



5.1.2 Foster City Wildlife

The city is bordered by the San Francisco Bay to the north and east and supports coastal wetlands and riparian habitat along the coastline; however urbanization has substantially reduced the abundance and diversity of biological resources in Foster City. The largest collection of publicly owned natural habitat in the city includes the parks, the lagoon that runs centrally through the city, and the Belmont Slough, which borders the city to the east and southeast.

The parks and waterways attract migratory and resident birds, offering food and protection from land predators. Species such as herons and egrets are commonly observed, especially in areas like the Belmont Slough and the nearby Redwood Shores Ecological Reserve. These regions provide feeding grounds for shorebirds and nesting habitats for song sparrows and Canada geese. Mammals are common in the city, with residents often spotting raccoons, skunks, squirrels, opossums, and sometimes even coyotes looking for food and shelter in residential and commercial areas.

The city's marshlands and sloughs, such as Belmont Slough and Seal Slough, support a variety of aquatic and semi-aquatic species. These habitats are characterized by stands of cordgrass and pickleweed, which provide feeding areas for rails, herons, and other shorebirds. The mudflats adjacent to these sloughs serve as foraging grounds for numerous species, contributing to the area's ecological diversity.

Special Status Species

Special status species are those plants and animals that fall under one of the following categories:

- Listed, proposed for listing, or candidates for listing as Threatened or Endangered by the United States Fish and Wildlife Service (USFWS) under the Federal Endangered Species Act^{7,8}
- Those considered “Species of Concern” by the USFWS^{7, 8}
- Those listed or candidates for listing as Rare, Threatened, or Endangered by the CDFW under the California Endangered Species Act^{7, 8}
- Animals designated as “Fully Protected” by the California Fish and Game Code^{7, 8}
- Animals listed as “Species of Special Concern” by the CDFW⁸
- CDFW Special Plants, specifically those with California Rare Plant Ranks of 1B, 2, 3, and 4 in the California Native Plant Society’s Inventory of Rare and Endangered Vascular Plants of California.⁹

The CDFW California Natural Diversity Database (CNDDB) captures information about California’s most imperiled plants, animals, and natural communities. It serves as a statewide inventory of the status and locations of species. There are 21 wildlife, six plants, and one natural

⁷ California Department of Fish and Wildlife. 2025b. State and Federally Listed, Endangered, Threatened, and Rare Plants of California. <https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=109390&inline> (accessed March 2025).

⁸ California Department of Fish and Wildlife. 2025c. State and Federally Listed Endangered and Threatened Animals of California. <https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=109405&inline> (accessed March 2025).

⁹ California Department of Fish and Wildlife. 2025d. Special Vascular Plants, Bryophytes, and Lichens List. <https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=109383&inline> (accessed March 2025).

community with recorded occurrences within one mile of the City of Foster City.¹⁰ The listing status and presumed presence is shown below in Table 1.

Table 1 Wildlife and Status in Foster City

CNDBB Name	Presence ^{1, 2, 3}	Federal List Status	California List Status
Animals			
Alameda song sparrow (<i>Melospiza melodia pusillula</i>)	Presumed extant	None	None
American peregrine falcon (<i>Falco peregrinus</i>)	Presumed extant	Delisted	Delisted
Burrowing owl (<i>Athene cunicularia</i>)	Presumed extant	None	Candidate Endangered
California black rail (<i>Laterallus jamaicensis coturniculus</i>)	Presumed extant	None	Threatened
California least tern (<i>Sternula antillarum browni</i>)	Presumed extant	Endangered	Endangered
California ridgeway's rail (<i>Rallus obsoletus obsoletus</i>)	Presumed extant	Endangered	Endangered
Double-crested cormorant (<i>Nannopterum auritum</i>)	Presumed extant	None	None
Green sturgeon (<i>Acipenser medirostris</i>)	Presumed extant	Threatened	None
Hoary bat (<i>Lasiurus cinereus</i>)	Presumed extant	None	None
Longfin smelt (<i>Spirinchus thaleichthys</i>)	Presumed extant	Endangered	Threatened
Myrtle's silverspot butterfly (<i>Speyeria zerene myrtilae</i>)	Extirpated	Endangered	None
Northern harrier (<i>Circus hudsonius</i>)	Presumed extant	None	None
Pacific walker (<i>Pomatiopsis californica</i>)	Possibly extirpated	None	None
Pallid bat (<i>Antrozous pallidus</i>)	Presumed extant	None	None
Ricksecker's water scavenger beetle (<i>Hydrochara rickseckeri</i>)	Presumed extant	None	None
Salt-marsh harvest mouse (<i>Reithrodontomys raviventris</i>)	Presumed extant	Endangered	Endangered
San Francisco gartersnake (<i>Thamnophis sirtalis tetrataenia</i>)	Presumed extant	Endangered	Endangered

¹⁰ California Department of Fish and Wildlife. 2025e. California Natural Diversity Database. California Natural Diversity Database (accessed March 2025).

CNDBB Name	Presence ^{1, 2, 3}	Federal List Status	California List Status
Santa Cruz kangaroo rat (<i>Dipodomys venustus venustus</i>)	Possibly extirpated	None	None
Short-eared owl (<i>Asio flammeus</i>)	Presumed extant	None	None
Western bumble bee (<i>Bombus occidentalis</i>)	Presumed extant	None	Candidate Endangered
Western snowy plover (<i>Charadrius nivosus nivosus</i>)	Presumed extant	Threatened	None
Plants			
Arcuate bushmallow (<i>Malacothamnus arcuatus var. arcuatus</i>)	Extirpated	None	None
Franciscan onion (<i>Allium peninsulare var. franciscanum</i>)	Presumed extant	None	None
Hillsborough chocolate lily (<i>Fritillaria biflora var. ineziana</i>)	Presumed extant	None	None
Point Reyes salty bird's-beak (<i>Chloropyron maritimum ssp. Palustre</i>)	Possibly extirpated	None	None
Saline clover (<i>Trifolium hydrophilum</i>)	Presumed extant	None	None
San Francisco owl's-clover (<i>Triphysaria floribunda</i>)	Extirpated	None	None
Natural Communities			
Northern Coastal Salt Marsh (<i>Spartina alterniflora</i>)	Presumed extant	None	None

¹ Presumed extant = An occurrence is presumed to still be in existence until evidence to the contrary is received by the CNDDDB.

² Possibly Extirpated = Evidence of habitat destruction or population extirpation has been received by the CNDDDB for this site, but questions remain as to whether the element still exists.

³ Extirpated = Species has not been seen for many years or habitat has been destroyed at the site.

Source: California Department of Fish and Wildlife 2025e.

Nesting Birds

While common birds are not designated as special status species, destruction of the eggs, nests, and nestlings of any bird (except English sparrows and European starlings) is prohibited by federal and state law. Sections 3503 and 3513 of the California Fish and Game Code prohibit the taking of specific birds, their nests, eggs, or any portion thereof during the nesting season. Section 3503.5 of the California Fish and Game Code specifically protects birds of prey and their nests and eggs against take, possession, or destruction. Section 3513 of the California Fish and Game Code incorporates restrictions imposed by the federal Migratory Bird Treaty Act with respect to migratory birds, prohibiting the take or possession of any migratory nongame bird. Disturbance that causes nest abandonment and/or loss of reproductive effort is considered “take” by CDFW.

Canada geese are prevalent, especially around the city's lagoons and parks. Their increasing population has led to concerns about water pollution and public health, prompting discussions about management strategies. American crows have also become very common in Foster City.¹¹ Common waterfowl include mallards, which are frequently seen in the city's lagoons and ponds, as well as great blue herons and snowy egrets.¹¹ American coots are also a frequently sighted in freshwater habitats.

The city is home to several birds of prey, including red-tailed hawks and American kestrels. Northern mockingbirds and California towhees are often found foraging on the ground. Anna's hummingbirds are present year-round, and black phoebes are often seen hunting insects near water bodies. The surrounding salt marshes, featuring stands of cordgrass and pickleweed, serve as critical feeding areas for these birds.

Urban Wildlife

Foster City hosts a variety of urban wildlife species that have adapted to its suburban and shoreline environments. The area is home to coyotes, raccoons, skunks, squirrels, rats, and opossums.¹² As noted above, crows, geese, and various waterfowl are often commonly sighted within the city or along its shores.

Aquatic Wildlife

The waters and tidal sloughs, such as Belmont Slough and Seal Slough, provide habitat for fish, invertebrates, birds, and marine mammals. Among the fish species commonly found in the area are leopard sharks, bat rays, striped bass, topsmelt, longjaw mudsuckers, northern anchovies, staghorn sculpins, and spiny dogfish.^{13,14} These species thrive in the bay's brackish waters and mudflats, which serve as important feeding and breeding grounds. Invertebrates are also abundant, including Dungeness crabs, bay shrimp, ghost shrimp, mud crabs, and Pacific oysters, all of which contribute to the bay's rich ecosystem.¹³

Birds that depend on marine life are frequently spotted in the area, with notable species including the endangered California clapper rail, snowy egrets, great blue herons, willets, western sandpipers, and Forster's terns. These birds rely on the mudflats and shallow waters to forage for small fish and invertebrates. Occasionally, marine mammals such as harbor seals and California sea lions can be seen near the bay, though they are not as common within Foster City's waterways.¹⁴ Other important species in the ecosystem include Pacific herring, a vital food source for many predators, and bay pipefish, a relative of the seahorse that thrives among eelgrass beds.

5.2 Wildlife Connectivity

5.2.1 Connection to AB 1889

Assembly Bill 1889 (AB 1889), enacted in September 2024, mandates that California cities and counties incorporate considerations of wildlife movement and habitat connectivity into their general plans' conservation elements. This legislation requires local governments to assess

¹¹ Foster City, City of. 2025a. Wild Birds in Foster City. <https://www.fostercity.org/community/page/wild-birds-foster-city> (accessed March 2025).

¹² San Mateo County Vector Control District. 2025. Wildlife Identification & Info. <https://www.smcvmcd.org/wildlife-identification-info> (accessed March 2025).

¹³ San Francisco Bay Wildlife. 2025. Fish of San Francisco Bay Area. <https://www.sfbaywildlife.info/species/fish> (accessed March 2025).

¹⁴ San Francisco Bay Water Trail. 2025. Bay Wildlife. <https://sfbaywatertrail.org/explore-the-bay/bay-wildlife/> (accessed March 2025).

how development impacts natural habitats and to implement measures that facilitate the free movement of wildlife, thereby promoting biodiversity and ecological health.

In the context of Foster City, AB 1889 necessitates identification and evaluation of wildlife corridors within the city, identifying how future development may impact these movement corridors, and exploring opportunities to improve or add wildlife movement corridors where feasible. Aligning with AB 1889, Foster City could consider integrated strategies that enhance habitat connectivity within these open spaces, such as creating green corridors, preserving natural landscapes, and designing infrastructure that accommodates wildlife movement.

Implementing the directives of AB 1889 not only ensures Foster City complies with state law but will also bolsters Foster City's commitment to environmental sustainability. Thoughtfully planned land use and open spaces with wildlife connectivity in mind can contribute to regional conservation efforts, support biodiversity, and provide residents with the benefits of a thriving natural environment.

5.2.2 Wildlife Movement Corridors

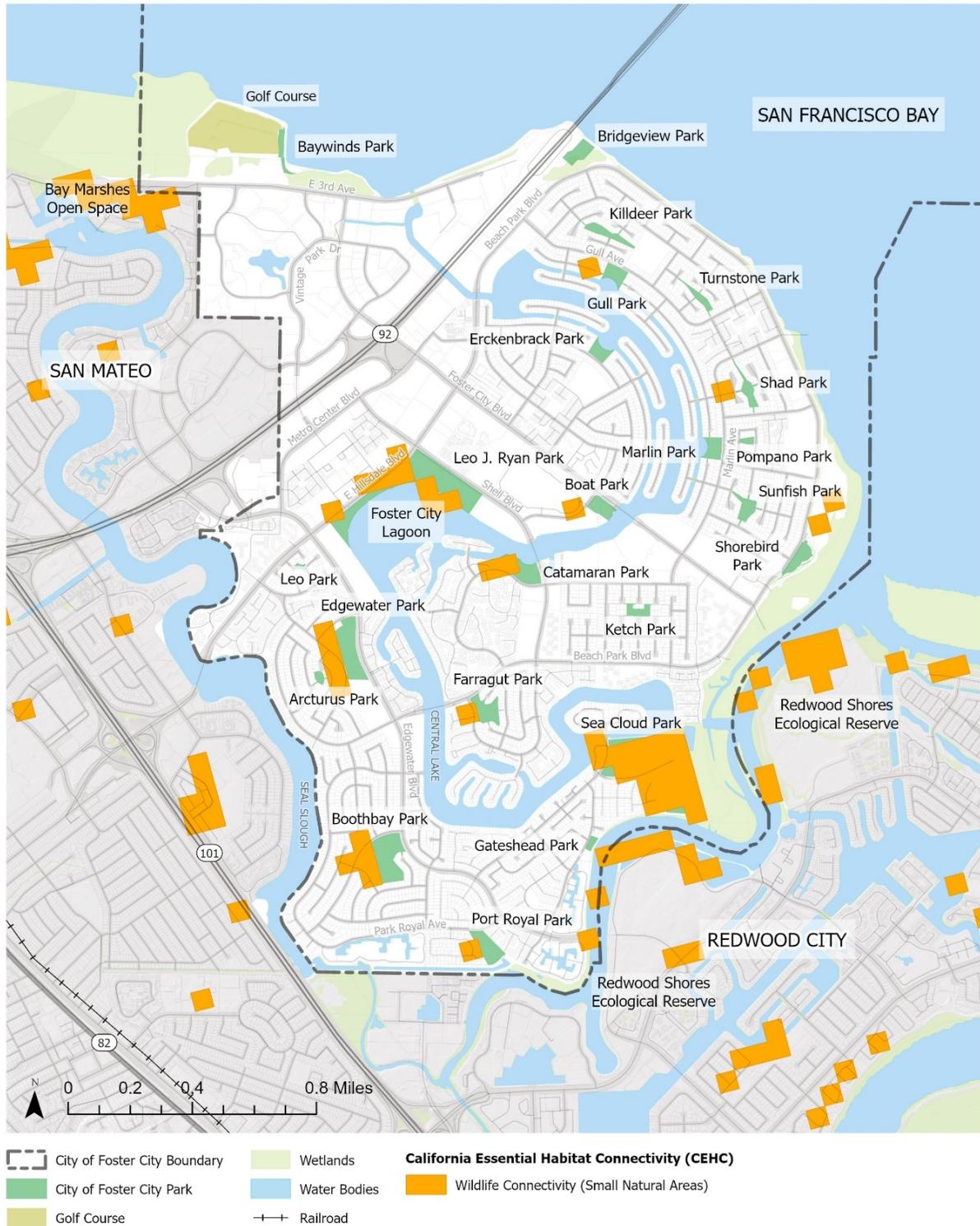
Wildlife movement corridors, or habitat linkages, are generally defined as connections between habitat patches that enable physical and genetic exchange among otherwise isolated animal populations. Such linkages can be locally significant, providing connections between foraging, breeding, or denning sites, or they may support broader, regional wildlife movements. Habitat linkages might function as migration corridors, allowing periodic, seasonal movements of a species, or serve as dispersal routes used primarily by younger animals seeking new habitats. Together, interconnected habitat linkages form wildlife corridor networks. Within Foster City, several small natural landscape blocks exist, primarily where green spaces have been established.¹⁵ However, many of these spaces are designed primarily as urban parks or programmed recreational areas, limiting their current habitat potential due to factors such as managed landscaping, limited native vegetation, and frequent human activity.

Wildlife movement and habitat fragmentation are important issues in assessing impacts to wildlife. Habitat fragmentation occurs when a proposed action results in a single, unified habitat area being divided into two or more areas in such a way that the division isolates the two new areas from each other. Habitat isolation happens when wildlife can't move easily between different areas of their habitat or between different types of habitats. This often occurs when development, like scattered housing in a "checkerboard" pattern, breaks up natural spaces. Habitat fragmentation also can occur when a portion of one or more habitats is converted into another habitat.

In Foster City, local wildlife movement may occur along watercourses, like the lagoon, although such movement would likely be limited given the channelized nature of much of the lagoon and its urban surroundings. Limited wildlife movement could also occur along uninterrupted areas of shoreline in the city. However, because much of Foster City is either urban or suburban, wildlife corridors and nursery sites are not present in much of the city. Figure 4 depicts areas of Foster City with the potential to provide native biodiversity and ecological connectivity, as determined through the California Essential Habitat Connectivity Project.

¹⁵ California Department of Fish and Wildlife. 2025f. Natural Areas Small- California Essential Habitat Connectivity (CEHC) [ds1073]. <https://data-cdfw.opendata.arcgis.com/datasets/CDFW::natural-areas-small-california-essential-habitat-connectivity-cehc-ds1073/about> (accessed March 2025).

Figure 4 Wildlife Connectivity Areas in Foster City



Data provided by City of Foster City, 2025;
 Caltrans and CDFG, 2025.

5.2.3 Barriers to Connectivity

Foster City is largely suburban and urban, with limited natural habitat for wildlife. Built on reclaimed marshland, the city relies on levees for flood control, which disrupts natural tidal flows and wildlife migration. Once part of a vast marshland network supporting diverse species, urbanization has significantly reduced these habitats, and hard infrastructure along the shoreline further limits coastal feeding and breeding areas for shoreline species. Development has fragmented the remaining natural areas, but urban species like coyotes, raccoons, squirrels, sparrows, and rats still navigate the city. In addition, habitat fragmentation makes it more challenging for the city's coastal species to settle, limiting nesting areas, breeding grounds, and access to food. Major roads and highways, including Highway 92 and the San Mateo Bridge, also create physical barriers that restrict wildlife movement and increase the risk of vehicle collisions.

Human activity also disincentivizes wildlife movement throughout and surrounding the city. Activities such as boating, kayaking, and heavy foot traffic in parks can disturb sensitive species, particularly shorebirds and aquatic wildlife. Artificial lighting and noise from residential and commercial areas can disrupt nocturnal wildlife behavior and migration patterns. Additionally, runoff from roads, lawns, and industrial areas can degrade water quality, impacting aquatic ecosystems and species dependent on these environments.

5.2.4 Impacts of Planned Development

Planned urban development in areas like Foster City can significantly impact wildlife connectivity by further fragmenting habitats and creating barriers to animal movement. Infrastructure such as roads, buildings, and fences can disrupt natural corridors, hindering species' ability to access resources, find mates, and maintain genetic diversity. Planned development in Foster City has historically involved significant land reclamation and urbanization efforts, notably the transformation of wetlands into residential and commercial areas. This process has led to habitat loss and fragmentation, impacting local wildlife connectivity.

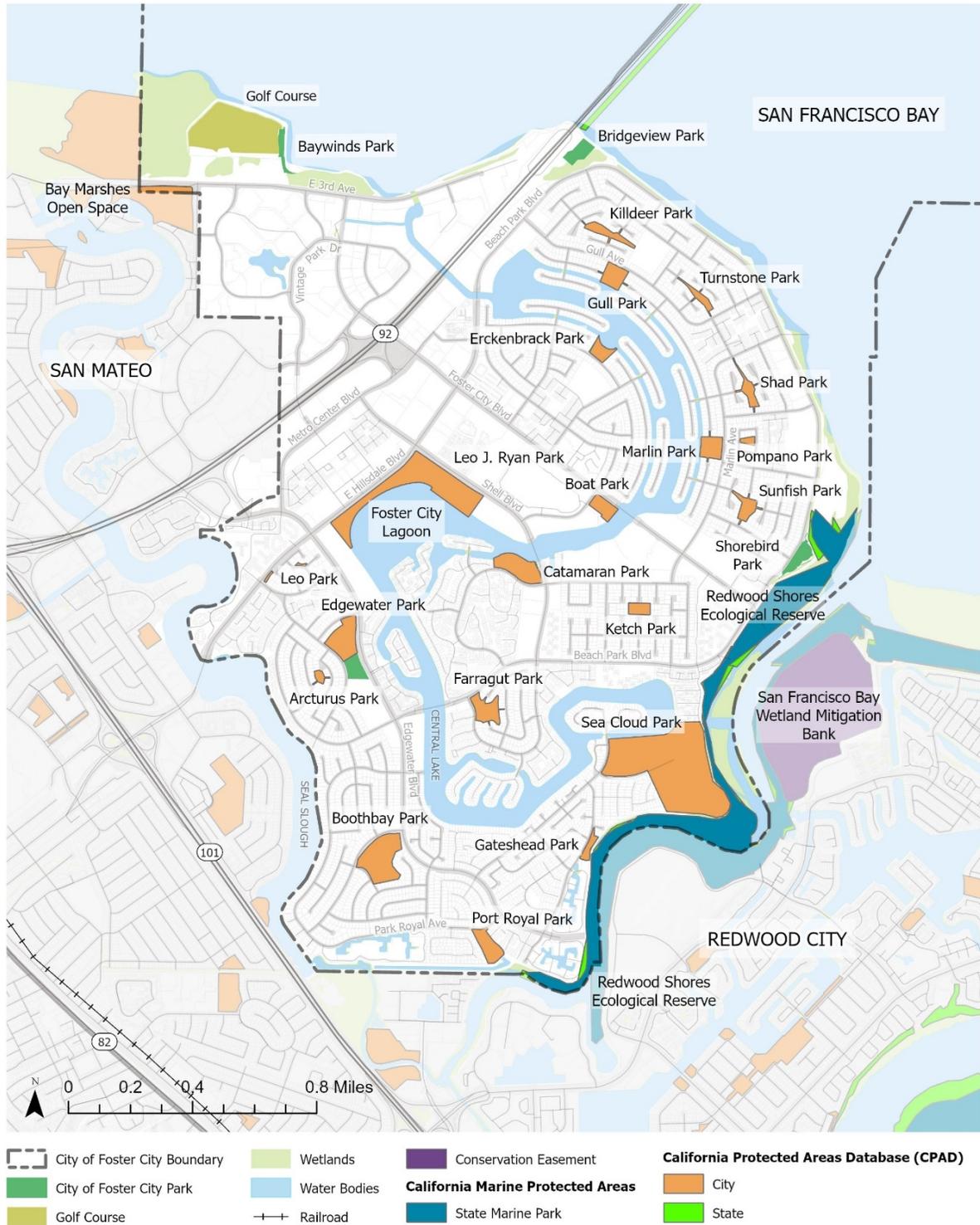
5.3 Coastal Resources

5.3.1 Coastal Habitats and Protected Areas

Foster City contains one California Marine Protected Area, the Redwood Shores Ecological Reserve, which includes parts of the Belmont Slough, the northwestern edge of Redwood City, and Bair Island. The property was acquired as a result of a land exchange agreement with the State Lands Commission and Mobil Oil Corporation specifically due to the land's wildlife value. The area was designated as an ecological reserve by the Fish and Game Commission in 1976.³ The 268-acre Redwood Shores Ecological Reserve is a salt marsh consisting of stands of cord grass and pickleweed on the marsh side of the levee.³ Vegetation on the levees consists of gum plant and other upland plant types. The gum plant is preferred nesting habitat for the Bay salt marsh song sparrow.³ The marsh area also provides feeding areas for rails and herons. The adjacent exposed mud flats provide foraging areas for a wide variety of shorebirds.³

The Redwood Shores Ecological Reserve and other protected areas within and adjacent to the city, such as parks within the city and the Bay Marshes Open Space adjacent to the northern edge of the city, are identified on Figure 5.

Figure 5 Protected Areas in Foster City



Data provided by City of Foster City, 2025; CDFW, 2019; CCED, 2021; CPAD, 2023.

5.3.2 Wetlands

The marine habitat bordering Foster City is part of the San Francisco Bay Estuary, a vital ecosystem characterized by salt marshes, tidal flats, and mudflats. The city is surrounded by estuarine and marine wetlands.¹⁶ The wetlands surrounding Foster City primarily consist of saltwater and brackish marshes along the eastern edge of the city, near the San Francisco Bay. These areas are part of the larger San Francisco Bay National Wildlife Refuge, providing essential habitat for various species of birds, fish, and other wildlife, particularly migratory birds that use the wetlands as feeding and resting areas during migration.¹⁷

Many of the wetlands in Foster City were filled for urban development, but remnants of tidal and mudflat marshes exist, especially around the Bair Island area to the north and the Shorebird Park near the southern boundary. These wetlands help filter pollutants, control flooding, and support a diverse ecosystem. Sea-level rise due to climate change threatens these ecosystems, prompting a need for local initiatives to improve the shoreline.

5.3.3 Rewilding Marine Habitats

Rewilding and habitat connectivity are essential concepts for marine habitats, as they help restore ecological functions and improve biodiversity in degraded coastal and ocean environments. Rewilding in marine ecosystems involves restoring natural processes by allowing seagrass beds, kelp forests, and oyster reefs to recover without excessive human interference. These habitats serve as crucial nurseries, feeding grounds, and shelters for a wide variety of marine species, including fish, invertebrates, and marine mammals.

Habitat connectivity in marine environments like the San Francisco Bay ensures that species can migrate, reproduce, and maintain healthy populations by linking different ecosystems, including estuaries, wetlands, and open water habitats. Maintaining connectivity is particularly important for species with complex life cycles, like fish that rely on both coastal wetlands and open oceans at different stages of development. Human activities such as coastal development, pollution, and habitat destruction can disrupt these connections, leading to population declines and ecosystem imbalances. By implementing marine protected areas, restoring degraded habitats, and reducing human impacts, rewilding efforts can help reconnect fragmented marine ecosystems and enhance their resilience to climate change and other environmental stressors.

5.3.4 Alignment with Regional Efforts

Foster City can enhance wildlife connectivity by aligning its initiatives with OneShoreline's regional strategies. OneShoreline, the San Mateo County Flood and Sea Level Rise Resiliency District, emphasizes integrated approaches to address environmental challenges. By collaborating with OneShoreline, Foster City can participate in projects that not only mitigate flooding and sea-level rise but also restore natural habitats, thereby improving wildlife corridors. Additionally, adopting OneShoreline's planning policy guidance can help Foster City incorporate wildlife connectivity considerations into its urban development plans. This alignment ensures that infrastructure projects support ecological networks, facilitating the movement and health of local wildlife populations. Through such coordination, Foster City can contribute to a cohesive regional effort to bolster biodiversity and environmental resilience. Key policies from

¹⁶ United States Fish and Wildlife Service. 2025a. National Wetlands Inventory. <https://fwsprimary.wim.usgs.gov/wetlands/apps/wetlands-mapper/> (accessed March 2025).

¹⁷ United States Fish and Wildlife Service. 2025b. Don Edwards Sann Francisco Bay National Wildlife Refuge. https://www.fws.gov/refuge/don-edwards-san-francisco-bay?utm_source=chatgpt.com (accessed March 2025).

OneShoreline's Planning Policy Guidance, adopted in 2024, that Foster City could consider aligning with include¹⁸:

Goal CR 5: Prioritize and Support Natural Infrastructure and Habitats

- A. **Natural Infrastructure in Shoreline Protection.** Prioritize the use of Natural Infrastructure, including the protection, restoration, and expansion of existing coastal habitats, consistent with the Parks and Open Space Element and Conservation Element habitat conservation policies. Shoreline infrastructure projects should evaluate the use or restoration of natural features and ecosystem processes – such as tidal marshes, eelgrass, mudflats, beaches, and oyster reefs – and incorporate these features to the greatest extent feasible to conserve ecosystem values and functions, which benefit people and wildlife.
- B. **Shoreline Barrier Location.** Require that shoreline barriers are sited as landward as possible within the Buffer Zone to provide as much space as possible for rising Bay water levels, incorporation of natural elements, sensitive habitats, and future Bayland-upland transition zone habitat migration.
- C. **Future Conditions Protection for Ecological Assets.** Protect critical existing ecological assets from future conditions brought on by climate change by accounting for these assets in land use planning and shoreline infrastructure project development. This includes protecting sensitive habitats within buffer zones adjacent to planned shoreline infrastructure projects, as well as planning for and accommodate upland migration of habitats vulnerable to sea level rise.
- D. **Intertidal and Subtidal Habitat Conservation and Restoration.** Promote the conservation, restoration, and enhancement of intertidal and subtidal habitats, which can help reduce impacts on shoreline infrastructure.

5.4 Existing Plans and Programs

Foster City Climate Action Plan

Foster City's Climate Action Plan (CAP) is a strategic framework aimed at reducing greenhouse gas emissions, promoting energy efficiency, and enhancing climate resilience. The plan includes initiatives such as expanding renewable energy, improving transportation sustainability, increasing urban tree canopy, and preparing for sea-level rise. Through these efforts, Foster City seeks to create a more sustainable and environmentally responsible community while aligning with state and regional climate goals.

Canada Goose Adaptive Management Plan

Foster City's Integrated Canada Goose Adaptive Management Plan aims to address public health hazards and quality-of-life issues arising from the growing Canada Goose population. The plan emphasizes non-lethal strategies such as habitat modification, hazing techniques, and landscape alterations to deter geese from congregating in public parks. Approved by the City Council in December 2024, the plan is set for pilot implementation in early 2025, focusing on select parks to evaluate the effectiveness of these humane management methods.

¹⁸ San Mateo County Flood and Sea Level Rise Resiliency District. 2023. Planning Policy Guidance to Protect and Enhance Bay Shoreline Areas of San Mateo County. <https://oneshoreline.org/wp-content/uploads/2023/09/OneShoreline-Planning-Policy-Guidance-Final-June-21-2023-For-Web.pdf> (accessed March 2025).

5.5 Climate Considerations

Climate change is expected to further challenge wildlife movement corridors in Foster City by altering habitat conditions and increasing barriers to movement. Rising temperatures and shifting precipitation patterns may impact the availability of food and water sources, forcing wildlife to adjust their movement patterns. Additionally, sea level rise could inundate low-lying coastal areas and wetlands, reducing habitat connectivity along the shoreline. Urbanization has already fragmented natural habitats, and climate change may exacerbate these impacts by making it more difficult for species to disperse, migrate, or find suitable breeding grounds.

Green spaces, such as parks and vegetated corridors along the lagoon and coastline, can serve as refuges and pathways for wildlife. Enhancing and preserving these spaces through climate-adaptive landscaping, native plant restoration, and habitat-friendly infrastructure can help maintain biodiversity and support species resilience. Implementing measures such as wildlife-friendly culverts, expanded green buffers, and coordinated regional conservation efforts can further mitigate the impacts of climate change on wildlife movement in Foster City.

Wetlands surrounding Foster City serve as vital carbon sinks, sequestering carbon dioxide through sediment accumulation and plant growth, which helps mitigate climate change.¹⁹ However, rising sea levels, increased storm intensity, and saltwater intrusion threaten the stability and functionality of these ecosystems. As tidal marshes become submerged, their ability to capture and store carbon diminishes, potentially turning them into sources of greenhouse gas emissions rather than sinks.¹⁹ Additionally, shifts in salinity and sediment availability may alter wetland composition, affecting species that rely on brackish environments.²⁰ While wetlands have some natural capacity to adapt by migrating inland, urban development constrains this movement. Protecting and restoring these habitats, through sediment augmentation, marsh restoration, and nature-based adaptation strategies will be essential to maintaining their role in flood protection, water filtration, biodiversity support, and long-term carbon sequestration.

5.6 Policy Considerations

The following policy considerations highlight strategic opportunities to protect and enhance the city's biological resources through updates to Foster City's Parks and Open Space Element and Conservation Element of the General Plan. It should be noted that any adopted habitat restoration, vegetation, or other landscaping policies contained within the Parks and Open Space Element or Conservation Element will be consistent with the strategies and initiatives contained within the City's Park Master Plan and Canada Goose Population Management Plan. The policy considerations are as follows:

1. Habitat Preservation and Restoration

- The City's shorelines are a valuable resource that provides natural habitat to various species. Policies should aim to protect and enhance existing natural habitats such as tidal wetlands, mudflats, and urban forests to support local wildlife.
- To improve connectivity between existing parks and natural areas, expand and connect green spaces to create wildlife corridors, particularly around Belmont Slough and Foster City Lagoon.

¹⁹ National Oceanic and Atmospheric Administration. 2025. Coastal Blue Carbon. <https://oceanservice.noaa.gov/ecosystems/coastal-blue-carbon/> (accessed March 2025).

²⁰ Herbert et al. 2015. A global perspective on wetland salinization: ecological consequences of a growing threat to freshwater wetlands. <https://esajournals.onlinelibrary.wiley.com/doi/10.1890/ES14-00534.1> (accessed March 2025).

- Many of the city's natural areas are overgrown with non-native species or are empty dirt lots, especially around the perimeter of the city along the coastal trails. There is potential for many of these areas to be naturalized.
- Integrating native vegetation into public parks and open spaces can support local wildlife, provide opportunities for species establishment and movement, and improve the shoreline aesthetics.
- Reestablishing native species and naturalizing open parcels in the city will require establishing processes that improve the maintenance and care for these areas in the future.
- To encourage public stewardship and protection of the existing and future naturalized areas, develop interpretive signage and educational programs about local wildlife and habitat conservation in parks and open spaces.

2. Wildlife Connectivity and Protection

- Foster City has limited wildlife connectivity and a highly urbanized environment. Restoring natural habitat in strategically identified developed areas can provide greater wildlife movement.
- Given the urbanized and disjointed nature of the existing open space and green areas, incorporating wildlife-friendly infrastructure, such as underpasses or vegetated buffers, could reduce habitat fragmentation and provide safer routes for wildlife movement.
- There is currently a gap in data regarding the city's existing wildlife movement infrastructure. Assessing barriers to wildlife movement caused by roads, levees, and infrastructure, and exploring mitigation strategies such as crossings or buffer zones should be implemented for the safety and benefit of both people and migratory species.
- Foster City is not currently a part of the OneShoreline program. However, given the city's goals of reducing flooding and improving habitat resilience, there is an opportunity to enhance wildlife connectivity and resilience by aligning its policies with OneShoreline's efforts.

3. Conservation-Focused Land Use Planning

- To naturalize more urbanized areas, implement "green streets" initiatives that incorporate native vegetation, permeable surfaces, and rain gardens to enhance habitat connectivity.
- Since the city has limited space to build out new green spaces, the city could encourage the development of rooftop gardens, vertical green spaces, and urban greening (including urban forestry) projects to provide habitat for pollinators and bird species.

4. Climate Resilience and Adaptation

- Naturalizing the coastal areas will need to consider the existing levee and flooding infrastructure. The City could incorporate climate considerations into conservation planning to ensure habitat resilience in the face of sea-level rise and extreme weather events.
- Implement policies that utilize nature-based solutions, such as wetland restoration, to enhance flood protection while benefiting wildlife.

5. Public Awareness and Collaboration

- To encourage public stewardship of natural spaces, develop community engagement programs that educate residents about urban wildlife, habitat conservation, and responsible coexistence.
- Partner with regional agencies, such as OneShoreline, to implement wildlife-friendly flood protection and resilience strategies.

6 Water Resources

6.1 Watershed and Waterways

6.1.1 Surface Water

Foster City contains several surface water bodies, most of which are part of an engineered system designed to accommodate stormwater storage before it is pumped to the Bay, but also to provide recreational opportunities and enhance the city's shoreline aesthetics.

Foster City boasts an expansive network of artificial lagoons interconnected by a series of canals. These lagoons provide valuable recreational opportunities, including boating, while also serving as essential habitats for local wildlife and works as a storm drainage retention basin. Although artificially created and maintained, the lagoons are connected both to one another and to the larger San Francisco Bay. However, they remain distinct entities and are not directly considered part of the Bay.

Situated along the eastern shoreline of San Francisco Bay, Foster City benefits from the Bay's significant influence on local water features, particularly through tidal interactions affecting the lagoons. Despite the city's proximity to this major surface water source, Foster City's drinking water needs are predominantly met through imported surface water supplies rather than direct reliance on the Bay itself.

Foster City's sole source of potable water is from the San Francisco Public Utilities Commission system, which includes water from the Hetch Hetchy Reservoir. The San Francisco Public Utilities Commission water supply infrastructure also manages local surface water sources, although the city's artificial lagoons and the San Francisco Bay itself are not used for potable water.

6.1.2 Groundwater

The region largely draws water from the Santa Clara Valley – San Mateo Plan Groundwater Subbasin, which is a major source of groundwater for the region.²¹ This basin extends across parts of San Mateo and Santa Clara counties reaching from approximately the City of San Mateo on the north, to approximately the County boundary at San Francisquito Creek on the south.²² The groundwater basin is part of the larger San Francisco Bay Groundwater Subbasin, which serves as a critical water source for local municipalities.

While Foster City itself solely relies on imported surface water from the San Francisco Public Utilities Commission system, the groundwater basin still plays a role in regional water availability.²³ San Mateo County does not have a water management agency like other counties within the state so detailed use data of groundwater is not available. Considering the well types present within the county, it is likely that many of the active wells are used for public and private emergency backup drinking water supply and irrigation.²²

²¹ California Department of Water Resources. 2025. Critically Overdrafted Basins. <https://water.ca.gov/Programs/Groundwater-Management/Bulletin-118/Critically-Overdrafted-Basins> (accessed March 2025).

²² San Mateo County Sustainability Department. 2025. Groundwater. <https://www.smcsustainability.org/water/groundwater/> (accessed March 2025).

²³ Foster City, City of. 2021. 2020 Urban Water Management Plan for Estero Municipal Improvement District. https://www.fostercity.org/sites/default/files/fileattachments/public_works/page/32041/final_draft_2020_emid_uwmp_wappendices.pdf (accessed March 2025).

Climate Considerations

Climate change and projected sea level rise are anticipated to increase groundwater levels in Foster City due to its low elevation and permeable fill-based foundation. Rising groundwater levels may lead to greater risks of subsurface flooding and saltwater intrusion, potentially affecting underground infrastructure, groundwater quality, and vegetation health in parks and open spaces. Although Foster City relies primarily on imported surface water, shifts in regional precipitation patterns and prolonged droughts could heighten the importance of local groundwater resources as supplemental or emergency supplies. Proactively monitoring groundwater conditions and integrating adaptive management strategies into future plans will be critical to mitigate climate-related groundwater impacts.

6.1.3 Lagoon

Foster City's lagoon is a man-made estuary that divides the city, extending from north to south. Its surface area is approximately 212 acres and the volume of water at the summer operation level is up to approximately 1,300 acre-feet.²⁴ The main channel ranges in width from approximately 200 feet along most of its length to over 1,000 feet at the lake near East Hillsdale Boulevard.²⁴ After dredging in 2004, the average depth is six feet at summer water level (Foster City 2022).²⁴

The lagoon is a central component of Foster City's stormwater infrastructure, acting as a detention basin that captures runoff from an approximately 2,300-acre watershed. Stormwater is temporarily stored in the lagoon and later pumped out to San Francisco Bay when tides subside, preventing flooding during periods of heavy rainfall or high tides.²⁴ This approach helps regulate floodwater volume, thus protecting adjacent neighborhoods and infrastructure.

The City operates and maintains the lagoon system. Components of the system include an intake structure at the south end (Belmont Slough) and a drainage pumping station at the north end (San Francisco Bay along East Third Avenue).²⁴ The primary function of the lagoon is to be a storm drainage detention basin for the city.²⁴ The water in the lagoon is derived from the San Francisco Bay through the Belmont Slough watershed via Belmont Slough intake structure, and storm water runoff from the City's watershed. The lagoon receives runoff from a watershed of approximately 2,313 acres.²⁴ Natural open spaces, particularly the tidal wetlands in Belmont Slough and shoreline parks, provide additional flood mitigation benefits by absorbing and dissipating wave energy and reducing storm surge impacts. These wetlands function as natural barriers, decreasing the velocity and volume of floodwaters before they reach inland areas.

The secondary function of the lagoon is recreational use. The lagoon has about 16.5 miles of shoreline, much of which is made up of residences and developments.²⁴ Interspersed among the developments are several small parks, many of which have a community beach, picnic areas, lawn, and other amenities. These parks and their amenities make the lagoon the aesthetic and recreational centerpiece of the City. The lagoon also has two public boat launch ramps, as well as hundreds of private boat docks and launching ramps.

Climate Considerations

Foster City's lagoon plays a crucial role in stormwater management and recreation, but climate change presents challenges to its long-term stability. Rising sea levels and increased storm intensity could impact the lagoon's drainage capacity, especially during high tides when outflow to the Bay is restricted. Additionally, higher temperatures may lead to increased water

²⁴ Foster City, City of. 2022. Foster City Lagoon Management Plan. 2022_foster_city_lagoon_management_revised_2-23-23.pdf (accessed March 2025).

evaporation, potentially altering salinity levels and promoting harmful algal blooms, which could degrade water quality and aquatic habitats. Changes in precipitation patterns may also affect the balance of freshwater inputs, influencing the lagoon's ability to function as a stormwater detention basin. Given these risks, adaptive management strategies such as enhancing water circulation, monitoring salinity and temperature fluctuations, and integrating climate-responsive infrastructure, will be essential to maintaining the lagoon's role in flood control, water quality protection, and recreation in the face of climate change.

6.2 Water Quality

6.2.1 Water Quality Standards

Potable Water Quality

The Estero Municipal Improvement District purchases treated water from the San Francisco Water Department and distributes it to Foster City and parts of City of San Mateo. The Estero Municipal Improvement District monitors water quality to ensure that it meets state and federal drinking water quality standards. According to the most recent water quality report, Estero Municipal Improvement District met or exceeded all primary drinking water standards set by the United States Environmental Protection Agency (USEPA) and the State Water Resources Control Board's Division of Drinking Water.²⁵

All drinking water standards are set by the USEPA under the authorization of the Federal Safe Drinking Water Act of 1974. In California, the State Water Resources Control Board, Division of Drinking Water can either adopt the USEPA standards or set more stringent standards, which are then codified in Title 22 of the California Code of Regulations. There are two general types of drinking water standards:²⁵

- **Primary Maximum Contaminant Levels** are health protective standards and are established using a very conservative risk-based approach for each constituent that takes into potential health effects, detectability and treatability, and costs of treatment. Public water systems may not serve water that exceeds primary maximum contaminant levels for any constituent.
- **Secondary Maximum Contaminant Levels** are based on the aesthetic qualities of the water such as taste, odor, color, and certain mineral content, and are considered limits for constituents that may affect consumer acceptance of the water.

As previously discussed, all of Estero Municipal Improvement District's potable water is supplied by the San Francisco Public Utilities Commission regional water system from the Hetch Hetchy Reservoir in the Sierra Nevada Mountains. The Hetch Hetchy Reservoir is considered a very high-quality water source due to low total dissolved solid concentrations and other factors. Additional water supplies from the Alameda and Peninsula sources come from areas with restricted access to protect the source water quality.

To meet drinking water standards for consumption, all surface water supplies including the upcountry non-Hetch Hetchy sources undergo treatment by the regional water system before it is delivered.²⁵ Water from Hetch Hetchy Reservoir is exempt from federal and State filtration requirements but receives the following treatment: disinfection using ultraviolet light and chlorine, pH adjustment for optimum corrosion control, fluoridation for dental health protection,

²⁵ Foster City, City of. 2023. City of Foster City Estero Municipal Improvement District 2023 Water Quality Report. https://www.fostercity.org/sites/default/files/fileattachments/public_works/page/3941/ccr2023_final_report.pdf (accessed March 2025).

and chloramination for maintaining disinfectant residual and minimizing the formation of regulated disinfection byproducts.²⁵ Water from local Bay Area reservoirs in Alameda County and upcountry non-Hetch Hetchy sources is delivered to Sunol Valley Water Treatment Plant; whereas water from local reservoirs in San Mateo County is delivered to Harry Tracy Water Treatment Plant.²⁵ Water treatment at these plants consists of filtration, disinfection, fluoridation, optimum corrosion control, and taste and odor removal.

The San Francisco Public Utilities Commission's Water Quality Division regularly collects and tests water samples from reservoirs and designated sampling points throughout the regional water system to ensure that the San Francisco Public Utilities Commission's water meets or exceeds federal and state drinking water standards. In 2022, the Water Quality Division conducted more than 48,320 drinking water tests in the sources and transmission systems.²⁵ This is in addition to the extensive treatment process control monitoring performed by the San Francisco Public Utilities Commission's certified operators and online instruments. The San Francisco Public Utilities Commission also has online instruments providing continuous water quality monitoring at numerous locations. As of 2022, potable water within Foster City and the Estero Municipal Improvement District system are within all State and federal water quality standards, and within the thresholds for all non-regulated water quality parameters.²⁵

Given the Estero Municipal Improvement District's and San Francisco Public Utilities Commission's proactive monitoring and management of water quality, water quality is not expected to impact the reliability of Estero Municipal Improvement District's available supplies within the planning horizon (i.e., through 2045).

Lagoon Water Quality

Lagoon water quality in Foster City has become a notable concern, particularly during summer months when elevated bacteria levels have led to occasional beach closures, affecting public health and recreational use. In 2019, the State Water Resources Control Board established water quality standards for enterococci bacteria, which indicate potential health risks for recreational water contact. Foster City's lagoon beaches – Erckenbrack Park, Gull Park, and Marlin Park – were identified among the West Coast beaches with the poorest water quality, based on monitoring of fecal indicator bacteria, including enterococci, total coliform, and E. coli. Specifically, during monitoring from March to August 2021, enterococci bacteria levels exceeded state water quality standards in approximately 25 percent of the samples taken. The primary suspected source of this bacterial contamination is animal waste, notably from waterfowl like Canada geese, exacerbated by direct runoff into the lagoon from residential landscaping and stormwater drainage.²⁴

To address this issue, Foster City has implemented a comprehensive Lagoon Management Plan (July 2022), which emphasizes regular monitoring, integrated pest management, and proactive maintenance activities. Recommended practices include routine visual inspections, monthly sampling for enterococci, and public education initiatives to discourage activities that increase nutrient and bacterial loading, such as over-fertilization, improper disposal of yard debris, and the feeding of wildlife. Additionally, strategic measures such as increased water circulation, targeted public education, and improved waste management practices are being considered to mitigate bacterial levels and safeguard recreational use and public health.²⁴

Coastal Water Quality

The San Francisco Bay has extensive water quality testing and standards enforced by various agencies to protect the ecosystem and public health, including monitoring for pathogens, pollutants, and contaminants, with requirements for specific cleanup levels. The organizations

responsible for maintaining and monitoring the San Francisco Bay include the San Francisco Bay Regional Water Quality Control Board, the San Francisco Public Utilities Commission, the East Bay Regional Parks District, and the San Francisco Parks District.

The San Francisco Bay Regional Water Quality Control Board is the primary regulatory agency responsible for monitoring and managing water quality in San Francisco Bay. As part of the California State Water Resources Control Board system, the San Francisco Bay Regional Water Quality Control Board sets water quality standards and issues permits to manage pollution sources, ensuring that the Bay's water quality meets state and federal guidelines. The San Francisco Bay Regional Water Quality Control Board conducts regular water quality monitoring through its own programs, such as the Bay Area Monitoring and Modeling Program, and also oversees and partners with local agencies to monitor water quality.

6.2.2 Regional Coordination

The City of Foster City collaborates with several agencies to maintain and enhance water quality. The Estero Municipal Improvement District, which serves Foster City, purchases treated water from the San Francisco Water Department and distributes it locally. Estero Municipal Improvement District monitors water quality to ensure compliance with state and federal drinking water standards.²⁶

Regionally, Foster City participates in the San Mateo Countywide Water Pollution Prevention Program, a collaborative initiative among San Mateo County municipalities aimed at preventing water pollution and ensuring compliance with stormwater regulations.²³ The city also aligns with the San Francisco Bay Regional Water Quality Control Board, which enforces water quality regulations and issues permits for stormwater and wastewater discharges.²³

Additionally, Foster City adheres to the guidelines set by the California State Water Resources Control Board, which oversees statewide water quality policies and enforcement. The city also collaborates with the Bay Area Municipal Stormwater Collaborative, formerly known as the Bay Area Stormwater Management Agencies Association, focusing on regional stormwater management and pollution reduction efforts.²³

Coordination with these agencies involves compliance with regulatory permits, regular water quality monitoring and reporting, public education initiatives, infrastructure maintenance, participation in interagency meetings, and enforcement actions to address any violations. These collaborative efforts ensure that Foster City effectively manages and protects its water resources.

6.2.3 Known Concerns

Surface Water

Warmer temperatures could lead to less oxygen in streams. In lakes and reservoirs, warmer weather can make the water separate into layers for longer periods. This causes the bottom layer to lose oxygen, leading to conditions where algae can grow rapidly.²³ Less rain overall could mean pollutants become more concentrated in streams, especially during droughts or when occasional heavy rains wash contaminants into the water.²³ More wildfires and intense storms could make water cloudy with dirt and debris, which makes it harder to treat for safe drinking.

²⁶ Foster City, City of. 2025b. Water Quality. https://www.fostercity.org/publicworks/page/water-quality?utm_ (accessed March 2025).

Groundwater

Sea-level rise could result in increases in chlorides and bromide for some coastal groundwater basins in the Region. Water quality changes in imported water used for recharge could also impact groundwater quality.²³

Lagoon

Aquatic Vegetation

The Foster City Lagoon experiences three primary water quality challenges: excessive aquatic vegetation growth, algal blooms, and elevated levels of fecal indicator bacteria.²⁴ A significant contributor to vegetation issues is widgeongrass, a native perennial submerged plant commonly found in brackish or saltwater environments. While widgeongrass provides important habitat for fish and a food source for migratory waterfowl, its overgrowth can negatively impact lagoon conditions by harboring fecal indicator bacteria, obstructing water flow, and impeding lagoon flushing and stormwater drainage. Overgrown widgeongrass also limits recreational activities and aesthetic enjoyment of the lagoon.²⁴

Algae

In mid-summer filamentous algae blooms become noticeable along the shallow areas of the lagoon. These mats become dislodged, float to the surface, and begin to decay. Decaying algae mats also produce noxious odors as hydrogen sulfide.²⁴ Overgrowth and decay can also discourage recreational activities on the lagoon.²⁴

Fecal Indicator Bacteria

Enterococci levels within the lagoon have been consistently above the water quality objectives set by the State Water Resources Control Board. There are no obvious seasonal patterns in the City and County datasets. Field observations of potential bacteria sources, such as the presence of dogs, people, wildlife and their feces were made, but there is no apparent connection between the number of wildlife and feces observed and the concentrations of enterococci.

San Francisco Bay

Throughout the San Francisco Bay, state Water Quality Standards are exceeded for pesticides, invasive species, mercury and other metals and toxic substances.²⁷ However, many of the beaches that border the San Francisco Bay are impaired due to unacceptable levels of bacteria caused by sewage spills and aging sewage infrastructure.²⁷ In addition, the San Francisco Bay has experienced multiple algal blooms in recent years which impact recreational use of the Bay.

Mercury is also one of the most significant water quality issues in San Francisco Bay. The Bay is impaired due to high mercury concentrations, primarily due to historical industrial practices, urban runoff, and atmospheric deposition. Similar to the Foster City Lagoon, the San Francisco Bay also faces issues pertaining to high levels of fecal indicator bacteria.

²⁷ United States Environmental Protection Agency (USEPA). 2025. What Are Challenges. <https://www.epa.gov/sfbay-delta/what-are-challenges> (accessed March 2025).

6.2.4 Existing Plans and Programs

San Francisco Bay Basin Water Quality Control Plan

The Basin Plan, developed by the San Francisco Bay Regional Water Quality Control Board, is a document that establishes water quality standards for surface waters within the Bay Area region. The plan provides policies, guidelines, and regulatory measures to maintain and improve water quality.

Foster City General Plan

Foster City's General Plan includes specific goals and policies related to water quality and sustainability. It outlines the city's approach to preserving water resources, preventing contamination, and managing both surface and groundwater.

OneShoreline: San Mateo County Flood and Sea Level Rise Resiliency District

OneShoreline is a countywide initiative designed to address sea level rise and flooding through integrated planning and infrastructure development. It involves planning efforts to protect the region's coastlines, including water quality improvements as part of flood management and resilience projects. OneShoreline's work in improving water quality along the Bay shoreline aligns with the city's efforts to maintain the ecological health of the San Francisco Bay and surrounding marshes.

Urban Water Management Plan

Estero Municipal Improvement District's Urban Water Management Plan outlines the district's approach to maintaining or improving water quality within its distribution system. This includes monitoring water quality at various points, such as the source water, treatment facilities, and final distribution points. The Urban Water Management Plan ensures that the water provided to customers meets state and federal water quality standards.

Lagoon Management Plan

The Foster City Lagoon Management Plan focuses on improving water quality through pollution control, regular monitoring, habitat restoration, invasive species management, public access regulation, water circulation enhancements, and ongoing maintenance. These strategies collectively ensure that the lagoon remains a clean and safe environment for both wildlife and recreational users.

6.3 Water Supply

6.3.1 Water Supply Sources

The City of Foster City is within the Estero Municipal Improvement District. The Estero Municipal Improvement District's sole source of potable water is purchased water from the City and County of San Francisco's Regional Water System, operated by the San Francisco Public Utilities Commission.²³ Approximately 85 percent of the water supply to the San Francisco Public Utilities Commission regional water system originates in the Hetch Hetchy watershed, located in Yosemite National Park, and flows down the Tuolumne River into the Hetch Hetchy Reservoir. Water from the Hetch Hetchy watershed is managed through the Hetch Hetchy Water and Power Project. The remaining 15 percent of the water supply to the San Francisco Public Utilities Commission regional water system originates locally in the Alameda and

Peninsula watersheds and is stored in six different reservoirs in Alameda and San Mateo Counties.²³ To date, Estero Municipal Improvement District has not utilized groundwater as a potable water source and does not expect to utilize groundwater as a regular potable water source in the future.²³

6.3.2 Water Supply Projections

Foster City’s dependence on imported water makes it vulnerable to supply fluctuations during drought periods. Historical droughts, such as the 2012–2016 event, resulted in mandatory water use reductions and conservation efforts. Given that climate change is expected to increase drought severity and reduce Sierra Nevada snowpack, Foster City will need to continue proactive water management strategies to maintain long-term water security.

The following tables compare Estero Municipal Improvement District’s projected water demands with the Estero Municipal Improvement District’s projected water supply availability during normal, single dry, and multiple dry years to assess the reliability of Estero Municipal Improvement District’s water supplies.

Table 2 shows the projected supply and demand totals for a normal year. Estero Municipal Improvement District is expected to have adequate water supplies during normal years to meet its projected demands through 2045.

Table 2 Normal Year Supply and Demand Comparison

	2025	2030	2035	2040	2045
Supply Totals	2,154	2,154	2,154	2,154	2,154
Demand Totals	1,615	1,646	1,681	1,723	1,805
Difference	539	508	473	431	349

¹Volumes are in units of mega gallons (MG).

²Volumes are rounded to the nearest MG and may not sum due to rounding.

Source: Foster City 2021.

The reliability of the San Francisco Public Utilities Commission regional water system supply is anticipated to vary greatly in different year types. Estero Municipal Improvement District has relied on the supply reliability estimates provided by the San Francisco Public Utilities Commission for the regional water system and the drought allocation structure provided by San Francisco Public Utilities Commission and the Bay Area Water Supply and Conservation Agency to estimate available regional water system supplies in dry year types through 2045. Table 3 shows the projected supply and demand totals for a single dry year.

Table 3 Single Dry Year Supply and Demand Comparison

	2025	2030	2035	2040	2045
Supply Totals	1,033	1,049	1,067	1,093	984
Demand Totals	1,615	1,646	1,681	1,723	1,805
Difference	-582	-597	-613	-630	-821

¹Volumes are in units of MG.

²Volumes are rounded to the nearest MG and may not sum due to rounding.

Source: Foster City 2021.

Based on the supply reliability estimates and allocation structure provided by San Francisco Public Utilities Commission and Bay Area Water Supply and Conservation Agency, Table 4 shows the projected supply and demand totals for multiple dry year periods extending five years.

Table 4 Multiple Dry Years Supply and Demand Comparison

		2025	2030	2035	2040	2045
First Year	Supply Totals	1,033	1,049	1,067	1,093	984
	Demand Totals	1,615	1,646	1,681	1,723	1,805
	Difference	-582	-597	-614	-630	-821
Second Year	Supply Totals	885	900	915	938	984
	Demand Totals	1,615	1,646	1,681	1,723	1,805
	Difference	-730	-746	-766	-785	-821
Third Year	Supply Totals	885	900	915	938	984
	Demand Totals	1,615	1,646	1,681	1,723	1,805
	Difference	-730	-746	-766	-785	-821
Fourth Year	Supply Totals	885	900	915	827	836
	Demand Totals	1,615	1,646	1,681	1,723	1,805
	Difference	-730	-746	-766	-896	-969
Fifth Year	Supply Totals	885	900	838	827	836
	Demand Totals	1,615	1,646	1,681	1,723	1,805
	Difference	-730	-746	-843	-896	-969

¹Volumes are in units of MG.

²Volumes are rounded to the nearest MG and may not sum due to rounding.

Source: Foster City 2021.

As shown in the above tables, significant water supply shortfalls are currently projected in future single and multiple dry years, directly because of the Bay-Delta Plan Amendment implementation. However, numerous uncertainties remain in the implementation of the Bay-Delta Plan Amendment. The water supply projections presented above represent a worst-case scenario in which the Bay-Delta Plan Amendment is implemented without the San Francisco Public Utilities Commission and the State Water Resources Control Board reaching a Voluntary Agreement and do not account for implementation of San Francisco Public Utilities Commission's Alternative Water Supply Program, described in more detail below. Under this supply scenario, San Francisco Public Utilities Commission appears not to be able to meet its contractual obligations (i.e., Level of Service goals) and Estero Municipal Improvement District's forecasted demands during droughts.

As such, in addition to evaluating local options to increase supply reliability, Estero Municipal Improvement District has placed high priority on working with Bay Area Water Supply and Conservation Agency and San Francisco Public Utilities Commission in the upcoming years to better refine the estimates of regional water supply reliability and may amend the Urban Water Management Plan when new information becomes available. Although there remains significant uncertainty in future supply availability, Estero Municipal Improvement District, San Francisco Public Utilities Commission, and Bay Area Water Supply and Conservation Agency have developed strategies and actions to address the projected dry year supply shortfalls. These efforts are discussed in the following sections.

6.3.3 Regional Coordination

The Estero Municipal Improvement District participates in regional water resources planning initiatives as a member of the Bay Area Water Supply and Conservation Agency, which represents the 26 member agencies that purchase wholesale water supplies from the San Francisco Public Utilities Commission. Bay Area Water Supply and Conservation Agency's role in the development of the 2020 Urban Water Management Plan updates is to work with its member agencies and the San Francisco Public Utilities Commission to seek consistency among Urban Water Management Plan documents. The City and the Estero Municipal Improvement District Board of Directors adopted a Water Neutrality Ordinance to implement water reduction regulations for applicable future and new developments to ensure that new development does not adversely affect the City's water supply.²⁸ The Ordinance applies to any new project in the Estero Municipal Improvement District service area that needs a new water connection or will use more water than the current allotment. Such projects must fully offset their added demand – through water-efficiency, conservation, or retrofit measures – so that overall district water use does not increase.²⁸

Additionally, Foster City works with the San Mateo County Flood and Sea Level Rise Resiliency District (OneShoreline) to address climate change impacts such as sea-level rise and flooding, which affect water infrastructure and supply. OneShoreline partners with the County of San Mateo and the twenty cities and towns within the County, all of which are contributing start-up funding to the District.²⁹ OneShoreline also collaborates with Foster City and other local jurisdictions to develop and implement strategies addressing climate change impacts.

The city also coordinates with the San Francisco Bay Regional Water Quality Control Board to ensure compliance with water quality standards and participates in regional water conservation programs.

6.3.4 Known Concerns

Surface Water

Although projections indicate relatively small changes in total annual precipitation for the region, climate models suggest a shift in precipitation timing, with decreased rainfall in the spring and more intense storms in winter months.²³ These shifts could increase flooding risks and affect stormwater management and infrastructure.

Imported Water

Imported water from the Sierra Nevada and Delta diversions provides approximately 66 percent of the region's water supply. General availability concerns are exacerbated by climate change and potentially reduce the reliability of imported water supplies.²³ Climate impacts such as reduced snowpack in the Sierra Nevada's could decrease the volume and reliability of water deliveries from the Hetch Hetchy system, increasing the importance of water conservation and alternative water source development for Foster City.

²⁸ Foster City, City of. 2025c. Water Neutrality Guidebook. <https://www.fostercity.org/commdev/page/water-neutrality-guidebook> (accessed April 2025).

²⁹ OneShoreline. 2025. Partners. <https://oneshoreline.org/partners/> (accessed April 2025).

Groundwater

Currently, Foster City does not utilize groundwater as a potable water source and does not anticipate doing so in the foreseeable future (Estero Municipal Improvement District 2020 Urban Water Management Plan). However, changes in local hydrology and sea level rise could affect the broader groundwater basin on the Peninsula. Reduced natural recharge due to changes in precipitation patterns, increased evaporative losses, and warmer winters may alter groundwater availability regionally. Sea-level rise could also cause saltwater intrusion into coastal aquifers, complicating potential future uses or emergency backup scenarios. Additionally, if imported water availability diminishes significantly, other communities in the region might increase groundwater extraction, potentially affecting groundwater levels and quality in the broader regional groundwater basin.²³

6.3.5 Existing Plans and Programs

Urban Water Management Plan

The Estero Municipal Improvement District, which provides water services to Foster City, develops an Urban Water Management Plan every five years as required by the California Department of Water Resources. This plan assesses long-term water supply and demand, conservation efforts, and strategies for maintaining reliability, especially during drought conditions.

Bay Area Water Supply and Conservation Agency Long-Term Reliable Water Supply Strategy

This regional plan helps ensure a stable water supply for Bay Area Water Supply and Conservation Agency's 26 member agencies, including Foster City, by addressing supply diversification, conservation programs, and climate adaptation.

San Francisco Public Utilities Commission Water Supply Agreement

This agreement governs the purchase and delivery of water from the San Francisco Public Utilities Commission's Hetch Hetchy Regional Water System to Foster City via the Estero Municipal Improvement District.

San Francisco Water System Improvement Program

A long-term infrastructure investment plan designed to upgrade and modernize the Hetch Hetchy Regional Water System, providing increased seismic reliability and water security for customers, including Foster City.

6.4 Policy Considerations

The following policy considerations highlight strategic opportunities to maintain water quality and supply through updates to Foster City's Parks and Open Space Element and Conservation Element of the General Plan:

1. Water Resource Management and Quality

- Policies should address climate change-related water quality risks, including rising temperatures, algal blooms, and increased turbidity.

2. Lagoon and Stormwater Management

- Policies should support proactive maintenance, timed replacement of aging infrastructure, enhanced water circulation, and pollution control programs to maintain the lagoon's ecological and recreational value.
- Foster City's participation in regional water quality initiatives, such as the San Mateo Countywide Water Pollution Prevention Program, should be expanded to address stormwater runoff concerns.

3. Regional Coordination and Compliance

- Continue collaborating with agencies such as the San Francisco Bay Regional Water Quality Control Board, the State Water Resources Control Board, and the San Francisco Public Utilities Commission to ensure compliance with evolving water quality standards.
- Regular monitoring and reporting on water quality conditions should be incorporated into city planning to maintain regulatory compliance and public transparency.
- Continued enforcement of the San Francisco Bay Basin Water Quality Control Plan and Foster City's General Plan policies will be critical to safeguarding water resources.

4. Water Supply Reliability and Planning

- Since Foster City relies entirely on imported water from the San Francisco Public Utilities Commission Regional Water System, collaborate with the San Francisco Public Utilities Commission on water saving strategies to prepare for times of low water availability.
- Encourage the Estero Municipal Improvement District to explore alternative supply sources and refine reliability estimates.
- In 2023, the Estero Municipal Water District and City of Foster City adopted a Water Neutrality Ordinance that requires new developments, redevelopments, and changes within the Estero Municipal Water District service area to offset increased water demands through water efficiency, conservation, and retrofit measures.

7 Climate Resilience

7.1 Overview of Climate Resilience in Foster City

Climate resilience refers to a community's capacity to anticipate, prepare for, recover from, and adapt to climate-related impacts. While climate change considerations are integrated and discussed holistically throughout this assessment – spanning biological resources, water resources, energy conservation, and air quality – the purpose of this section is to describe climate impacts most directly correlated with the Safety Element of the General Plan, particularly hazards related to flooding, extreme weather events, sea level rise, and heat vulnerability that have not been detailed elsewhere. For Foster City, a community originally constructed on reclaimed marshland, resilience holds particular importance due to its unique geography and low elevation – approximately seven feet above sea level. Foster City's safety and daily function depend heavily on an engineered system of levees and seawalls designed to mitigate tidal flooding and protect the city from inundation.³⁰ This low elevation significantly increases the city's exposure to climate-related hazards, including sea level rise, coastal flooding, storm surges, and rising groundwater tables. Climate change projections indicate that the Bay Area could experience sea level rise between one and three feet by mid-century, and possibly up to six to ten feet by the end of the century under high-emission scenarios.³¹ Such projections underscore the vulnerability of Foster City's critical infrastructure, residential neighborhoods, and recreational open spaces situated along its shoreline.

Foster City has already experienced direct climate impacts, such as drought conditions, increased heatwaves, and severe storm events that periodically stress the community's infrastructure and natural resources. Recent assessments underscore these vulnerabilities and reinforce that climate change is an immediate and intensifying threat to local quality of life.³²

This section assesses how Foster City's parks, open spaces, and natural features contribute to the city's climate resilience. Open spaces, including parks, wetlands, and shoreline buffers, provide essential functions such as flood risk mitigation, heat reduction, stormwater management, and habitat protection – services critical to adapting to and mitigating climate hazards. This analysis also identifies key areas most vulnerable to climate-related hazards, providing the basis for policy considerations that Foster City will integrate into updates of the Parks and Open Space Element and Conservation Element of the General Plan.

7.2 Current Role of Open Space in Resilience

7.2.1 Stormwater Management and Flood Mitigation

The Foster City Lagoon is a central component of this stormwater infrastructure, acting as a detention basin that captures runoff from an approximately 2,300-acre watershed. Stormwater is temporarily stored in the lagoon and later pumped out to San Francisco Bay when tides

³⁰ Foster City, City of. 2024. Climate Action Plan Update. https://sustainable.fostercity.org/wp-content/uploads/2025/02/FosterCityCAP_2024_Update_Final_021225_small.pdf (accessed March 2025).

³¹ San Francisco Bay Conservation & Development Commission. 2021. San Francisco Bay Plan Climate Change Policy Guidance. <https://www.bcdc.ca.gov/wp-content/uploads/sites/354/2023/09/San-Francisco-Bay-Plan-Climate-Change-Policy-Guidance.pdf> (accessed April 2025).

³² County of San Mateo. 2021. Multijurisdictional Local Hazard Mitigation Plan. Volume 2 – Planning Partner Annexes. https://coastsidewater.org/reports_and_studies/San-Mateo-County-Multijurisdictional-Local-Hazard-Mitigation-Plan-Volume-2.pdf (accessed April 2025).

subside, preventing flooding during periods of heavy rainfall or high tides.²⁴ This approach helps regulate floodwater volume, thus protecting adjacent neighborhoods and infrastructure.

Natural open spaces, particularly the tidal wetlands in Belmont Slough and shoreline parks along San Francisco Bay, provide additional flood mitigation benefits by absorbing and dissipating wave energy and reducing storm surge impacts. These wetlands function as natural barriers, decreasing the velocity and volume of floodwaters before they reach inland areas.

Foster City's stormwater management capacity faces challenges with projected sea level rise. Rising sea levels will elevate groundwater tables, increasing subsurface flooding risk and potentially impairing stormwater infrastructure capacity.³² Groundwater rise may lead to increased waterlogging, reduced soil stability, and potential saltwater intrusion into soils, particularly near shoreline areas. Such groundwater rise could reduce the effectiveness of open spaces designed to absorb stormwater runoff. As sea level rise continues, the City will increasingly rely on its network of open spaces – parks, wetlands, and shoreline buffers – to mitigate flood hazards. By proactively maintaining and enhancing these natural and engineered systems, Foster City can bolster its resilience against future flood events.

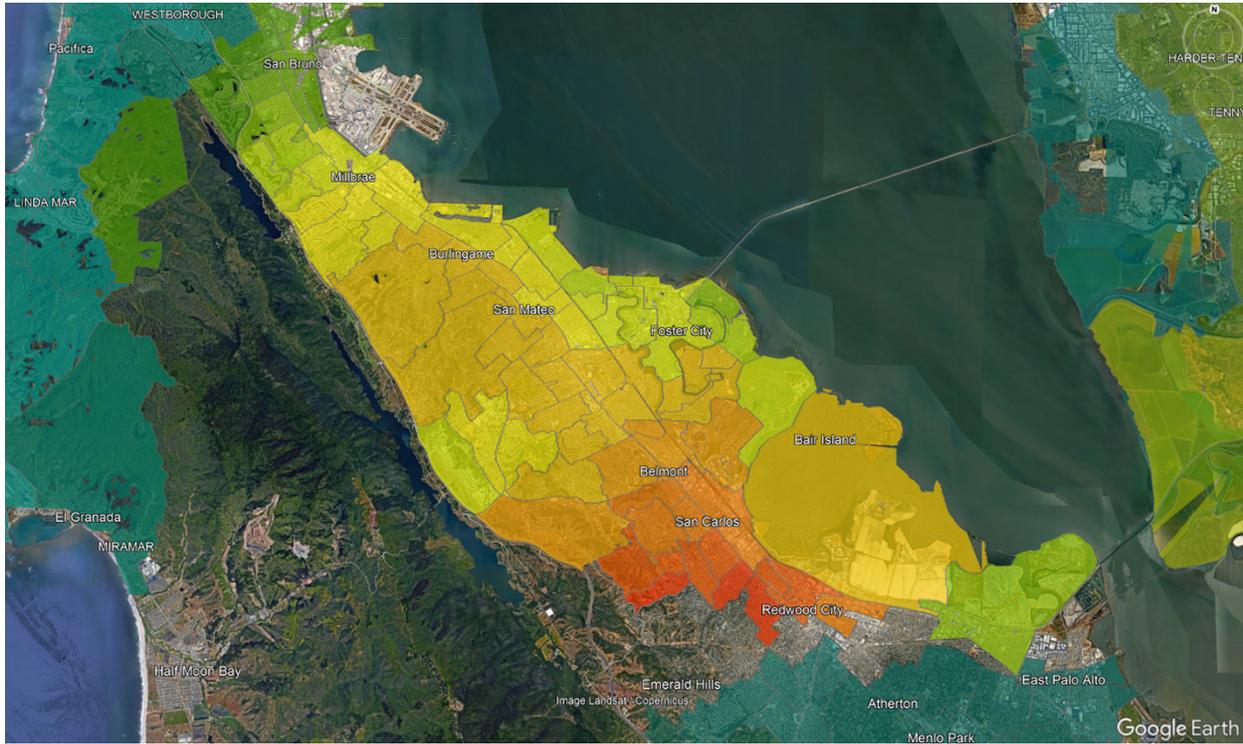
7.2.2 Urban Heat Island Reduction

Trees and green spaces are critical components in reducing urban heat islands, a phenomenon where densely developed urban areas experience significantly higher temperatures than surrounding regions due to heat retention by built surfaces. Currently, Foster City's tree canopy covers approximately seven percent of its total land area, which is comparatively low and leaves many neighborhoods exposed to higher temperatures and associated health risks during heat events.³⁰

The Urban Heat Island Index (UHII) is a metric that quantifies urban heat intensity as the accumulation of temperature differences (in degree-hours per day) between an urban area and a nearby rural reference. Foster City's UHII values range from 46 to 85°F across the city's census tracts, which is roughly half the intensity seen in hotter nearby cities like San Carlos and Redwood City, which have UHII's of approximately 120°F. Figure 6 illustrates the distribution of urban heat island intensity in the region, with cooler areas shown in green and the most intense heat zones in red to white.³³ These data indicate that while Foster City does experience an urban heat island effect, its intensity is moderate relative to some neighboring communities, likely due to coastal breezes.

³³ California Environmental Protection Agency. 2025. <https://calepa.ca.gov/2022/01/31/individual-maps-and-data-files/> (accessed April 2025).

Figure 6 Regional Urban Heat Island Index



Existing parks and green spaces serve as important “cool islands,” offering localized cooling through shade and evapotranspiration. These natural areas help moderate ambient air temperatures and provide relief during extreme heat days, particularly benefiting vulnerable populations such as children, seniors, and individuals with chronic health conditions. Recognizing this benefit, Foster City’s Climate Action Plan (CAP) prioritizes expanding urban forestry by increasing tree plantings in parks, along city streets, and in new developments. Many of the parks with the highest UHII values host full-size athletic fields surfaced in synthetic turf, which inherently limits on-field tree planting. As the City systematically converts these fields from rubber to natural infill, surface temperatures are expected to decline. Complementary cooling strategies should focus on perimeter and spectator areas rather than the active play zones:

Table 5 Key Mitigation Opportunities for Parks with Elevated Urban Heat Island Index

Part (elevated UHII)	Key Heat-Mitigation Opportunities
Sea Clough Park	Perimeter shade trees; shade sails over bleachers; cool-roof concessions.
Boothbay Park	Add tree rows along walkways & parking; replace adjacent hardscape with permeable pavers; integrate bioswales.
Catamaran Park	Plant lagoon-edge trees for prevailing-wind shade; install picnic-area shade structures.
Ketch Park	Expand street-tree canopy on perimeter streets; pilot cool-pavement coating on surrounding paths.
Farragut Park	Increase understory planting around courts; retrofit benches with integrated shade canopies.
Port Royal Park	Focus on parking-lot trees and vegetated medians; evaluate turf-infill replacement timeline.

Enhancing shade at park edges, installing shade sails, upgrading to cool or permeable paving, and continuing synthetic-turf infill improvements will reduce ambient and surface temperatures, improve air quality, and bolster community resilience – without compromising the playability of sports fields.

7.3 Areas Vulnerable to Climate-Related Hazards

7.3.1 Sea Level Rise and Coastal Flooding

Sea level rise (SLR) represents one of the most significant climate-related threats to Foster City due to its low-lying elevation and location along the San Francisco Bay shoreline. Regional climate projections anticipate approximately one foot of SLR by 2050, with potential increases ranging from three to six-and-a-half feet by 2100 under mid-to-high emissions scenarios. In extreme projections, SLR could approach ten feet by the end of the century.^{31,34,35} Foster City's vulnerability is heightened by its geography, as approximately 99 percent of its population resides within areas projected to be impacted by future SLR.³⁰

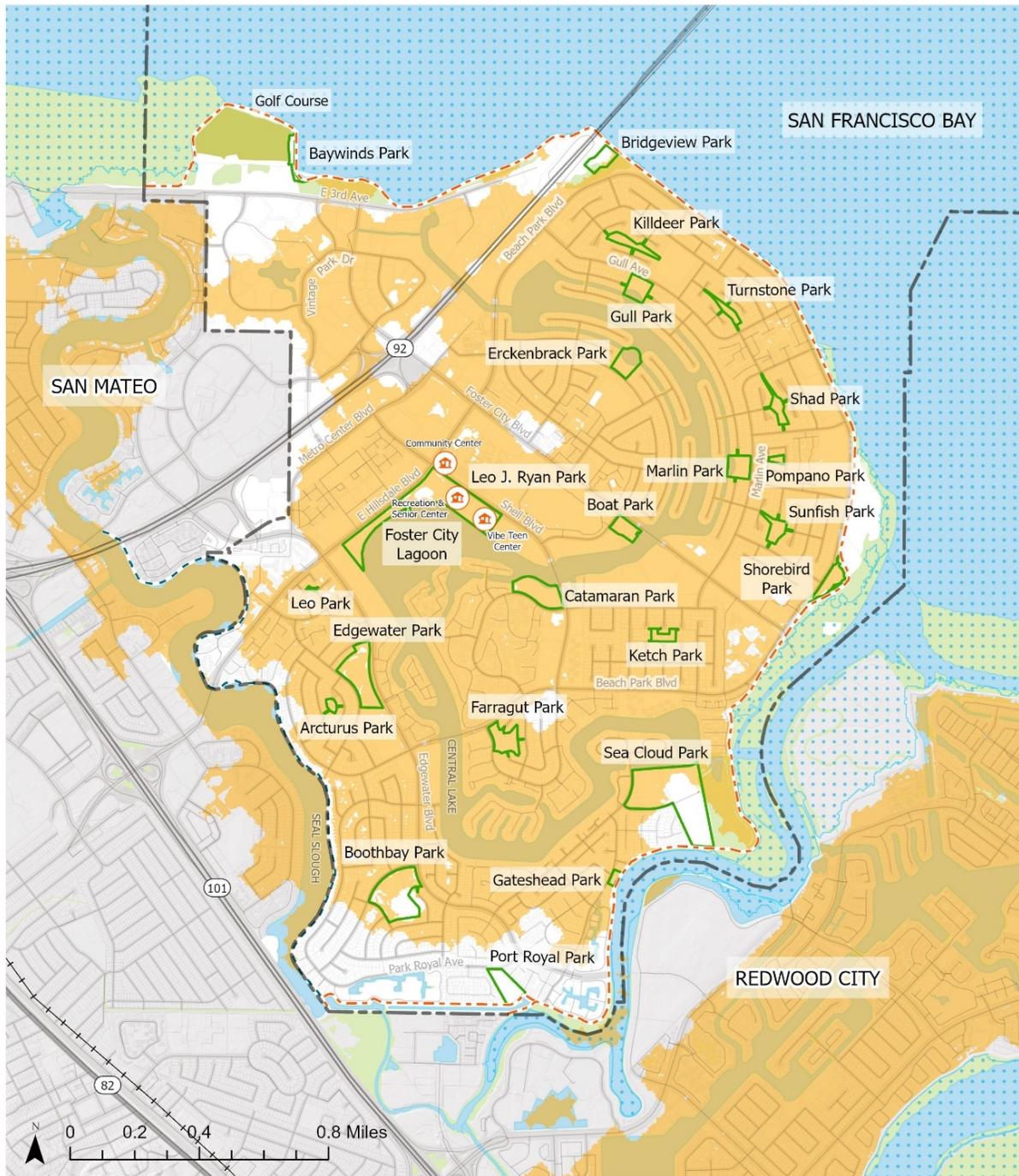
Mapping of SLR scenarios illustrates significant vulnerability for Foster City's shoreline and inland neighborhoods. Figure 7 shows a mid-century scenario of approximately 0.8 feet of SLR (about the increase expected during typical daily high tides by 2050, absent any storms). Under this scenario, many shoreline parks, shoreline trails, and low-lying residential areas (for example, neighborhoods along Beach Park Boulevard and the fringes of the central lagoon) could face regular inundation during high tides. This highlights the city's critical long-term vulnerability even during calm conditions, without additional protective measures.

The potential flood extent expands considerably when factoring in severe coastal storms or King Tide events on top of elevated sea levels. Figure 8 illustrates Foster City's present-day 100-year storm surge scenario, depicting extensive flooding that surpasses existing levee protections and penetrates deeply into the city's interior. Such flooding could affect significant residential neighborhoods, commercial areas, critical infrastructure, and transportation routes, including portions of Highway 101. Coupled SLR scenarios with 100-year storm impacts were not evaluated for this assessment, but Foster City should anticipate future extreme events could have devastating consequences when storm surge and SLR join forces mid to late century.

³⁴ United States Geological Survey (USGS). 2025. Coastal Storm Modeling System (CoSMoS v2). <https://ourcoastourfuture.org/hazard-map/> (accessed March 2025).

³⁵ Barnard, P.L., Erikson, L.H., Foxgrover, A.C., Finzi Hart, J.A., Limber, P., O'Neill, A.C., van Ormondt, M., Vitousek, S., Wood, N., Hayden, M.K., and Jones, J.M., 2019. Dynamic flood modeling essential to assess the coastal impacts of climate change. <http://dx.doi.org/10.1038/s41598-019-40742-z> (accessed February 2025).

Figure 7 Sea Level Rise Inundation (0.8 feet)



- City of Foster City Boundary
- City of Foster City Park
- Golf Course
- Wetlands
- Water Bodies
- Bay Trail / Levee Pedway
- Levee Pedway
- Railroad
- Recreation Facilities
- 0.8-ft of Sea Level Rise with No Storm Event
- Flood-Prone Low Lying Areas

Data provided by City of Foster City, 2025;
 CoSMoS, Our Coast Our Future, 2025.
 24-16899 EPS Community Assessment

Figure 8 Present-Day (No SLR) 100-Year Storm Inundation Risk



Data provided by City of Foster City, 2025;
 CoSMoS, Our Coast Our Future, 2025.
 24-16899 EPS Community Assessment

Foster City's recent Levee Improvements Project has substantially mitigated near-term coastal flood risks by upgrading the city's levees to withstand projected Bay water levels through at least 2050, significantly reducing current vulnerability.³² However, under longer-term scenarios beyond mid-century, additional levee enhancements, seawalls, or nature-based solutions (such as horizontal levees, marsh restoration, or expanded shoreline buffers) will likely become essential to maintaining resilience. Such strategies could provide ecological benefits while helping protect against higher tides and stronger storms.

In summary, Foster City's shoreline – encompassing critical open spaces such as tidal wetlands, the Levee Pedway, and numerous parks – is highly vulnerable to coastal flooding driven by SLR and storm surges. Continued investment in shoreline adaptation and infrastructure improvements, alongside proactive land-use planning, will be crucial in safeguarding the community against these evolving risks.

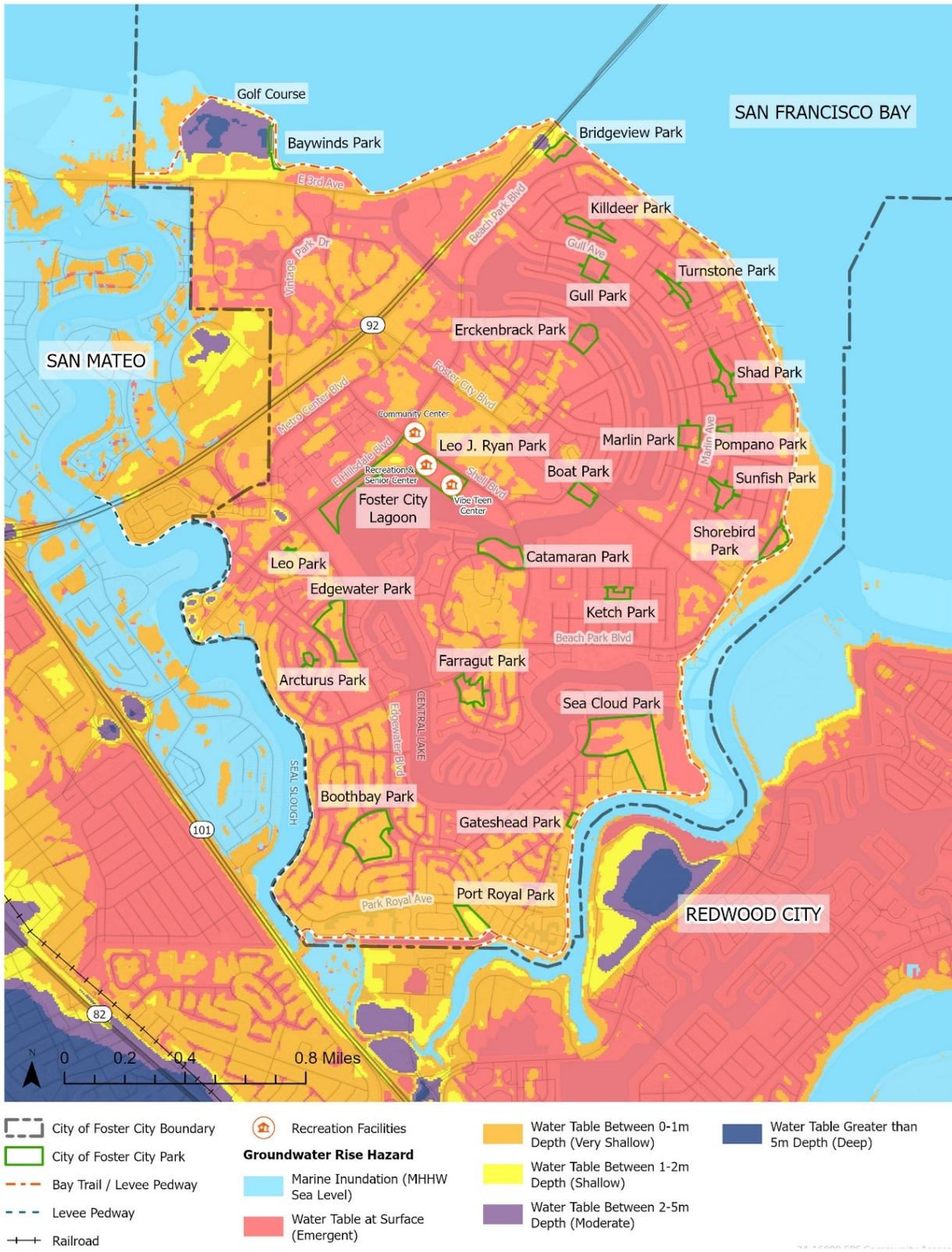
7.3.2 Inland Flooding and Groundwater Rise

Inland flooding in Foster City can result from heavy rainfall, high tides, or a combination of both. Given the city's flat topography and low elevation, intense rain events that coincide with high Bay water levels can severely strain stormwater drainage systems. Foster City relies on an interconnected network of storm drains, pumps, tide gates, and the central lagoon to manage stormwater runoff. However, these facilities can become overwhelmed during severe storms, causing localized flooding, especially around lagoon-adjacent neighborhoods and lower-lying roadway underpasses.

Another emerging concern is groundwater rise. As sea level rises, the water table in Foster City will rise as well, since the city is built on permeable fill and former marsh and the water table will rise as sea level rises. Rising groundwater can lead to flooding from below, even if surface levees hold back the Bay from direct coastal inundation. Essentially, the battle against coastal flooding isn't only above ground at the levee – it's also below ground, where rising groundwater could emerge at or inundate the surface and cause flooding. Sea level rise-induced groundwater rise could affect open spaces by waterlogging soils and damaging root systems, so the City is studying how to improve park drainage and use salt-tolerant plant species in vulnerable areas (as noted in the Foster City Parks and Recreation maintenance plans). Figure 9 displays a groundwater rise hazard map for Foster City, highlighting areas particularly susceptible to groundwater rise, particularly the shoreline zones and lands around the lagoon. In these areas, the water table will likely eventually breach the surface or infiltrate underground infrastructure, causing flooding of housing foundations, road base materials, or within storm sewers. Groundwater rise could also induce soil instability or mobilize pollutants in soils. San Mateo County's Multi-Jurisdictional Hazard Mitigation Plan recognizes rising groundwater and saltwater intrusion as linked hazards accompanying sea level rise.

To address inland flooding, Foster City continues to invest in its stormwater system (pump upgrades, tide gates, and green infrastructure). The combination of heavier downpours projected with climate change and higher baseline Bay levels means interior drainage will need to be more effective and consistently maintained to prevent floods. By preserving and expanding open spaces that can hold or absorb runoff (parks, swales, retention basins) and by planning for rising groundwater impacts, the city can reduce the risk of disruptive inland flooding. Continuous monitoring and adaptive management of both the levee and the internal drainage network will be vital as climate conditions evolve.

Figure 9 Present-Day (No SLR) Groundwater Hazard



7.3.3 Extreme Heat Events

Although Foster City benefits from moderating coastal breezes, it is increasingly susceptible to extreme heat events due to climate change. Historically, the city has experienced an average of four extreme heat days per year (temperatures exceeding 93°F), but projections suggest this could increase to 11-19 days annually by 2100.³⁰ These hotter temperatures pose health risks, increase energy demands, and can stress infrastructure.

The urban heat island effect intensifies heat impacts, especially in areas dominated by pavement, buildings, and sparse vegetation, such as commercial zones and large parking lots. Foster City currently has limited tree canopy coverage (about seven percent), exacerbating heat exposure in neighborhoods lacking shade. Conversely, areas with greater tree coverage, such as parks or landscaped residential zones, provide critical cooling through shade and evapotranspiration.

Populations most vulnerable to extreme heat include seniors, young children, and individuals with chronic health conditions, particularly those residing in buildings without adequate cooling systems. The City's forthcoming Parks Master Plan will guide targeted urban-greening actions such as expanded tree planting in parks, streetscapes, and heat-burdened neighborhoods to mitigate these heat impacts and boost community resilience.

7.3.4 Water Supply Stress

Foster City relies entirely on imported water from the Estero Municipal Improvement District, which sources its potable water from the San Francisco Public Utilities Commission's Hetch Hetchy system (Sierra Nevada snowmelt). This dependence on external water supplies makes the city vulnerable to regional drought conditions and water supply reductions. During past droughts, including the 2012-2016 event, Foster City implemented water use restrictions and conservation programs to manage shortages.

As climate change continues to intensify drought frequency and severity, Foster City will need to strengthen its water conservation efforts, increase efficiency measures, and enhance long-term planning to ensure a stable water supply. The City's CAP outlines strategies to reduce reliance on potable water for irrigation through drought-tolerant landscaping and smart irrigation systems. Additional details on Foster City's water supply reliability and drought resilience planning can be found in Section 7.3: Water Supply.

7.4 Existing City Programs and Initiatives

Foster City has proactively implemented several resilience-focused initiatives that leverage open spaces and natural resources to mitigate climate-related risks:

- **Levee Improvements Project:** This major infrastructure project, funded by a voter-approved \$90 million bond (Measure P, 2018), strengthened Foster City's approximately 8-mile perimeter levee system.³⁶ Completed upgrades provide robust protection against projected sea level rise and coastal flooding through at least 2050. The project also incorporated enhancements such as rebuilding sections of the San Francisco Bay Trail and introducing nature-based elements – such as improved vegetative buffers and landscaping – to increase shoreline resilience and ecological function.³²

³⁶ City of Foster City. 2018. Measure P. <https://www.fostercity.org/cityclerk/page/measure-p> (accessed April 2025).

- **Green Infrastructure Initiatives:** Guided by regulatory frameworks established by municipal codes and state ordinances and in alignment with its Climate Action Plan, Foster City has been actively converting park and public landscaping to drought-tolerant, low-water-use designs.³⁰ Additional measures include installing bioswales and permeable paving in parks and open spaces, which enhance stormwater infiltration, improve water quality, and reduce irrigation demands. The updated CAP specifically emphasizes climate adaptation strategies, including expanding the city’s urban tree canopy to mitigate heat islands, promoting cool roofs and shading structures, and protecting critical community infrastructure.
- **Regional Collaboration:** Foster City engages extensively with regional agencies and partnerships to bolster climate resilience. Notably, the city collaborates with the San Mateo County Flood and Sea Level Rise Resiliency District (OneShoreline) on multi-jurisdictional flood protection and sea level rise adaptation planning. Furthermore, Foster City actively aligns local efforts with the regional BayAdapt/BCDC “One Bay” vision, which encourages collaborative, nature-based shoreline adaptation measures across the Bay Area.³¹
- **New Foster City Community Center** (approved & under construction) – This two-story, ~40,000 square foot build will replace the 1974 Recreation Center. The building will be all-electric, solar-ready, and targeting at least LEED-Silver (option for Gold/net-zero), incorporate Bay-Friendly landscaping, permeable plaza paving, and additional shade trees, and create new outdoor gathering spaces in Leo J. Ryan Park – expanding tree-canopy coverage while showcasing low-carbon civic design.³⁷

Through these proactive measures – strengthening levees, adopting green infrastructure, safeguarding wetlands, and expanding urban forestry – Foster City integrates ecosystem-based approaches into its resilience strategies. Continuing these programs and embedding them into updated Parks and Open Space Element and Conservation Element policies will further enhance the city’s long-term resilience to climate-related impacts.

7.5 Policy Considerations

The following policy considerations highlight strategic opportunities to enhance climate resilience through updates to Foster City’s Parks and Open Space Element and Conservation Element of the General Plan:

1. Informing the General Plan Updates

- Integrate climate vulnerability findings into General Plan policies, explicitly prioritizing levee improvements, flood control infrastructure, wetland conservation, and open space buffers.
- Align with the Safety Element policies in accordance with SB 1425 and the San Mateo County Multi-jurisdictional Hazard Mitigation Plan.

2. Enhancing Open Space for Climate Resilience

- Adopt policies promoting the expansion and restoration of wetlands, creation of living shorelines, and conversion of underutilized parcels into green infrastructure for natural flood mitigation.

³⁷ Foster City, City of. 2024. Foster City Moves Ahead with Plan to Rebuild Recreation Center. <https://www.fostercity.org/community/page/foster-city-moves-ahead-plan-rebuild-recreation-center> (accessed April 2025).

- Support habitat conservation and restoration initiatives that enhance biodiversity and provide co-benefits for climate adaptation.

3. Flood Protection and Shoreline Adaptation

- Continue investing in levee improvements and pursue nature-based solutions, such as horizontal levees and marsh restoration, leveraging state and federal funding opportunities.
- Strengthen regional collaboration with entities like OneShoreline and BayAdapt for coordinated, multi-jurisdictional shoreline adaptation.

4. Improving Water Supply Reliability

- Promote water conservation measures, recycled water usage, and stormwater capture systems within city parks and landscaped open spaces.
- Ensure consistency between the General Plan and Urban Water Management Plan (UWMP), emphasizing drought preparedness and long-term water resource management.

5. Energy Conservation and Renewable Energy

- Encourage the integration of renewable energy systems, such as solar installations on park facilities, and implement energy-efficient lighting and infrastructure within parks and open spaces.
- Reinforce alignment with CAP objectives to reduce greenhouse gas emissions and enhance community resilience.

6. Monitoring, Evaluation, and Adaptive Management

- Develop policies establishing ongoing monitoring, data collection, and evaluation frameworks to track climate impacts and the performance of open spaces in mitigating climate hazards.
- Create decision-making mechanisms within the General Plan to periodically incorporate new climate data and regulatory changes, ensuring policies remain adaptive and responsive.

7. Carbon Sequestration Opportunities

- Identify opportunities for tree planting, wetland restoration, and marsh expansion projects within open spaces, capturing carbon while simultaneously providing flood protection, habitat enhancement, and recreational benefits.
- Promote community-based urban forestry and greenbelt programs as a key climate mitigation strategy integrated into local resilience efforts.

8 Air Quality

8.1 Air Quality

Foster City generally experiences good air quality throughout the year; however, local conditions are periodically influenced by regional pollution sources and episodic events such as wildfire smoke and traffic emissions. This section examines existing air quality conditions, outlines Foster City's compliance with state and federal air quality standards, and identifies key pollution sources affecting the community. Additionally, it highlights how parks, open spaces, and strategic urban forestry planning can play essential roles in reducing air pollution, mitigating health risks, and enhancing ecological resilience. The assessment also reviews existing city programs designed to maintain and improve air quality, providing a foundation for integrating air quality improvements into upcoming updates to the Parks and Open Space Element and Conservation Element of the General Plan.

8.2 Regional Air Quality

Foster City is located within the San Francisco Bay Area Air Basin, regulated by the Bay Area Air Quality Management District (BAAQMD) for adherence to state and federal air quality standards. At the state level, the California Air Resources Board (CARB) designates attainment or nonattainment for criteria pollutants, including ozone (O₃), particulate matter (PM₁₀ and PM_{2.5}), and nitrogen dioxide (NO₂). Meanwhile, at the federal level, the U.S. Environmental Protection Agency (EPA) sets the National Ambient Air Quality Standards (NAAQS) for these pollutants, evaluating whether air basins meet or exceed threshold levels.

While the Bay Area generally meets most air quality standards, it currently holds non-attainment status for ground-level O₃ and PM_{2.5} – pollutants contributing to smog and harmful smoke – due to periodic exceedances of established health thresholds.³⁸ These regional non-attainment designations apply to Foster City and surrounding mid-Peninsula communities. However, local air monitoring stations in nearby San Mateo and Redwood City report relatively fewer exceedance days compared to more inland regions, indicating comparatively better local air quality conditions influenced by coastal breezes.^{31,32}

Despite these favorable conditions, episodic air quality degradation occurs due to major emission sources such as Highways 101 and 92, aircraft activity from San Francisco International Airport, and seasonal wildfire smoke. The latter is of particular concern, as wildfire-driven PM_{2.5} pollution has led to temporary hazardous air quality conditions in recent years. In response, BAAQMD issues "Spare the Air" alerts to encourage residents to limit outdoor exposure and reduce emissions from vehicles, fireplaces, and other sources.³⁰

8.3 Known Concerns

Traffic Emissions

Vehicle traffic on Highways 101 and 92 significantly contributes to local air pollutants, particularly nitrogen oxides (NO_x) and fine particulate matter (PM_{2.5}). Transportation accounts for 57 percent of Foster City's greenhouse gas emissions, directly correlating to elevated

³⁸ Foster City, City of. 2024. Climate Action Plan Update Initial Study – Negative Declaration. https://sustainable.fostercity.org/wp-content/uploads/2024/11/24_11_01_CAP_InitialStudyChecklist-1.pdf (accessed March 2025).

concentrations of local air pollutants.³⁰ Open spaces and vegetative buffers along roadways help mitigate exposure by capturing airborne particulates and filtering pollutants, thus reducing potential health impacts in nearby neighborhoods.

Wildfire Smoke

Although Foster City itself has minimal wildfire risk, transported smoke from wildfires elsewhere in California frequently degrades local air quality. Elevated PM_{2.5} levels pose particular health risks to vulnerable populations, including children, seniors, and individuals with respiratory conditions. Recent wildfire events, such as the widespread smoke in 2020, caused sustained "unhealthy" air quality conditions in San Mateo County.³¹ Providing community clean-air refuges, such as indoor facilities near parks, can mitigate impacts during wildfire smoke episodes.

Commercial and Institutional Emissions

Foster City hosts primarily commercial, institutional, and office land uses, which, while not heavy industrial sources, include localized emissions such as those from emergency backup generators and heating systems.³² Integrating urban greenways and landscaping around these commercial areas can further absorb pollutants and support air quality improvements.

Airport Proximity

Foster City's proximity to San Francisco International Airport introduces occasional localized air quality impacts from aircraft operations. While emissions are dispersed by prevailing winds, occasional impacts from aircraft pollutants occur, particularly in northern neighborhoods nearest the airport approach corridors.

Cumulative Effects on Public Health

Individuals with asthma, cardiovascular conditions, or other underlying health vulnerabilities can be disproportionately affected by ozone and PM_{2.5} exceedances. Periodic poor air quality episodes underscore the need for consistent public health measures, such as indoor air filtration and timely public alerts.³⁰ Accessible open spaces with thoughtful design (e.g., trees for shade, lower-exposure areas away from roadways) can support public health and offer safe outdoor activities even on moderate air-quality days.

In summary, the existing air quality conditions in Foster City are relatively clean on typical days (with pollution levels usually in the "Good" AQI category), but the city is periodically affected by smog and soot from heavy traffic and regional wildfires.

8.4 Existing Plans and Programs

Foster City actively participates in local and regional initiatives to improve air quality, reduce pollution, and protect public health. Existing programs and collaborative efforts include:

Regional Collaboration with BAAQMD

- Foster City actively works with BAAQMD to implement regional air quality programs, including permitting and enforcement of stationary emission sources, and the regional "Spare the Air" alert system.³⁰
- BAAQMD provides grant opportunities for municipalities to invest in clean vehicle fleets and infrastructure.³¹

Climate Action Plan (CAP) Initiatives

- The Foster City CAP prioritizes transportation emissions reductions, addressing the largest regional source of ozone precursors and particulate matter. Key actions include expanding electric vehicle (EV) infrastructure, incentivizing transit use and ridesharing, and promoting active transportation to lower vehicle miles traveled.³⁰
- Greenway expansions, bicycle-pedestrian paths through parks, and improved trail linkages support both GHG reduction and better air quality.

Wildfire Smoke Response

- Foster City coordinates with San Mateo County to develop and update emergency response protocols for wildfire smoke. These efforts include timely dissemination of air quality alerts, establishing clean-air refuges in community centers or other public buildings near parks, and public education on protective measures like the use of N95 masks during wildfire smoke events.³²
- Incorporating “clean-air zones” in or adjacent to large parks or community centers, where outdoor canopies or semi-enclosed spaces can help protect against smoke.

Land Use and Zoning

- Through the ongoing updates to its General Plan, Foster City incorporates zoning and land-use strategies designed to mitigate air quality impacts, such as thoughtful land use planning to avoid conflicts of incompatible uses, and environmental review and mitigation of significant impacts. The City also guides the establishment of vegetated buffers along high-traffic corridors and creating landscaped green spaces near sensitive receptors (schools, senior facilities, residential developments). These open spaces and green infrastructure elements capture pollutants, reduce local exposure, and simultaneously offer aesthetic and ecological benefits.
- Encouraging new or enhanced open spaces near high-volume roads to serve as vegetated buffers would offer both aesthetic and air quality benefits.

8.5 Policy Considerations

The following policy considerations highlight opportunities to improve air quality and public health through updates to Foster City’s Parks and Open Space Element and Conservation Element of the General Plan:

1. Regional Air Quality Alignment

- Foster City is located within the San Francisco Bay Area Air Basin and must comply with air quality standards set by the Bay Area Air Quality Management District (BAAQMD) and California Air Resources Board (CARB).
- Policies should integrate regional air quality goals and aligning land use and development decisions with BAAQMD’s thresholds for construction and operational emissions.

2. Air Quality and Land Use Planning

- Consider establishing buffer zones or vegetative screening requirements for sensitive receptors, such as schools, childcare centers, and senior living facilities, situated near highways or major traffic routes.

- Major roadways and transportation corridors generate pollution that can affect nearby residents and park users.
- Policies should explore strategies to mitigate exposure to transportation-related air pollutants, including requirements for high-efficiency filtration in buildings near high-traffic areas and the strategic placement of vegetation buffers where appropriate.
- Policies should balance air quality mitigation measures with smart growth planning principles, ensuring that streetscapes remain walkable and economically vibrant while incorporating targeted urban greening strategies, such as shade trees, vegetated setbacks, and green roofs.

3. Green Infrastructure and Urban Greening

- Urban greening, including tree planting and vegetated buffers, can help reduce air pollutants and mitigate urban heat, though its effectiveness depends on location, species selection, and overall design.
- Pursue a Tree City USA designation and adopt a City tree-ordinance/permit process that governs planting, maintenance, and removal; pair this program with targeted canopy expansion (street trees, park edges, bioswales) near major roadways and sensitive receptors to improve air quality and public health.
- Parks and open spaces should be designed to maximize co-benefits, integrating air quality improvements with climate adaptation strategies.

4. Transportation and Mobility Improvements

- Transportation-related emissions are the largest source of air pollution in Foster City.
- Policies should prioritize expansion of Electric Vehicle (EV) infrastructure at public facilities and parks, as well as enhancing regional connectivity for pedestrians and cyclists to reduce reliance on personal vehicles.

5. Wildfire Smoke Preparedness and Adaptation

- Climate change is increasing the frequency of severe wildfire smoke events, temporarily degrading air quality in Foster City.
- Policies should consider designating park facilities and community centers as "clean-air refuges" during wildfire smoke events, and equipping them with adequate air filtration and ventilation systems.

6. Community Engagement and Education

- Public awareness plays a critical role in air quality improvements.
- Policies should integrate air quality education into park programming, interpretive signage, and public outreach campaigns.
- Foster City should continue collaborating with BAAQMD on public education efforts, including promoting the "Spare the Air" program and encouraging pollution-reducing behaviors.

9 Energy Conservation and Renewable Energy

9.1 Existing Energy Usage Data

Energy use in Foster City consists primarily of electricity and natural gas consumption across residential, commercial, and municipal sectors. According to the latest Foster City GHG Emissions Inventory (2019):

- Nonresidential (commercial and institutional) energy use accounts for approximately 28 percent of the city’s total GHG emissions.
- Residential energy use contributes roughly 14 percent of the city’s total GHG emissions.³⁰

Overall, energy consumption from buildings comprises approximately 42 percent of the city’s total GHG emissions, with electricity use accounting for seven percent and natural gas and multiple fuels contributing 35 percent. Transportation is the largest emissions source, responsible for 57 percent of total emissions, primarily from local roads and state highways (49 percent) and off-road equipment (8 percent). Other sectors contribute smaller shares, including solid waste disposal (1 percent), wastewater treatment (<1 percent), and water use (<1 percent). This emissions breakdown by sector highlights the need for decarbonization in both the built environment and transportation sector as key strategies in Foster City’s climate efforts.³⁰

Foster City has made significant progress toward decarbonization by sourcing 100 percent carbon-free electricity for municipal operations through Peninsula Clean Energy’s (PCE’s) ECO100 program. ECO100 provides electricity from 100 percent renewable sources and is Green-e® Energy certified.³⁹ Although the electricity grid blends energy from various sources, customers influence the overall mix by opting into programs like ECO100, which increases demand for renewables and prompts PCE to procure more clean energy on their behalf, supporting a cleaner grid.

PCE’s default offering, ECOplus, currently supplies electricity that is 50 percent renewable and 100 percent carbon-free. PCE plans to transition ECOplus to 100 percent renewable electricity by 2025, effectively aligning it with ECO100. Automatic enrollment in ECOplus is enabled under California’s AB 117, which authorizes Community Choice Aggregation (CCA) programs and requires that customers be automatically enrolled unless they choose to opt out.

Despite these advancements in electricity sourcing, natural gas consumption remains a significant contributor to Foster City’s greenhouse gas emissions, particularly from space heating, water heating, and cooking in homes and businesses. The City’s CAP emphasizes building electrification as a key strategy to further reduce emissions and support long-term sustainability goals.

Municipal energy usage predominantly occurs in buildings, parks, community facilities, and outdoor lighting. Continuing the shift toward renewable electricity, improving energy efficiency, and reducing natural gas usage across sectors remain critical focus areas for Foster City’s sustainability and energy conservation goals.

³⁹ Peninsula Clean Energy. 2025. ECO100 is Green-e Energy certified. <https://www.peninsulacleanenergy.com/residential/rates-billing/upgrade-renewable/> (accessed April 2025).

9.2 Energy Conservation/Renewable Energy Goals

Foster City's Climate Action Plan identifies specific targets and strategies to reduce energy-related greenhouse gas emissions and increase reliance on renewable energy sources.³⁰ Key goals include:

1. Reduce Energy Consumption

- Decrease residential and commercial energy usage by 10 to 15 percent through efficiency measures, building retrofits (LED lighting, HVAC improvements), and increased adoption of energy-efficient appliances.
- Transition buildings from natural gas to all-electric systems for space heating, water heating, and cooking.

2. Increase Renewable Energy Use:

- Maintain 100 percent renewable electricity for all municipal accounts through PCE's ECO100 program and use that leadership to promote broader community enrollment.
- Encourage residents and businesses to opt into ECO100 or install onsite solar photovoltaic (PV) systems.

3. Support Decentralized Renewable Energy Systems

- Implement PV and battery projects at cost-effective municipal sites – currently the Library/Community Center and the new Recreation/Community Center – while encouraging private solar (rooftop and parking-canopy) installations city-wide.
- Integrate battery storage solutions to enhance community resilience during energy disruptions and peak demand periods.

4. Manage Peak Demand and Grid Resilience

- Increase community engagement in demand-response programs, incentivizing reduced energy consumption during peak usage periods.
- Advocate for smart-grid technologies and real-time energy management systems to stabilize the grid and improve reliability.

These goals align closely with Foster City's overarching GHG reduction targets, specifically addressing the community's objective to reduce energy-related emissions by 42 percent below 2005 levels by 2030.³⁰ By incorporating these strategies into the Parks and Open Space Element and Conservation Element updates, Foster City will reinforce its commitment to sustainable growth, climate resilience, and long-term environmental stewardship.

9.3 Existing Plans and Programs

1. Peninsula Clean Energy (PCE)

- Foster City participates in Peninsula Clean Energy, a Community Choice Aggregation program providing clean electricity at competitive rates. Municipal operations currently utilize the ECO100 option (100 percent renewable), while residents and businesses can voluntarily opt into ECO100 for carbon-free electricity.

2. Climate Action Plan (CAP) Implementation

- The City's CAP outlines a variety of incentives and programs aimed at reducing energy use. These include rebates for energy efficiency retrofits, incentives supporting electrification of existing buildings, free or subsidized home energy assessments, and educational initiatives promoting sustainable energy behaviors.

3. Green Building Reach Codes

- Draft reach-code concepts now under City review would mandate all-electric construction and EV-ready infrastructure for most new buildings, while encouraging rooftop PV, LEED / CalGreen-Tier 1 performance, and other low-carbon features. Until the ordinance is adopted, these measures remain voluntary but are promoted through design guidance and permit incentives.

4. Municipal Energy Efficiency Upgrades

- The City actively implements energy efficiency improvements, such as transitioning public facilities, parks, and streetlights to LED lighting, upgrading HVAC systems, and expanding on-site solar energy generation. Notable recent projects include installation of solar canopies at the Library/Community Center parking area and comprehensive LED retrofits throughout parks and streetlights.

5. Public-Private Partnerships

- Foster City collaborates with local businesses and private developers to integrate clean energy technologies and sustainable design principles into new developments. These partnerships support the City's energy conservation goals by encouraging decentralized renewable energy systems and energy-efficient building designs in commercial and mixed-use projects.

Collectively, these existing plans and programs demonstrate Foster City's ongoing commitment to energy conservation, renewable energy integration, and GHG reduction, providing a foundation for future policies within the General Plan updates.

9.4 Policy Considerations

The following considerations highlight strategic opportunities to integrate energy conservation and renewable energy into Foster City's Parks and Open Space Element and Conservation Element, supporting the City's broader climate resilience and emissions-reduction objectives:

1. Energy Efficiency in Park Facilities

- Parks, ECO100-powered community centers, and other public spaces can further cut energy use through efficiency upgrades (e.g., LED fixtures, motion sensors, timers) while also reducing light pollution.
- Policies should support the installation of energy-efficient fixtures (such as LED lighting with motion sensors or timers) in park buildings, pathways, restrooms, and sports facilities to minimize electricity use and reduce light pollution.
- Solar-powered lighting systems should be encouraged in locations where traditional electrical grid connections are limited or costly.

2. On-Site Renewable Energy

- Prioritize PV installations at municipal sites confirmed cost-effective by the feasibility study (Library/Community Center and the forthcoming Recreation/Community Center) and encourage rooftop or parking-canopy solar on private and institutional properties city-wide.
- Policies should explore opportunities for installing PV systems on city-owned structures, maintenance buildings, and parking lots, including solar canopy installations.
- Battery storage systems could be piloted to support emergency preparedness and grid resilience.

3. EV Charging Infrastructure in Public Spaces

- Public spaces play a critical role in supporting EV adoption. Policies should encourage the integration of EV charging stations in municipal and park facility upgrades, community centers, and public parking areas.
- Partnerships with private entities could help fund and maintain EV infrastructure, ensuring accessibility for both residents and park users.

4. Sustainable Construction and Electrification

- Future municipal facility construction and renovations provide an opportunity to implement sustainable building practices.
- Policies should promote all-electric systems in new and renovated park facilities, aligning with Foster City's Climate Action Plan (CAP) goals.
- The use of sustainable, low-carbon building materials should be prioritized to reduce lifecycle emissions.

5. Community Engagement and Education

- Public awareness and education are essential for fostering a culture of energy conservation.
- Policies could utilize parks, open spaces, community centers, libraries, city halls, and schools for public demonstrations, workshops, and educational events focused on energy efficiency, renewable energy benefits, and sustainable living practices (e.g., solar installation demonstrations, "talks under solar canopies").
- Policies should support workshops, demonstrations, and interpretive signage in parks and public spaces to highlight renewable energy installations, energy efficiency, and sustainable living practices.

6. Synergies with Climate Resilience Initiatives

- Renewable energy and energy conservation efforts can complement broader climate resilience initiatives.
- Policies should explore opportunities to integrate renewable energy and energy conservation measures into green infrastructure projects, such as co-locating solar arrays with stormwater management features like bioswales or permeable pavements.
- Smart irrigation and renewable-powered water management systems could be incorporated into parks and landscaped areas to reduce water and energy use while lowering maintenance costs.

10 Key Issues and Opportunities Summary

Foster City's open space and conservation challenges are shaped by urban development, climate change, and regional environmental pressures. This section identifies key issues across six thematic areas – Natural Open Space, Biological Resources, Water Resources, Climate Resilience, Air Quality, and Energy Conservation and Renewable Energy – and outlines opportunities for policy updates and strategic initiatives to enhance sustainability and resilience.

10.1 Natural Open Space

Key Issues

- **Fragmentation of Open Spaces:** While Foster City has parks, green spaces, and shoreline areas, many are fragmented, limiting their ecological and recreational benefits.
- **Limited Rewilding and Naturalization:** Many parks have been developed with ornamental landscaping over native vegetation, limiting ecological benefits; the forthcoming Parks Master Plan will outline park-specific improvement recommendations to increase native plantings and habitat value.

Opportunities

- **Enhancing Greenway Connectivity:** Enhancing connectivity could improve biodiversity corridors and recreational opportunities. Linking parks, wetlands, and the lagoon through green corridors by providing naturalization along the city's existing bike and walking paths, trails, and parks which can improve habitat continuity and increase public access to nature.
- **Rewilding:** Expanding rewilding efforts could enhance biodiversity, pollinator support, and climate resilience.
- **Nature-Based Shoreline Protection:** Work with OneShoreline to identify project opportunities for implementing living shorelines, tidal marsh restoration, and native coastal plantings can provide ecological benefits while strengthening flood resilience.
- **Regional Alignment:** Build on existing coordination with OneShoreline, BCDC, and BayAdapt by:
 - sharing lagoon water-level, pump-station, and groundwater data to feed OneShoreline's countywide flood-model updates;
 - pursuing joint grant applications (e.g., FEMA BRIC, State Coastal Conservancy) for living-shoreline pilot projects; and
 - integrating BayAdapt's adaptive-pathways framework and BCDC's 100-foot integrated shoreline-protection zone into local development review.

10.2 Biological Resources

Key Issues

- **Habitat Loss and Urbanization:** Development has significantly reduced natural habitat availability, particularly along the shoreline and green spaces along the city's bike and footpath, limiting biodiversity.

- **Wetlands Conservation and Climate Vulnerability:** Wetlands provide critical ecosystem services, including carbon storage, flood protection, and habitat for migratory birds. However, their long-term resilience is threatened by climate change and sea level rise.
- **Barriers to Wildlife Movement:** Roads, urban infrastructure, and fragmented habitats restrict wildlife movement, impacting species that rely on connected landscapes.
- **Invasive Species Encroachment:** The proliferation of non-native plant and animal species, threatens native biodiversity and reduces the ecological integrity of open spaces. Additionally, while Canada geese are not considered invasive or non-native, their rapid population expansion has caused concerns regarding water quality and co-habitation.

Opportunities

- **Wetland Restoration for Climate Resilience:** Expanding wetland conservation efforts along the Belmont Slough and city shoreline can enhance carbon sequestration, support biodiversity, and bolster flood protection.
- **Wildlife-Friendly Urban Design:** Integrating underpasses and vegetated buffers into planning efforts can reduce habitat fragmentation, particularly between the fragmented open spaces along the city's shoreline.
- **Community-Driven Habitat Conservation:** Public education and citizen science initiatives can foster environmental stewardship and biodiversity monitoring.
- **Urban Rewilding and Native Plant Landscaping:** Enhancing city parks and open spaces with native plants can improve habitat quality, reduce water usage, and support pollinators; the forthcoming Parks Master Plan will outline park-specific improvement recommendations to increase native plantings and habitat value.
- **Green Corridors Between Parks and Wetlands:** Connect parks along the coast, such as Baywinds, Shorebird, or Bayview Parks, and open spaces with greenways such as the areas along the shoreline and city bike path featuring native trees, shrubs, and grasses to provide habitat continuity.
- **Partnerships to Improve Connectivity:** Partner with conservation organizations, land trusts, and transportation agencies to implement connectivity designs and protect wildlife corridors. Collaborative efforts can lead to significant funding and support for conservation projects, particularly in protected areas like the Redwood Shores Ecological Reserve.
- **Rooftop Gardens and Vertical Green Spaces:** Encourage the addition of green roofs and living walls to increase biodiversity in urbanized areas.
- **“Green Streets” Initiatives:** Retrofit roadsides with native plants, rain gardens, and permeable surfaces to improve habitat connectivity and reduce stormwater runoff.

10.3 Water Resources

Key Issues

- **Groundwater Rise and Infrastructure Risks:** Climate change-induced rising groundwater levels could result in subsurface flooding and saltwater intrusion, affecting infrastructure and vegetation.
- **Lagoon Water Quality Degradation:** Persistent issues with algal blooms, excessive aquatic vegetation, and bacterial contamination in the lagoon compromise ecological health and recreational usability.

- **Stormwater Pollution from Urban Runoff:** Due to the built-out nature of the city, impervious surfaces contribute to runoff that carries pollutants into the lagoon and San Francisco Bay, negatively affecting water quality.
- **Reliance on Imported Water Supplies:** Foster City depends entirely on external water sources, making it vulnerable to regional droughts and water supply fluctuations.

Opportunities

- **Improving Lagoon and Wetland Management:** Adaptive management strategies such as enhanced water circulation, salinity monitoring, and habitat restoration can help maintain the lagoon's function as a stormwater basin and recreational resource.
- **Stormwater Filtration through Green Infrastructure:** Expanding bioswales, permeable pavement, and rain gardens can reduce runoff pollution and improve water quality in the lagoon and Bay.
- **Strengthening Water Security Partnerships:** Collaborating with the San Francisco Public Utilities Commission and OneShoreline can enhance long-term water resilience.
- **Expanding Water Quality Monitoring:** Increased monitoring of groundwater and stormwater impacts, including localized water quality testing of the bay near Foster City and monitoring saltwater intrusion, can provide data to inform future policy decisions and infrastructure investments.

10.4 Climate Resilience

Key Issues

- **Sea Level Rise and Flooding Threats:** Foster City is highly vulnerable to sea-level rise, storm surges, and groundwater rise. Consistent with Safety-Element policies S-3.4 b ("Maintain the City's levees and lagoon for flood protection pursuant to the Operation & Maintenance Manual and Lagoon Management Plan") and S-6.1 ("Incorporate sea-level-rise considerations into development review and infrastructure planning"), the City must continue levee/lagoon maintenance and embed sea-level-rise response strategies in all new and existing development projects.
- **Stormwater Drainage Limitations:** The city's flat topography and reliance on pumps for drainage mean heavy rainfall events, particularly those coinciding with high tides, could overwhelm stormwater systems.
- **Urban Heat Island Effect:** While Foster City benefits from a temperate coastal climate, the city's limited tree canopy (about seven percent) and large expanses of impervious surfaces can still contribute to higher localized temperatures. This can be a concern for local plant and animal life as well as outdoor workers, seniors, and other vulnerable populations who may experience greater heat exposure.
- **Shallow Groundwater Risks:** As sea levels rise, so will groundwater, threatening infrastructure and creating long-term maintenance concerns for underground utilities and green spaces.

Opportunities

- **Regional Adaptation Collaboration:** Work with local, regional, State, and federal partners (e.g., OneShoreline, San Mateo County, BCDC, FEMA) on climate-resilience strategies, and regularly integrate findings from the San Mateo County Sea-Level-Rise Vulnerability

Assessment, Multi-Jurisdictional Hazard Mitigation Plan, Climate-Change Vulnerability Assessment, and Foster City's Climate Action Plan into General-Plan updates.

- **Urban Green Infrastructure Expansion:** Increasing tree canopy, green roofs, and permeable surfaces can mitigate heat island effects while enhancing stormwater retention.
- **Flood Protection Beyond Levees:** While the recent levee improvements protect against near-term sea level rise, additional strategies such as living shorelines, horizontal levees, and marsh restoration could provide long-term resilience benefits.
- **Localized Climate Risk Data Collection:** Partnering with research institutions and agencies to establish groundwater monitoring wells and high-resolution flood modeling can improve data-driven decision-making.

10.5 Air Quality

Key Issues

- **Traffic-Related Air Pollution:** Proximity to Highway 101 and 92 results in elevated levels of nitrogen oxides (NOx) and fine particulate matter (PM_{2.5}), impacting public health.
- **Wildfire Smoke Exposure:** Although Foster City has low wildfire risk, regional fires contribute to worsening air quality, leading to hazardous conditions and the need for designated clean-air refuges.
- **Gaps in Local Air Quality Monitoring:** Foster City lacks dedicated air monitoring stations, making it difficult to track localized pollution hotspots or accurately measure cumulative exposure impacts.

Opportunities

- **Integrate Air Quality Considerations into Open Space Design:** Expanding vegetated buffers along major roadways and increasing urban forestry can help filter pollutants and improve local air quality.
- **Wildfire Smoke Mitigation Planning:** Collaborating with BAAQMD and San Mateo County and local neighboring cities can enhance emergency response strategies and clean-air shelter access.
- **Deploying Local Air Monitoring Sensors:** Installing air quality sensors in high-traffic zones and near schools would improve pollution tracking and inform health policies.

10.6 Energy Conservation and Renewable Energy

Key Issues

- **Continued Dependence on Natural Gas:** Despite 100 percent carbon-free electricity for municipal buildings, the residential and commercial sectors still rely heavily on natural gas, slowing decarbonization efforts. CAP action E-W.2.2.1 (2025 Building-Code amendments and two-way AC ordinance) targets accelerated electrification.
- **Slow Adoption of Solar Energy:** Up-front costs and permitting barriers deter rooftop solar; CAP actions E-W.2.1.7 (study municipal rooftop solar + battery) and E-W.2.1.8 (public outreach on pairing PV with storage) outline next steps.
- **Grid Resilience and Energy Storage Gaps:** Limited incentives for behind-the-meter storage; CAP action E-W.2.1.1 provides for financial incentives to spur PV + battery installations and improve resilience.

Opportunities

- **Expand Solar and Battery Storage in Public Spaces:** Installing solar panels with battery backup in parks, parking lots, and municipal facilities can enhance energy resilience and reduce grid demand during peak hours.
- **Promote Building Electrification and Efficiency Programs:** Aligning with Peninsula Clean Energy's (PCE) incentives and reach codes can accelerate residential and commercial transitions away from natural gas.
- **Improve EV Charging and Micromobility Options in Open Spaces:** Expanding EV charging infrastructure in parks and community centers supports clean transportation goals and enhances accessibility for residents and visitors. EV charging infrastructure, along with improving curb management to prioritize rideshare parking/loading zones, scooter and bike share docks, bike parking, and autonomous vehicle loading zones, is supported by Foster City's Climate Action Plan (CAP) Measure T-L.3.1.7.

11 Appendices

11.1 Appendix A: Regulatory Context

11.1.1 Natural Open Space

Government Code Section 65560

Government Code Section 65560 defines open space land and requires cities and counties to include open space elements in their general plans to protect natural resources, scenic beauty, and recreational areas.⁴⁰

Assembly Bill 2278 Natural resources: biodiversity and conservation report

Assembly Bill 2278 (Kalra 2022) directs California's Natural Resources Agency to prioritize specific actions toward achieving the state's goal of conserving at least 30 percent of California's lands and coastal waters by 2030 ("30x30"). The bill requires annual progress reporting to the Legislature, emphasizing equity, tribal engagement, regional collaboration, and improved public access to conserved lands and coastal resources.⁴¹

Natural Community Conservation Planning Act

The California Fish and Game Code Sections 2780-2799.6 establishes the Natural Community Conservation Planning Act. This act is a statewide conservation program that aims to protect natural habitats and biodiversity while allowing for sustainable economic development. Unlike traditional conservation efforts that focus on individual species, the Natural Community Conservation Planning Act takes an ecosystem-based approach, improving the long-term protection of entire natural communities and the species that depend on them.⁴²

11.1.2 Biological Resources

Federal Endangered Species Act

The Federal Endangered Species Act (FESA) protects federally listed wildlife species from harm or take, which is broadly defined as "to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, collect, or attempt to engage in any such conduct." United States Fish and Wildlife Service (USFWS) and National Marine Fisheries Service (NMFS) have jurisdiction over federally listed, threatened, and endangered species under the FESA. Candidate species are not legally protected under the FESA but may become listed in the near future and are often included in their review of a project.

⁴⁰ California Government Code. Section 65560 10.5. Open-Space Lands [65560 - 65570].

https://leginfo.legislature.ca.gov/faces/codes_displaySection.xhtml?lawCode=GOV§ionNum=65560. (accessed April 2025).

⁴¹ Kalra, Ash. 2022. Assembly Bill 2278: 30x30 Biodiversity and Conservation. <https://a25.asmdc.org/sites/a25.asmdc.org/files/2022-04/AB%202278%20-30x30%20Reporting.pdf> (accessed March 2025).

⁴² California Fish and Game. 2021. California Fish and Game Code Sections 2780-2799.6. <https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=178840&inline> (accessed April 2025).

California Endangered Species Act

The California Endangered Species Act (CESA) requires the protection of species that are listed as endangered or threatened within the state. It mandates that state agencies and private entities avoid actions that may harm these species or their habitats and requires the development of recovery plans. CESA also provides a process for the listing of species and the designation of critical habitats in need of protection.

Native Plant Protection Act

California Department of Fish and Wildlife (CDFW) has authority to administer the Native Plant Protection Act (NPPA; California Fish and Game Commission [CFGF] Section 1900 et seq.). The NPPA requires the CDFW establish criteria for determining if a species, subspecies, or variety of native plant is endangered or rare, and prohibits the take of listed plant species.

Fully Protected Species Laws and Avian Protection Laws

The Fully Protected Species Laws and Avian Protection Laws in California are designed to safeguard wildlife, particularly vulnerable and endangered bird species. The CDFW oversees these regulations, ensuring compliance with California Fish and Game Code Sections 3511, 4700, 5050, and 5515, which prohibit the taking or possession of fully protected species, including several bird species. Additionally, the Migratory Bird Treaty Act and Bald and Golden Eagle Protection Act, enforced by the USFWS, provide federal protections against hunting, disturbance, or habitat destruction. The primary purpose of these laws is to prevent species extinction, conserve habitats, and mitigate human impacts on bird populations, ensuring ecological balance and biodiversity conservation.

Bay Plan

The Bay Plan is a long-term coastal management strategy developed by the San Francisco Bay Conservation and Development Commission (BCDC). Its primary purpose is to regulate development along the Bay shoreline, protect and restore wetlands, address sea-level rise, and ensure public access to the shoreline. The plan establishes policies on land use, water quality, and climate adaptation to balance environmental conservation with sustainable urban development. By guiding regional decision-making, the Bay Plan helps maintain the ecological health and resilience of the San Francisco Bay Area while accommodating responsible economic growth.

11.1.3 Water Resources

Clean Water Act

The Clean Water Act (CWA) aims to restore and maintain the integrity of U.S. waters by preventing pollution, providing regulations for wastewater discharges, and supporting the protection of water quality. It mandates that states set water quality standards, and it authorizes the Environmental Protection Agency (EPA) to enforce regulations to reduce pollution and protect aquatic ecosystems.

Porter-Cologne Water Quality Control Act

The Porter-Cologne Water Quality Control Act (Porter-Cologne Act) is the principal law governing water quality regulation in California. It establishes a comprehensive program to

protect water quality and the beneficial uses of water. The Porter-Cologne Act applies to surface waters, wetlands, and groundwater and to both point and nonpoint sources of pollution.

11.1.4 Air Quality

Clean Air Act

The Clean Air Act (CAA) was enacted in 1970 and amended in 1977 and 1990 [42 United States Code (USC) 7401] for the purpose of protecting and enhancing the quality of the nation's air resources to benefit public health, welfare, and productivity. The United States EPA developed primary and secondary National Ambient Air Quality Standards (NAAQS) in 1971 to achieve the purposes of Section 109 of the CAA [42 USC 7409].

California Clean Air Act

The California Clean Air Act (CCAA) was enacted in 1988 (California Health & Safety Code (H&SC) Section 39000 et seq.). Under the CCAA, the State has developed the California Ambient Air Quality Standards (CAAQS), which are generally more stringent than the NAAQS. In addition to the federal criteria pollutants, the CAAQS also specify standards for visibility-reducing particles, sulfates, hydrogen sulfide, and vinyl chloride. Similar to the federal CAA, the CCAA classifies specific geographic areas as either "attainment" or "nonattainment" areas for each pollutant, based on the comparison of measured data within the CAAQS.

California Code of Regulations

The California Code of Regulations is the official compilation and publication of the regulations adopted, amended, or repealed by State agencies pursuant to the Administrative Procedure Act. They are compiled into Titles and organized into Divisions containing the regulations of State agencies. The following California Code of Regulations would be applicable to the General Plan Update:

- **Engine Idling.** In accordance with Section 2485 of Title 13 of the California Code of Regulations, the idling of all diesel-fueled commercial vehicles (weighing over 10,000 pounds) during construction shall be limited to five minutes at any location.
- **Emission Standards.** In accordance with Section 93115 of Title 17 of the California Code of Regulations, operation of any stationary, diesel-fueled, compression-ignition engines shall meet specified fuel and fuel additive requirements and emission standards.

11.1.5 Climate Resilience

Senate Bill 272 Sea level rise: planning and adaptation

Senate Bill 272 (Laird, 2023) requires local governments within the coastal zone or within the jurisdiction of the BCDC to develop and adopt comprehensive sea level rise plans by January 1, 2034. These plans, subject to approval by either the California Coastal Commission (CCC) or BCDC, will help local governments address and mitigate sea level rise impacts, with approved jurisdictions prioritized for future state adaptation funding.⁴³

⁴³ Senator John Laird of the 17th State Senate District. 2023. Governor Newsom Signs Legislation to Build Coastal Resiliency and Support Coastal Communities. <https://sd17.senate.ca.gov/news/governor-newsom-signs-legislation-build-coastal-resiliency-and-support-coastal-communities> (accessed March 2025).

Assembly Bill 975 Environmental protection: California Coastal Resilience and Adaptation Leadership and Coordination Act of 2019

Senate Bill 975 (Calderon, 2019) established the California Coastal Resilience and Adaptation Leadership and Coordination Act, requiring California's Natural Resources Agency (CNRA) to coordinate state climate resilience and adaptation efforts with other governments and regional entities. This coordination includes sharing best practices, promoting resilience of coastal habitats, and conducting quantified risk assessments to prioritize climate adaptation actions.⁴⁴

Assembly Bill 1384 Resiliency Through Adaptation, Economic Vitality, and Equity Act of 2022.

Assembly Bill 1384 (Gabriel, 2022), the Resiliency Through Adaptation, Economic Vitality, and Equity Act, updates California's climate adaptation strategy, emphasizing equitable adaptation and resilience. The bill mandates that state agencies identify vulnerabilities in communities disproportionately impacted by climate change, prioritize equity in public expenditures, and establish clear metrics to track progress toward climate resilience.⁴⁵

Senate Bill 905 Carbon sequestration: Carbon Capture, Removal, Utilization, and Storage Program.

Senate Bill 905 (Caballero, 2022) establishes the Carbon Capture, Removal, Utilization, and Storage (CCRUS) Program, overseen by the California Air Resources Board, to support and regulate technologies for capturing and storing carbon dioxide emissions. The bill requires comprehensive safety standards, environmental monitoring, unified permitting, and public transparency measures to ensure these projects reduce greenhouse gases without negatively impacting local communities or ecosystems.⁴⁶

Assembly Bill 2251 Urban Forestry: statewide strategic plan.

Assembly Bill 2251 (Calderon, 2022) directs the California Department of Forestry and Fire Protection to develop a statewide strategic plan to increase urban tree canopy cover by 10 percent by 2035, with a focus on disadvantaged and low-canopy communities. The plan, due by June 30, 2025, will outline state and local policies, regional targets, maintenance strategies, and resources needed to support sustainable urban forestry expansion.⁴⁷

⁴⁴ Calderon, Lisa. 2019. AB 975, as amended, Calderon. Environmental protection: California Coastal Resilience and Adaptation Leadership and Coordination Act of 2019. https://leginfo.legislature.ca.gov/faces/billTextClient.xhtml?bill_id=201920200AB975 (accessed March 2025).

⁴⁵ Gabriel, Jesse. 2022. AB 1384, Resiliency Through Adaptation, Economic Vitality, and Equity Act of 2022. <https://legiscan.com/CA/text/AB1384/id/2606950> (accessed March 2025).

⁴⁶ Cabarello, Anna. 2022. SB 905, Carbon sequestration: Carbon Capture, Removal, Utilization, and Storage Program. https://leginfo.legislature.ca.gov/faces/billNavClient.xhtml?bill_id=202120220SB905 (accessed March 2025).

⁴⁷ Calderon, Lisa. 2022. AB 2251, Urban forestry: statewide strategic plan. https://leginfo.legislature.ca.gov/faces/billNavClient.xhtml?bill_id=202120220AB2251 (accessed March 2025).

11.2 Appendix B: Definitions

Term	Definition
Algal Blooms	Certain environmental conditions in water bodies can intensify algae growth, causing algal blooms. Blooms with the potential to harm human health or aquatic ecosystems are referred to as Harmful Algal Blooms (HABs). HABs can produce toxins that present a risk to people, animals, aquatic ecosystems, the economy, drinking water supplies, property values, commercial and industrial fishing, and recreational activities like swimming (U.S. Environmental Protection Agency).
Aquifer	A water-bearing layer of rock or sediment that is capable of yielding useable amounts of water. Drinking water and irrigation wells draw water from the underlying aquifer (U.S. Department of Toxic Substances Control).
Biodiversity	The variety of living organisms (plants, animals, fungi, microorganisms) and ecosystems, reflecting the health and complexity of an environment (California Public Resources Code §711.2).
Biological Resources	Plants, animals, habitats, ecosystems, and related ecological processes that provide environmental, economic, recreational, and cultural value.
Bioswales	Landscape elements designed to collect, filter, and convey stormwater runoff through vegetation, soils, and other materials to improve water quality and reduce flooding.
Cumulative Impact or Exposure	The term cumulative impact is used in several ways: as the effect of exposure to more than one compound; as the effect of exposure to emissions from more than one facility; the combined effects of a facility and surrounding facilities or projects on the environment; or some combination of these (U.S. Department of Toxic Substances Control).
Ecosystem Services	Benefits humans obtain from functioning ecosystems, including clean air and water, climate regulation, flood control, food production, recreation, and cultural values.
Energy Conservation and Renewable Energy	Strategies to reduce overall energy use through efficiency and the adoption of energy sources such as solar, wind, and geothermal that replenish naturally and have minimal environmental impact.
Environmental Justice	Under State law, environmental justice means the fair treatment of people of all races, cultures, and incomes with respect to the development, adoption, implementation, and enforcement of environmental laws, regulations, and policies. (Gov. Code, § 65040.12, subd. (e)).
Equitable Access	Equitable access refers to the fair distribution of resources, opportunities, and services, ensuring that all individuals have the ability to obtain what they need to achieve their potential.
Estuary	A coastal waterbody where freshwater from rivers and streams mixes with saltwater from the ocean, creating productive, biodiverse habitats.
Flood Mitigation	Actions and strategies aimed at reducing flood risk and impacts, such as building levees, preserving floodplains, enhancing stormwater management, or restoring wetlands.
Green Corridor	A continuous network of vegetated areas linking natural habitats and ecosystems, facilitating wildlife movement and providing ecological and recreational benefits.
Green Infrastructure	Ecological systems and engineered landscape features (e.g., rain gardens, green roofs, permeable pavement, bioswales) used to manage stormwater, improve air quality, and enhance resilience.
Grid Resilience	The ability of the electrical power system to withstand, recover from, and adapt to disruptions, minimizing impacts from power outages and emergencies.
Groundwater	Water beneath the earth's surface that flows through soil and rock openings, aquifers, and often serves as a primary source of drinking water (U.S. Department of Toxic Substances Control).

Term	Definition
Habitat Fragmentation	Division of large, continuous habitats into smaller, isolated patches, often due to human activities, negatively impacting wildlife movement and biodiversity.
Habitat Restoration	Efforts to rehabilitate ecosystems by reestablishing native vegetation, repairing degraded habitats, and restoring ecological functions.
Invasive Species	Non-native species introduced into ecosystems that rapidly proliferate and negatively impact native biodiversity, habitats, or ecosystem function.
King Tide	Exceptionally high tide events caused by the alignment of the earth, moon, and sun, providing a glimpse of future sea level rise impacts.
Lagoon	A shallow, enclosed or partially enclosed coastal waterbody separated from the ocean by a barrier, often influenced by tidal flows and freshwater inputs.
Living Shoreline	A coastal management approach that integrates native vegetation, natural habitats, and engineered elements to stabilize shorelines, protect against erosion, and support ecological functions.
Microgrid	A small-scale electrical system that can operate independently or connected to the main power grid, typically powered by renewable energy and energy storage systems to improve resilience.
Native Vegetation	Plants naturally occurring in a specific region or ecosystem without human introduction, adapted to local environmental conditions and providing critical ecological benefits.
Natural Community Conservation Plan	A California-based conservation program designed to protect entire ecosystems while accommodating compatible land use activities, focusing on long-term habitat conservation.
Natural Open Space	Land preserved or maintained in a predominantly natural state, providing ecological, recreational, and aesthetic value, typically minimally developed and managed.
Nature-Based Solutions	Strategies inspired by natural ecosystems that address environmental challenges (such as flooding, heat, or erosion) by preserving, restoring, or mimicking natural processes.
Nursery Site	Habitat areas providing critical protection, food, and shelter needed by juvenile animals, especially marine species and migratory birds, during early developmental stages.
Open Space	Per Gov. Code § 65560(b) and Gov. Code § 5097.9, any parcel or area of land or water that is essentially unimproved and devoted to open space use. Such uses can encompass preservation of natural resources, managed production of resources, outdoor recreation, public health and safety, military installations, and protection of places, features, and objectives, with the latter specifically referring to Native American historical, cultural, and sacred sites.
Permeable Pavement	Pavement materials designed to allow rainwater to infiltrate through the surface, reducing runoff and helping recharge groundwater.
Potable Water	Water safe and suitable for human consumption, meeting established health standards.
Protected and Special Status Species	Plants or animals designated under federal, State, or local regulations as endangered, threatened, rare, or otherwise vulnerable, requiring special conservation measures.
Protected Area	Clearly defined geographical spaces recognized and managed to conserve ecosystems, biodiversity, and natural or cultural resources.
Publicly Accessible	Land, facilities, or resources that are available and open for public use and enjoyment without unnecessary barriers or restrictions.
Recreational Facilities	Built or natural spaces designed for public recreation and leisure activities, such as parks, playgrounds, trails, sports fields, and picnic areas.
Recreational Opportunities	Activities or resources available to the public that provide enjoyment, exercise, social interaction, and opportunities to experience nature.

Term	Definition
Resilience	<p>Per the Governor’s Office of Land Use and Climate Innovation’s 2017 https://opr.ca.gov/planning/general-plan/guidelines.html and California’s Fifth National Climate Assessment (2023) Appendix 5 Glossary, resilience is defined as the ability of a social or ecological system to absorb disturbances while retaining the same basic structure and ways of functioning, the capacity for self-organization, and the capacity to adapt to stress and change.</p> <p>Resilience is the ability to prepare for threats and hazards, adapt to changing conditions, and withstand and recover rapidly from adverse conditions and disruptions. More specifically, climate resilience is the capacity of interconnected social, economic, and ecological systems to cope with a climate change event, trend, or disturbance, responding or reorganizing in ways that maintain their essential function, identity, and structure.</p>
Rewilding	<p>Per Gov. Code § Section 65565.5 (b)(1), rewilding is defined as opportunities to preserve, enhance, and expand an integrated network of open space to support beneficial uses, such as habitat, recreation, natural resources, historic and tribal resources, water management, and aesthetics. Rewilding is a conservation strategy that aims to restore the natural processes of an ecosystem and increase biodiversity. It involves reducing or stopping human activity and reintroducing plant and animal species, especially keystone species. Rewilding can also involve connecting protected areas through corridors.</p>
Runoff Pollution	<p>Contamination of water bodies caused by stormwater flowing over impervious surfaces, picking up pollutants such as oil, chemicals, nutrients, and sediment.</p>
Saltwater Intrusion	<p>The movement of saltwater into freshwater aquifers or surface water bodies, typically caused by groundwater pumping, sea-level rise, or reduced freshwater recharge.</p>
Sea Level Rise	<p>The increase in global ocean levels resulting primarily from melting glaciers, ice caps, and thermal expansion due to global warming.</p>
Shoreline	<p>The boundary where land meets a body of water, including beaches, marshes, and rocky coasts.</p>
Stormwater Detention Basin	<p>Engineered structures designed to temporarily capture and hold stormwater runoff, releasing it slowly to reduce flooding and erosion risks.</p>
Stormwater Management	<p>Practices and infrastructure designed to reduce or manage the volume, quality, and impacts of stormwater runoff.</p>
Stormwater Runoff	<p>Rainwater or melted snow that flows over land and impervious surfaces without infiltration, often carrying pollutants to water bodies.</p>
Surface Water	<p>Water that collects and flows on the earth’s surface, such as rivers, lakes, streams, ponds, reservoirs, and wetlands.</p>
Tidal Marsh	<p>A coastal ecosystem regularly inundated by tidal waters, supporting specialized plant and animal species adapted to brackish conditions.</p>
Underpasses/Wildlife Bridges	<p>Engineered structures designed to allow wildlife to safely cross roads and other barriers, reducing collisions and supporting habitat connectivity.</p>
Urbanization	<p>The development and expansion of urban areas resulting from population growth, land conversion, and increased built infrastructure.</p>
Urban Heat Island Effect	<p>The phenomenon where urban areas experience higher temperatures than surrounding rural areas due to extensive impervious surfaces, limited vegetation, and human activities.</p>
Urban Park	<p>A managed open space within a city, providing recreational opportunities, green spaces, and social gathering areas for community members.</p>
Urban Forestry	<p>Management of trees and green spaces within urban settings to enhance environmental, social, and economic benefits.</p>
Urban Wildlife	<p>Wild animals that inhabit urban environments, adapting to urbanized landscapes and interactions with human populations.</p>

Term	Definition
Water Supply	Sources of water available for community use, including potable water for drinking, agriculture, industry, and ecological needs.
Water Quality	The chemical, physical, and biological characteristics of water, indicating its suitability for human and ecological use.
Water Resources	All sources of water – including surface water, groundwater, and stormwater – that support environmental, human, and economic needs.
Wetlands	Areas inundated or saturated by surface or groundwater, characterized by hydric soils and specialized vegetation, providing critical habitat and ecosystem services.
Wildlife Connectivity	The degree to which habitats and landscapes allow wildlife movement and gene flow, supporting biodiversity, ecological integrity, and species adaptation to environmental changes.