

TABLE OF CONTENTS

1.	Introduction.....	SAF-1
	Climate Change	SAF-2
	Relationship to Other General Plan Elements	SAF-2
	Statutory Requirements.....	SAF-3
	Safety Element Existing Conditions Report.....	SAF-5
	Union City/Newark Multi-Jurisdictional Hazard Mitigation Plan	SAF-5
	Community Input.....	SAF-5
2.	Existing Conditions.....	SAF-6
	Air Quality.....	SAF-6
	Drought and Water Quality.....	SAF-15
	Extreme Weather.....	SAF-25
	Flooding Hazards	SAF-34
	Dam Failure.....	SAF-44
	Fire Hazards	SAF-50
	Geologic Hazards	SAF-53
	Hazardous Materials	SAF-63
	Noise.....	SAF-71
	Emergency Preparedness.....	SAF-85
3.	Goals, Policies, and Actions	SAF-89
	Air Quality.....	SAF-89
	Drought and Water Quality	SAF-93
	Extreme Weather	SAF-97
	Flooding Hazards	SAF-100
	Dam Failure.....	SAF-105
	Fire Hazards	SAF-109
	Geologic Hazards	SAF-111
	Hazardous Materials	SAF-114
	Emergency Preparedness.....	SAF-123
4.	References.....	SAF-128
5.	Appendices.....	SAF-136
	Appendix A: Existing Conditions Report.....	SAF-136

List of Figures

Figure SAF-1	City of Newark Particulate Matter (PM _{2.5}) Pollution..	SAF-9
Figure SAF-2	City of Newark Diesel Particulate Matter Pollution....	SAF-10
Figure SAF-3	Drought Conditions in Alameda County, 2000–2023 .	SAF-17
Figure SAF-4	Groundwater Threats in Newark (Census Tract Average).....	SAF-20
Figure SAF-5	Urban Heat Island Effect	SAF-27
Figure SAF-6	Urban Greening in Newark	SAF-29
Figure SAF-7	FEMA Flood Zone Exposure Map.....	SAF-35
Figure SAF-8	Sea-Level Rise	SAF-39
Figure SAF-9	Dam Inundation Zones	SAF-46
Figure SAF-10	Earthquake Faults	SAF-54
Figure SAF-11	Geologic and Seismic Hazards.....	SAF-56
Figure SAF-12	Hazardous Materials Sites	SAF-65
Figure SAF-13	Existing Noise Contours	SAF-78
Figure SAF-14	Future (2035) Noise Contours	SAF-79
Figure SAF-15	Emergency Preparedness and Resilience.....	SAF-86

List of Tables

Table SAF-1	Major Air Pollutant Sources.....	SAF-7
Table SAF-2	Newark Population Health Statistics	SAF-11
Table SAF-3	U.S. Drought Monitor Classifications.....	SAF-16
Table SAF-4	Typical Noise Levels	SAF-73
Table SAF-5	Noise Compatibility Guidelines for Newark	SAF-75

SAFETY

9

1. INTRODUCTION

The Safety Element of the General Plan addresses potential risks to life and property resulting from naturally occurring hazards, such as earthquakes and floods, and man-made hazards, such as air pollution, noise and soil contamination. The Safety Element also addresses emergency preparedness and response. As in other elements of the General Plan, background information on these topics is presented in the first part of the chapter, and goals, policies, and actions are presented at the end.

An important function of this Element is to identify locations in Newark that may be inappropriate for certain land uses due to potential risks and hazards. This Element also identifies areas where hazards are present, but can be mitigated through special design and site planning measures. For example, Newark is located in a seismically active area. While this does not preclude construction, it does require that buildings are designed to withstand ground shaking and other hazards associated with earthquakes. The hazards discussed in this Element help to shape Newark's Land Use Map, and have influenced its land use, housing, open space, and transportation policies.

The specific topics covered by this Element are listed below:

- Air Quality
- Drought and Water Quality
- Extreme Weather
- Geologic and Seismic Hazards
- Flood Hazards
- Dam Failure
- Fire Hazards
- Hazardous Materials
- Emergency Preparedness

CLIMATE CHANGE

Many of the hazards impacting the City are made worse by climate change. Climate change refers to a significant and long-lasting shift in global temperatures and climate patterns due primarily to manmade greenhouse gas (GHG) emissions, which trap heat in the atmosphere and lead to increasing global temperatures. Global warming and the hazards that come from this phenomenon are expected to worsen over time as GHG emissions continue to increase. Expected impacts from climate change in Newark include worsening air quality, prolonged drought, extreme weather conditions, more intense flooding, and an increase in sea level rise. These threats will not affect everything and everyone equally. Some people and places are more exposed and/or more sensitive to climate impacts. As such, the increased risk of natural hazards as a result of climate change, including local vulnerabilities, are addressed within each hazard section as applicable.

RELATIONSHIP TO OTHER GENERAL PLAN ELEMENTS

To ensure that the General Plan is consistent across elements, hazards discussed in the Safety Element are related to other elements of the General Plan, including Land Use, Transportation, Housing, Economic Development, Conservation and Sustainability, and Parks, Recreation, and Open Space. Some of these relationships between other General Plan Elements and this Safety Element are summarized and illustrated below:

- Policies related to areas at risk of recurring flooding, dam failure, extreme weather, and wildfire are found in the **Land Use and Conservation and Sustainability Elements**.
- Policies associated with secondary access during an emergency are found in the **Transportation Element**.
- Policies important to resilience planning in urban development as well as protecting critical facilities from hazardous threats are found in **Land Use, Housing, and Economic Development Elements**.
- Policies related to maintaining recreation and open space to avoid hazards such as wildfire are found in the **Parks, Recreation, and Open Space Element**. Water quality is addressed in the **Conservation and Sustainability Element**.
- Police and fire services are covered in the **Community Services and Facilities Element**.

Taken together, the policies in the General Plan minimize risks, protect the quality of life, and provide a foundation for response and recovery when disaster strikes. References to related policies are provided where appropriate within the Safety Element.

STATUTORY REQUIREMENTS

California Government Code Section 65302 (g) includes the requirements that should be addressed in a community's General Plan Safety Element. These requirements are organized into nine subsections [65302 (g) (1) through 65302 (g) (9)], which are summarized below:

- 65302 (g) (1) identifies the primary hazards/issues that should be included in the Safety Element, which include: seismically induced surface rupture, ground shaking, ground failure, slope instability leading to mudslides and landslides, tsunami, seiche, dam failure, flooding, subsidence, liquefaction, other geologic hazards, wildland and urban fires, evacuation routes, military installations, peak load water supply requirements, and minimum road widths and clearances around structures, as those items relate to identified fire and geologic hazards.
- 65302 (g) (2) adopted through AB 162 (2007) identifies the requirements to update floodplain mapping and information, which includes special requirements.
- 65302 (g) (3) adopted through SB 1241 (2012) identifies the requirements for updating wildfire mapping, information, and goals and policies to address wildfire hazards.
- 65302 (g) (4) adopted through SB 379 (2015) identifies the requirements for updating the safety element to address potential impacts associated with climate change and potential strategies to adapt/mitigate these hazards.
- 65302 (g) (5) adopted through SB 99 (2019) requires identification of specified evacuation constraints associated with residential developments.
- 65302 (g) (6) adopted through SB 1035 (2018) requires the update of the safety element every time the housing element or local hazard mitigation plan is updated.
- 65302 (g) (7) allows for the incorporation of a flood plain management ordinance into the safety element.
- 65302 (g) (8) requires consultation with the California Geological Survey, California Office of Emergency Services.

- 65302 (g) (9) allows cities to adopt a County Safety Element if adequate detail is provided to address city-level concerns.

Additionally, California Government Code Section 65302.15 was adopted through Assembly Bill (AB) 747 (2019) and includes the requirement to identify evacuation routes and their capacity, safety, and viability under a range of emergency scenarios.

AB 2140

In 2006, the state adopted Assembly Bill (AB) 2140 which added provisions specifying what is to be included in a Local Hazard Mitigation Plan (LHMP) and requiring a linkage between a local jurisdiction's LHMP and the Safety Element of their General Plan. AB 2140 requires a jurisdiction to adopt the LHMP into the Safety Element of the General Plan in order to be fully eligible for disaster relief funding under the California Disaster Assistance Act. AB 2140 can be met by either including the LHMP language specific to AB 2140 as part of the Safety Element or by incorporating the LHMP by reference into the Safety Element of the General Plan.

The City of Newark has a current LHMP which includes an assessment of the City's risk and vulnerability related to natural and other identified hazards, and a comprehensive mitigation strategy which includes actions and projects designed to mitigate or reduce the impacts of those hazards and to increase community resiliency. This LHMP has been formally adopted and incorporated by reference into the Safety Element of the General Plan via City Council Resolution No. 10,690.

To further meet the requirements of AB 2140, the City of Newark adopts and incorporates by reference the most current LHMP as part of this Safety Element to the General Plan which should be consulted when addressing known hazards to ensure the general health and safety of people within the city.

As of 2023, updates to the LHMP for the City of Newark planning area are being prepared in accordance with the Disaster Mitigation Act of 2000 (DMA 2000) and follow FEMA's 2023 Local Hazard Mitigation Plan guidance. The LHMP incorporates a process where hazards are identified and profiled, the people and facilities at risk are analyzed, and mitigation actions are developed to reduce or eliminate hazard risk. The implementation of these mitigation actions, which include both short

and long-term strategies, involves planning, policy changes, programs, projects, and other activities.

The City of Newark Local Hazard Mitigation Plan can be accessed [here](#).

SAFETY ELEMENT EXISTING CONDITIONS REPORT

The Safety Element Existing Conditions Report (**Appendix A**) provides detailed information on existing hazards, community vulnerabilities, and County capacity to respond to hazards. The information contained within the report provides the foundation for the update of the Safety Element, including the formulation of goals and policies. The reader should refer to the Existing Conditions Report in Appendix A, as well as the Multi-Jurisdictional Hazard Mitigation Plan (MJHMP) described below, for the most up-to-date and comprehensive information on hazards impacting the city.

UNION CITY/NEWARK MULTI-JURISDICTIONAL HAZARD MITIGATION PLAN

In 2016, the cities of Union City and Newark teamed together to prepare an updated MJHMP that would best suit local needs and capabilities of the two cities and local special districts. The plan was adopted in 2017 and represents an update to each city's component of the Association of Bay Area Governments 2010 MJHMP for the San Francisco Bay Area. The MJHMP identifies resources, information, and mitigation strategies for reducing risk from natural hazards. The risk assessments for each hazard have been summarized and incorporated into this Element to serve as important background and context for the preparation of goals, policies, and actions. Many of the MJHMP mitigation measures have also been incorporated into the goals and policies of the Safety Element.

COMMUNITY INPUT

From the outset, the intent of the Newark Safety Element Update has been to create a plan that understands and responds to community needs and desires. Many Newark community members and stakeholders informed the development of this Safety Element through community surveys, public workshops, and stakeholder meetings. Each

hazard topic in this Safety Element concludes with a section on community and stakeholder input, which summarizes feedback received through the survey, community workshops, and stakeholder meetings related to each topic. Input received from the public engagement activities informed the development of policies and actions in this Safety Element.

2. EXISTING CONDITIONS

AIR QUALITY

Air quality is an important contributor to health and quality of life. Poor air quality can harm community and personal health as well as the environment, and cause property damage. Poor air quality has been linked to respiratory complications such as asthma, pulmonary disease, pneumonia, bronchitis, and other infections, as well as cardiovascular issues such as heart disease, heart failure, and cardiac arrest.

According to the California Healthy Places Index, the city of Newark has a high existing rate of asthma cases as compared to other cities in California (the asthma rate in the City is higher than 84% of the census tracts in California) (HPI, 2022). In addition, higher incidences of asthma and cardiovascular disease occur near the intersection of I-880 and SR 84, making these census tracts more vulnerable to the impacts of air pollution (EDF, 2021).

Air quality is regulated at all levels of government. California has adopted legislation to address air quality issues that are as restrictive or more restrictive than national standards. The California Air Resources Board (CARB) is responsible for developing plans to meet the federal and state standards. Air quality is also the focus of several local and regional initiatives relating to land use and transportation planning. Newark and other surrounding jurisdictions work closely with CARB and other regional agencies to ensure healthy air quality.

Local Conditions

According to the U.S. Environmental Protection Agency (EPA), an independent executive agency tasked with environmental protection matters, there are several major air pollutants of concern found all over the United States. These major pollutants and their primary pollutant sources are listed in **Table SAF-1**.

TABLE SAF-1 MAJOR AIR POLLUTANT SOURCES	
Pollutants	Major Pollutant Sources
Ozone	Motor vehicles, paints, coatings, and solvents
Carbon Monoxide (CO)	Internal combustion engines, primarily gasoline-powered motor vehicles
Nitrogen Oxides	Motor vehicles, petroleum-refining operations, industrial sources, aircraft, ships, and railroads
Sulfur Dioxide	Fuel combustion, chemical plants, sulfur recovery plants, and metal processing
Suspended Particulate Matter (PM _{2.5} and PM ₁₀)	Dust- and fume-producing construction, industrial, and agricultural operations, combustion, atmospheric photochemical reactions, and natural activities (e.g., wind-raised dust and ocean sprays)

SOURCE: California Air Resources Board (CARB, n.d.)

Particulate matter (PM) includes finely divided solids or liquids such as dust, fly ash, soot, smoke, aerosols, fumes, mists, and condensing vapors that can be suspended in the air for extended periods of time. Sources of particulate matter are from both human and natural activities. A significant portion of PM sources is generated in agricultural operations, industrial processes, combustion of wood, coal and gas, construction and demolition activities, road dust, windblown dust, and wildfires. Days with stagnant air have much higher particle concentrations than days with air partially “scrubbed” by rain or wind. Because of their small size, fine particles outdoors can penetrate into homes and buildings.

Newark is located in the San Francisco Bay Area, where common pollutants of greatest concern are ozone, diesel particulate matter, and fine particulate matter (BAAQMD, 2016). The areas in the city with the highest exposure to these pollutants are those portions of the community located adjacent to Highway 880 and the Dumbarton Bridge. **Figure SAF-1 and Figure SAF-2** show the relative pollution burden of PM_{2.5} and diesel particulate matter in Newark. These figures compare census tracts within the City to identify areas that are more burdened by **particulate matter** pollution than other areas in the city.

Compared to the County as a whole Newark has relatively lower levels of pollution across the city. When looking at the city in isolation (**Figure SAF-1**) we see that the areas in the Northern part have more concentrated levels. In the Bay Area, a certain amount of air pollution comes from industrial sources such as refineries and power plants. As identified in the Economic Development Element, industrial land uses in Newark are concentrated in the southern and western portions of the city. But a greater percentage of harmful air emissions comes from cars and trucks, construction equipment, and other motor vehicles. In

the wintertime, the largest single source of air pollution, in addition to the sources previously mentioned, is residential wood burning (BAAQMD, 2016). Increased population and human activity, such as industrial activity, will worsen greenhouse gas emissions and air quality conditions.

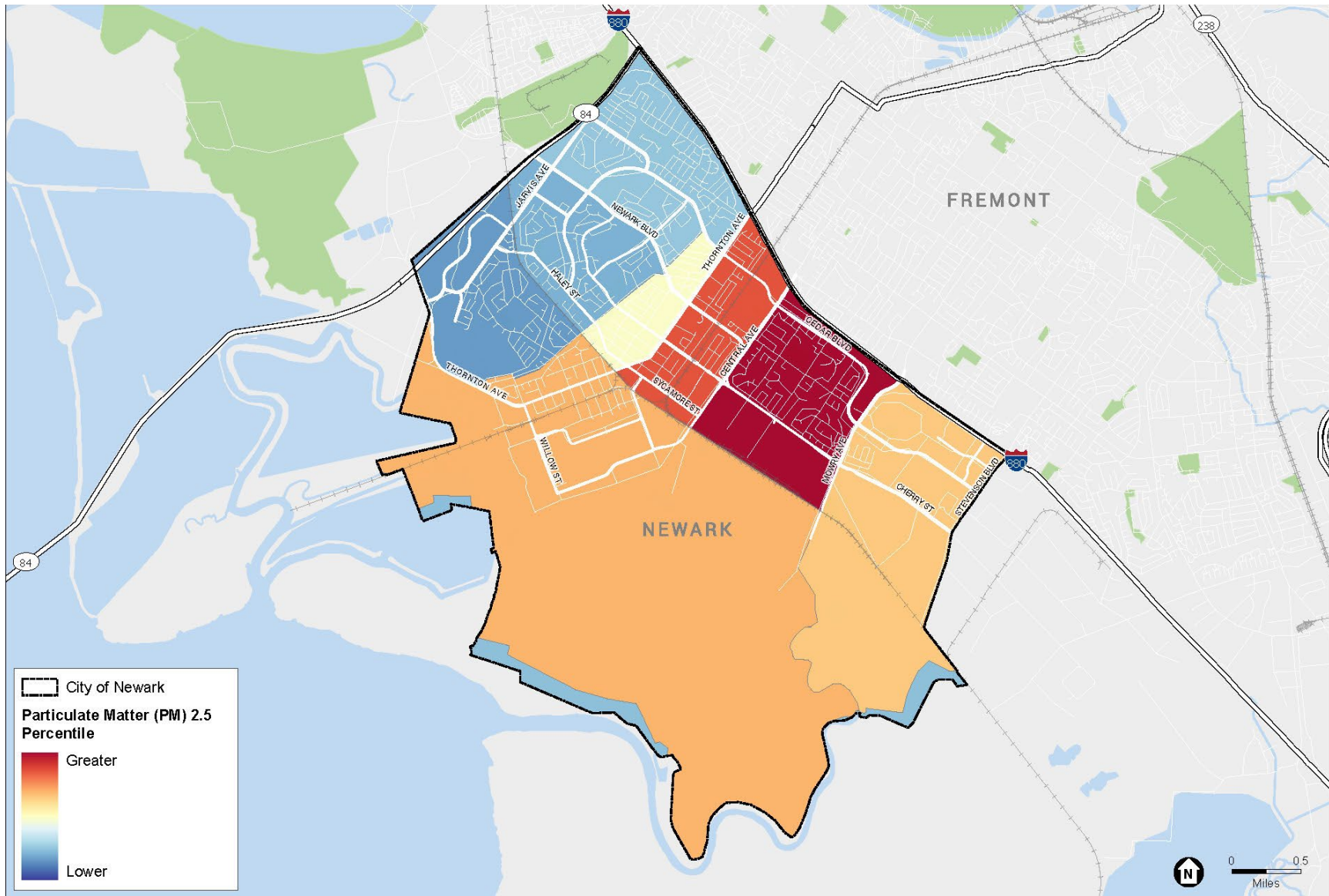


FIGURE SAF-1 CITY OF NEWARK PARTICULATE MATTER (PM_{2.5}) POLLUTION

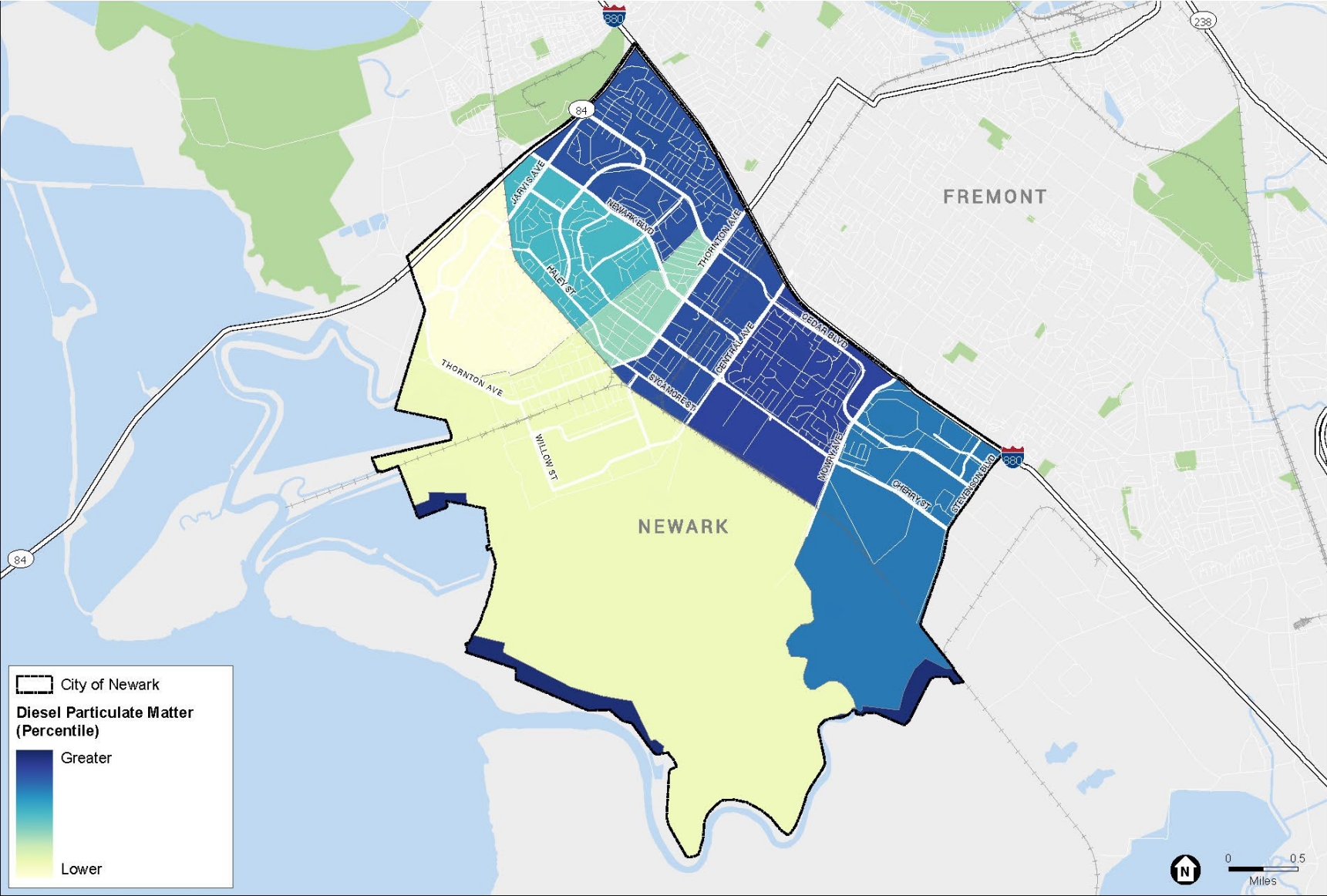


FIGURE SAF-2 CITY OF NEWARK DIESEL PARTICULATE MATTER POLLUTION

Local Vulnerabilities

Populations that are particularly vulnerable to air pollution include the elderly, children, pregnant women, unsheltered individuals, outdoor workers, individuals without healthcare, and individuals with pre-existing health conditions, such as asthma, cardiovascular disease, or cancer, that may be exacerbated by poor air quality. **Table SAF-2** lists the percentages of Newark residents affected by health conditions that are linked to poor air quality. These health conditions can also be linked to a variety of factors, including but not limited to genetics, diet, lack of exercise, smoking, and exposure to air pollution. Overall, these health conditions in Newark are higher than 50% of census tracts across the state of California (OEHHA, 2022).

TABLE SAF-2 NEWARK POPULATION HEALTH STATISTICS		
Health Indicator	Percent of Newark Residents	Percent of Alameda County Residents
Asthma	2.1%	2.3%
Cancer (except Skin Cancer)	5.0%	5.3%
Coronary Heart Disease	4.2%	4.4%

SOURCE: PHASoCal, 2022; CDC, 2019; Healthy Alameda County, 2018.

Days with poor air quality can result in secondary impacts, such as missed days of work and school. Additionally, as evidenced by the wildfire season of 2020, poor air quality can lead to the need to shelter in place within homes. Although temporary, being restricted to home can reduce people’s ability to access services and social connections within their communities.

Local Initiatives

The City of Newark works closely with regional and state agencies to ensure safe and healthy air quality within the city and across the greater San Francisco Bay Area as a whole. In addition to county programs, the City of Newark, the State of California, and the federal government also have programs that help reduce poor air quality. These are described below.

Bay Area Air Quality Management District

The Bay Area Air Quality Management District (BAAQMD) is the primary agency that regulates air pollution control in the San Francisco Bay Area. BAAQMD conducts air quality permitting, monitoring, and enforcement of national and state emission standards. It also provides informational materials and alerts regarding air quality conditions and public health concerns. With increasing concerns of climate change, the BAAQMD prioritizes emissions reductions from mobile sources through sound land use planning practices, innovative technology, and policy development.

The agency works collaboratively with other agencies such as the Alameda County Transportation Commission and the Metropolitan Transportation Commission to develop air quality improvement strategies at the regional and local levels. In addition, BAAQMD generally considers areas within 500 feet of freeways and high-volume roadways (more than 10,000 vehicles per day) to have higher potential risks. Accordingly, future housing developments and other new sensitive receptors near State Route (SR) 84 and Interstate 880 (I-880) may need to incorporate special site planning and construction features to reduce risk exposure.

BAAQMD Spare the Air Program

The Spare the Air program is a regional program that encompasses seven Bay Area counties as well as half of Solano and Sonoma Counties, including the city of Newark in Alameda County (BAAQMD, 2014). Spare the Air was created by BAAQMD to alert residents when air quality is forecast to be unhealthy during winter and summer and during wildfires, and to share information on ways to reduce air pollution. Residents who are sensitive to unhealthy air are advised to limit their time outdoors, especially in the afternoon, when temperatures are warmer and ozone levels rise. Spare the Air alerts can be sent via text, email, or through the free Spare the Air cell phone application.

Additional BAAQMD programs in the Spare the Air program include behavior change campaigns to reduce vehicle trips and long commute times, neighborhood outreach, programs providing high-efficiency air



Image courtesy of BAAQMD

filtration for those who are most vulnerable to wildfire smoke and air pollution, and educational materials to help understand air quality and air pollution.

Newark Climate Action Plan

On January 28, 2010, the City of Newark adopted the Climate Action Plan (CAP) Initial Framework. The CAP Initial Framework includes an inventory of greenhouse gas (GHG) emission producing activities in the community and specifically from municipal activity. Based on the inventory results, the CAP recommends multiple actions and timelines to reduce emissions with cost analyses where possible. These goals and actions were proposed to occur over a short-term (1-4 years), mid-term (4-8 years) or longer term (8 plus years) timeframe. Lastly, the CAP also establishes a monitoring plan to determine the effectiveness of implemented measures. The CAP is related to the Safety Element as it provides strategies and actions to reduce GHG emissions which cause air pollution in the City.

Overall, the Newark community, including city operations, businesses, residents and workers produce greenhouse gas emissions in a wide variety of ways. Some of these sources include:

- General economic and domestic activity which consumes electricity and natural gas
- Commuting by residents to their job within and outside of City limits, and by nonresidents commuting into the City for work
- Production of waste material that produces potent greenhouse gases when decomposing.
- The use of electricity and natural gas to power and heat City buildings and facilities.
- The use of gasoline, compressed natural gas, diesel fuel and other fossil-based fuels to power vehicles, equipment, compressors and other machinery.
- Emissions from the collection and disposal of waste from City facilities
- Public lighting, such as streetlights.

As the City looks forward towards the future, the Newark CAP is meant to be a dynamic document that will evolve, fill in and be re-evaluated on a regular basis, especially as climate science and policy continues to change.

KEY FINDINGS RELATED TO AIR QUALITY

- Areas in the city with the highest exposure to air pollutants are those portions of the community located adjacent to Highway 880 and the Dumbarton Bridge.
- Higher incidences of asthma and cardiovascular disease exist near the intersection of the I-880 and SR 84, making these census tracts more vulnerable to the impacts of air pollution.
- In addition to the harmful emissions coming from cars and trucks, residential wood burning activity in the wintertime is a significant source of air pollution.

COMMUNITY/STAKEHOLDER INPUT

The City released a community survey to elicit input on topics related to community hazards, sea-level rise, pollution, and air quality to get a better understanding of how the City can improve safety in Newark.

- Overall, respondents indicated the following relating to air quality and pollution in Newark: Air pollution connected to vehicular traffic and industrial activity (air pollution, dangerous fumes, and dumping of chemicals) is a significant concern for Newark residents.
- Wildfire pollution was also identified as an issue of concern for Newark residents.

DROUGHT AND WATER QUALITY

Drought occurs when a prolonged period of below-average levels of rainfall leads to a water shortage. Drought is affected by rainfall quantities and distribution, as well as temperature and snowpack levels. Warming global temperatures and decreases in snowpack can significantly worsen drought conditions, especially for regions that depend on snowpack for water supply – the State of California as a whole relies heavily on the Sierra Nevada snowpack as the primary source for water replenishment. During periods of drought, less water is available for delivery to communities, which affects drinking water as well as water for other uses (such as landscaping and irrigation, agriculture, energy, and cooling).

Water quality conditions can also change during drought due to impacts from other climate hazards, such as extreme heat, sea-level rise, high winds, and flooding. These events can exacerbate drought by adding pressure on existing supplies, polluting surface and ground waters, and reducing moisture levels in soils.

LOCAL CONDITIONS

The city of Newark receives water service from its retail water purveyor, the Alameda County Water District (ACWD), which provides water supplied from the State Water Project, the San Francisco Regional Water System, and local water supplies, including six ACWD wells that pump water from the groundwater basin.

Local and regional water resources are generally more abundant in the winter, from November to March, when the majority of the state's annual rainfall occurs. However, climate change is expected to shift historic trends and lead to more intense climate conditions, for both cold and wet periods and dry and warm periods (Tetra Tech, 2017).

Average annual rainfall is expected to increase from approximately 16 inches to 19 inches by late-century; however, the frequency and duration of rainfall is generally expected to decrease (Cal-Adapt 2021b). This means that future rainfall events will become more intense, as projected increases in rainfall will occur over shorter time periods. Additionally, dry periods are expected to occur with increased frequency, duration, and intensity. **Dry spells**, the maximum number of

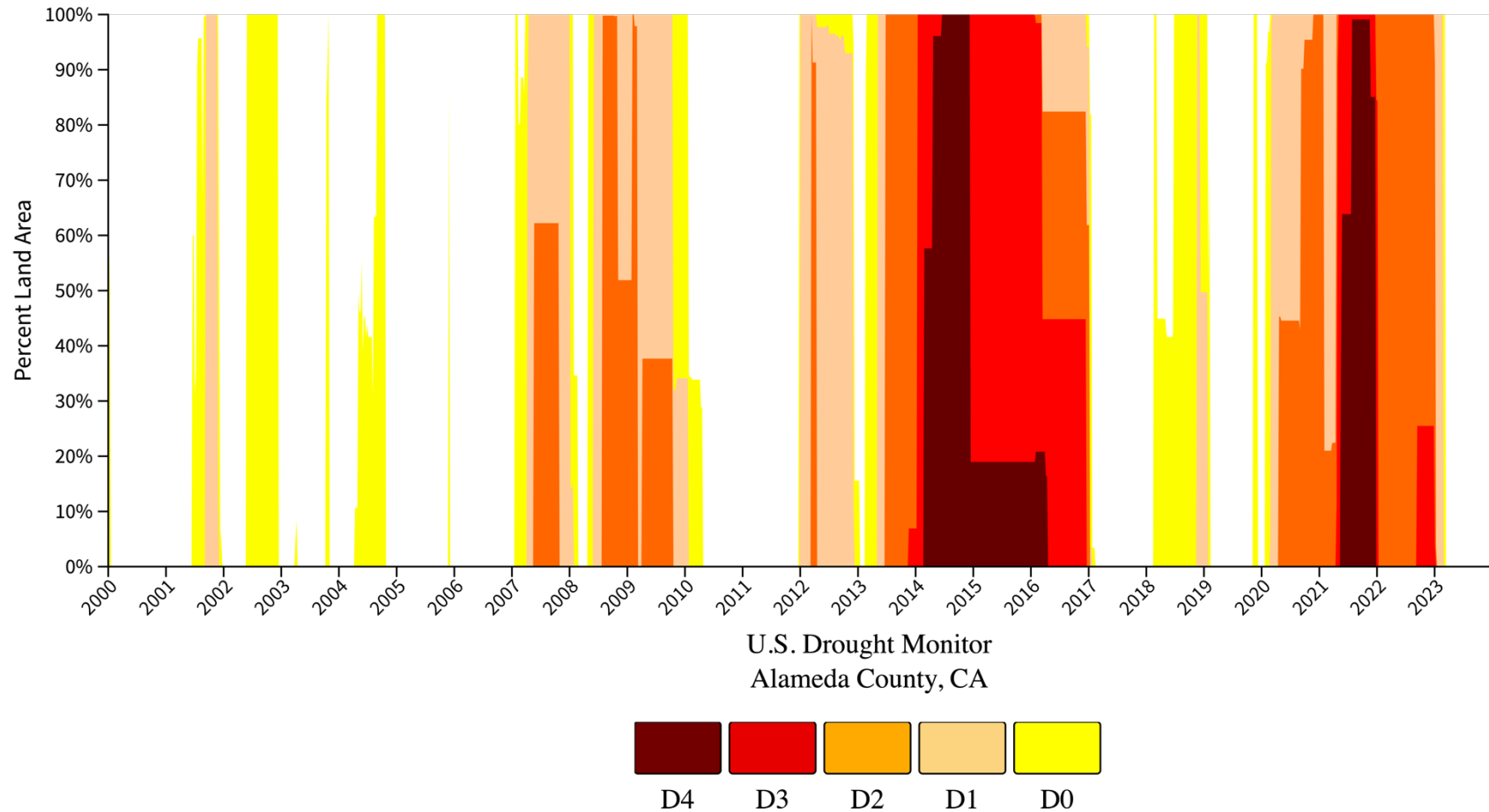
consecutive days without precipitation, are also expected to increase from a historic average of 123 days annually up to 135 days by late-century (Cal-Adapt 2021c). Overall, this will result in a shorter wet season and reduced water supplies that favor drought conditions.

The U.S. Drought Monitor classifies drought conditions using a five-category classification system, as shown in **Table SAF-3**. Conditions statewide vary according to the drought classification system. Local and regional agencies issue water shortage restrictions for residences, businesses, farming, and other activities according to drought conditions.

TABLE SAF-3 U.S. DROUGHT MONITOR CLASSIFICATIONS		
Category	Description	Impacts
D0	Abnormally Dry	<ul style="list-style-type: none"> Short-term dryness Growth of crops and pastures is slowed
D1	Moderate Drought	<ul style="list-style-type: none"> Impacts on crops and pastures Water shortages developing in reservoirs, streams, and wells Voluntary water restrictions
D2	Severe Drought	<ul style="list-style-type: none"> Loss of crops/pastures Water shortages Water restrictions issued
D3	Extreme Drought	<ul style="list-style-type: none"> Major loss of crops/pastures Widespread water restrictions and water shortages
D4	Exceptional Drought	<ul style="list-style-type: none"> Exceptional and widespread loss of crops/pastures Water shortages in reservoirs, streams, and wells Water emergency declarations

SOURCE: USDAM (2022b)

Figure SAF-3 shows drought conditions in Alameda County from 2000 to 2023. For the majority of 2023, the city was in D2 Severe Drought conditions. D2 Severe Drought conditions are when water reservoirs are low, river flow is decreased, trees and plants are stressed, and water temperatures are increased. Under these drought conditions, the fire season is extended, trees and plants are stressed, and water producers increase water efficiency methods (USDAM, 2022c).



SOURCE: USDM (2023a)

NOTES: Drought designations are D0 (Abnormally Dry); D1 (Moderate Drought); D2 (Severe Drought); D3 (Extreme Drought); and D4 (Exceptional Drought)

FIGURE SAF-3 DROUGHT CONDITIONS IN ALAMEDA COUNTY, 2000–2023

Water Quality

The health and quality of water resources can also affect potable water supplies. Drinking water contamination can be a byproduct of both natural and human sources. The presence of hazardous substances and pollutants in water sources can pose public health concerns, as contaminated water cannot be consumed safely and must be removed as a potable source until water quality conditions improve (Zeise, 2021). Contaminated waters can thus increase pressure on other water sources to meet the needs for water supply.

In Newark, pollution in surface water bodies and groundwater is affected primarily by urban runoff. There are numerous regulations in place at the state level that work to monitor negative impacts to water quality from urban runoff. Urban runoff is typically caused by heavy storms and groundwater threats that carry sediments and pollution from industrial and hazardous sites into water sources. Saltwater intrusion can also contribute to water pollution. Another threat to groundwater is from hazardous materials that leak into the ground, including diesel fuels, solvents, heavy metals, and pesticides. The presence of hazardous substances and pollutants in water sources can impact potable water supplies and pose public health concerns, as contaminated water cannot be consumed safely and therefore removes this water as a potable source until water quality conditions improve (Zeise and Blumenfeld, 2021). While drinking water quality is high, Newark has high levels of lead contamination and groundwater threats (OEHHA, 2021). See the Hazardous Materials section for information on hazardous materials in Newark.

Groundwater threats are relatively high in the city of Newark and the vicinity. **Figure SAF-4** shows groundwater threat sites in and near the city of Newark and shows a measure of pollution due to groundwater threats across census tracts in the city (OEHHA, 2021). There are 38 groundwater threat sites within the city, the majority of which are **cleanup sites** that have had unauthorized releases or discharges of pollutants that affect groundwater (SWRCB, 2021). Cleanup sites in Newark are clustered mostly near the center of the community and to the west. The city is within the top 17 percent of communities statewide that are most impacted by groundwater threats (OEHHA, 2021). The southernmost census tract of the city experiences greatest burden from groundwater threats, as shown in Figure SAF-4. Of note, the area

surrounding Jerry Raber Ash Street Park have the most groundwater threats. Additional areas in Newark with high groundwater threats are located along Enterprise Drive and between Thornton Avenue and Union Pacific Avenue. Several of the sites along Enterprise Drive are located in a higher-density residential neighborhood.

Secondary Hazards

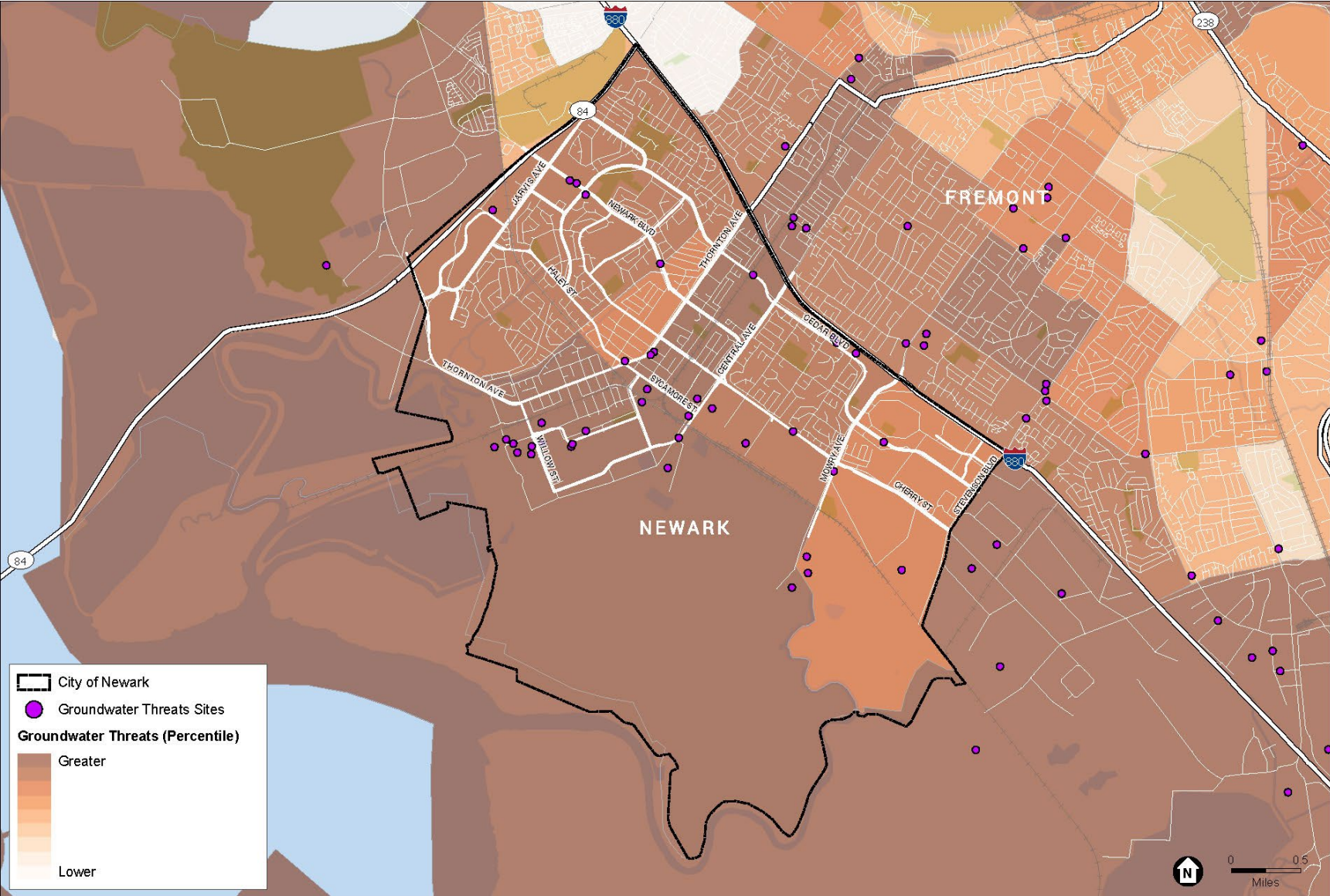
Wildfires are the most significant secondary hazard caused by drought. Prolonged precipitation and warmer temperatures create suitable, dry conditions that increase susceptibility for wildfires. In such cases, resources used for extinguishing fires have the potential to place further stress on limited water supplies and can extend drought periods. Drought conditions can also decrease soil moisture and lead to plant and crop death, impacting food resources, reducing natural benefits from evaporative cooling, and contributing to higher temperatures. Dust levels can also increase due to drought conditions and pose increased dangers to public health (Hall et al., 2018).

Employment and economic losses are also considered a secondary impact from drought. Past economic analyses of drought conditions on California's economy have shown how prolonged drought can have cascading impacts relating to public health and job loss, such as those discussed in the following section on vulnerabilities.

LOCAL VULNERABILITIES

Drought conditions have the potential to affect numerous aspects, including water availability, water restrictions, water quality, access to recreational areas, air quality, health impacts, and economic impacts.

Populations that are most vulnerable during droughts include those that are low-income, outdoor workers, and those who are unsheltered or experiencing homelessness. These groups are at greater risk from increased costs to water and fresh produce, which can affect food security, public health, and financial stability. Individuals with existing health conditions are more susceptible to risk from secondary hazards, particularly wildfires. Drought conditions that facilitate wildfires can lead to smoke and worsening air quality. This has the potential to exacerbate asthma and other respiratory illnesses for individuals with existing conditions (SF DPH, 2014).



SOURCE: OEHA (2021)

FIGURE SAF-4 GROUNDWATER THREATS IN NEWARK (CENSUS TRACT AVERAGE)

The physical assets and infrastructure that are at risk from drought conditions include public facilities and services that rely on water to operate, such as water supply infrastructure, and parks and trees. Industries that rely on water can experience impacts related to potential revenue and employment, in addition to widespread economic losses.

Further, as drought strains water supplies, sanctions are placed primarily on recreation, natural areas, and agriculture to help with conservation. This increases vulnerability of these systems as they generally become the first to experience water restrictions and will have to endure for longer periods of time. This affects wildlife, trees and plants, habitats, and water bodies.

The health of water bodies also becomes more significant during periods of extreme drought, as pollution and contamination of water sources can further limit the water supply. This can cause further strain on people, plants and wildlife, and the natural environment.

LOCAL INITIATIVES

Water quality standards are regulated at all levels of government. At the local level, the Alameda County Water District (ACWD) provides water to Newark, Fremont, and Union City from the following sources:

- The State Water Project supplies approximately 40 percent of ACWD's water from dams and reservoirs.
- San Francisco Regional Water System provides approximately 20 percent of ACWD's water through the Hetch Hetchy aqueduct (ACWD, 2020).
- The remaining 40 percent comes from local water sources including groundwater from the Niles Cone Groundwater Basin, surface water from the Del Valle Reservoir and desalinated brackish groundwater (ACWD, 2020).

Before the ACWD distributes water to its customers, it is treated to meet all State and Federal drinking water standards (Newark, 2013). The ACWD also manages state mandated programs to ensure that drinking water is safe from lead contamination. In order to ensure that tap water is safe to drink, the EPA and the California Department of Public Health (CDPH) prescribe regulations that limit the amount of certain contaminants in water provided by public water systems.

Department regulations also establish limits for contaminants in bottled water that must provide the same protection for public health. CDPH regulations are in many cases more stringent than federal ones.

In addition, the ACWD monitors and manages drought restrictions for the region through the following initiatives, among others:

- The ACWD The Water Shortage Contingency Plan (WSCP) addresses drought impacts and outlines procedures for potential water shortages, disruptions to water service, and other water supply and service emergencies. The WSCP outlines steps to address water shortages, including guidance for communities and individuals to engage in voluntary reductions in water uses, educational outreach on water conservation, and promotion of water use efficiency opportunities for residential, commercial, business, and other customers (ACWD, 2021b).
- The Water Efficiency Master Plan (WEMP) serves as a roadmap for ensuring the sustainable and long-term water supply reliability for Newark, Fremont, and Union City. The WEMP outlines recommendations for improving indoor, outdoor, and commercial water use efficiency; retrofit programs for efficient water fixtures; residential and large landscape water surveys; incentives for irrigation and landscape upgrades; and outreach for conservation and water efficient practices (ACWD 2021a).
- The ACWD is working to recharge the Niles Cone Groundwater Basin, which contains saltwater as a result of seawater intrusion from the early 1900s. The ACWD is improving the water quality through groundwater monitoring and reducing future risk of seawater intrusion and urban pollution (City of Newark, 2013). This is significant, as pollution to this resource puts strain on other stressed water bodies.
- The ACWD receives water from the Newark Desalination (Desal) Facility, which uses a filtration process to treat brackish groundwater and produce potable water for delivery (ACWD, 2022). Saltwater from the Niles Cone Groundwater Basin is pumped through the Desal Facility and turned into drinking water, which helps reduce dependence on outside water sources and increases reliability of the local water supply.

In addition to ACWD and state initiatives, the City of Newark adopted the City of Newark Green Stormwater Infrastructure Plan (GSI Plan) in 2019. The purpose of the GSI Plan is to guide the identification, implementation, tracking, and reporting of green infrastructure projects within the city of Newark. These projects provide a number of benefits if implemented, including filtering out pollutants from stormwater, replenishing groundwater reserves, and helping to enhance air and water quality.

KEY FINDINGS

- Temperatures and duration of dry spells will increase, while wet periods will bring more intense rainfall over shorter periods. These changes facilitate future drought conditions.
- In Newark, urban runoff contributes to pollution in surface water bodies and groundwater, typically caused by heavy storms that carry pollution from sediments and industrial and hazardous sites into water sources. Saltwater intrusion, and hazardous material leakage can also contribute to water pollution.
- There are several cleanup sites located in the central and western portions of the city, posing additional risks to water bodies and sensitive populations.
- Groundwater contamination caused by hazardous waste sites is also a significant threat in Newark. Of note, the areas surrounding Jerry Raber Ash Street Park and along Enterprise Drive and between Thornton Avenue and Union Pacific Avenue have high groundwater threats.
- While drinking water quality is high, Newark has high levels of lead contamination in the existing housing stock (OEHHA, 2022).
- Drought conditions create suitable conditions for wildfires, which can worsen water quality and availability and cause impacts to public health.
- Groups that are most vulnerable to drought include low-income populations, homeless, and outdoor workers.

COMMUNITY/STAKEHOLDER INPUT

The City released a community survey to elicit input on topics related to community hazards, sea-level rise, pollution, and air quality to get a better understanding of how the City can improve safety in Newark.

Overall, respondents indicated the following relating to drought and water quality in Newark:

- Multi-year drought is the top hazard of concern for Newark residents, over sea-level rise, flooding, and earthquakes.
- There is concern regarding insufficient water availability to support Newark households as well as how overcrowding will add stress to water resources and conservation efforts.
- Wetlands and lake areas are in need of protection from climate change impacts.
- There is concern for the health and water quality of the Lakeshore Park Lake.
- There is significant concern for environmental pollution from traffic, industrial activity, and hazardous materials; however, there is lower concern toward poor-quality of drinking water in the community.
- Residents commented on potential for desalination plants to address long-term droughts.

EXTREME WEATHER

As climate change continues to increase global temperatures, it is expected to shift the frequency, duration and intensity of severe weather patterns, particularly extreme heat and precipitation. **Extreme weather** refers to highly unusual conditions and events that can cause devastating impacts on global systems, including humans, ecosystems, and the built environment (USDA, 2022). **Extreme heat** describes days where prolonged, maximum temperatures exceed historical baselines,¹ while **extreme heat events** or **heat waves** refer to periods of four or more consecutive extreme heat days, often accompanied by high humidity (Cal-Adapt, 2021a).

LOCAL CONDITIONS

Weather in the Bay Area is characterized by a Mediterranean climate, with cool, wet winters and warm, dry summers. The regional topography and ocean proximity generally result in a lower daily temperature compared to other areas of the state. However, increasing greenhouse gas emissions from climate change are expected to result in an increase in average temperatures by mid-century,² as well as more intense storms and rainfall (Ackerly et al., 2018).

Extreme Heat and Precipitation

Extreme heat days in Newark are expected to increase from 5 days a year historically to between 16 and 27 days a year by the end of the century (Cal-Adapt, 2021a). Heat wave events may also increase, from zero a year historically up to three a year by end of century. Annual average maximum temperatures are also expected to increase, from a historic average of 68 degrees up to 76 degrees Fahrenheit by 2100 (Cal-Adapt, 2021b).

Warming temperatures and extreme heat days have the potential to increase public health emergencies for heat-related illnesses, including heat cramps, severe heat exhaustion, heat stress, and heat stroke, and can worsen existing health conditions for individuals such as asthma, heart disease, and respiratory illnesses (Cal OES, 2018).

¹ Cal-Adapt uses a historical baseline of 1961 to 1990.

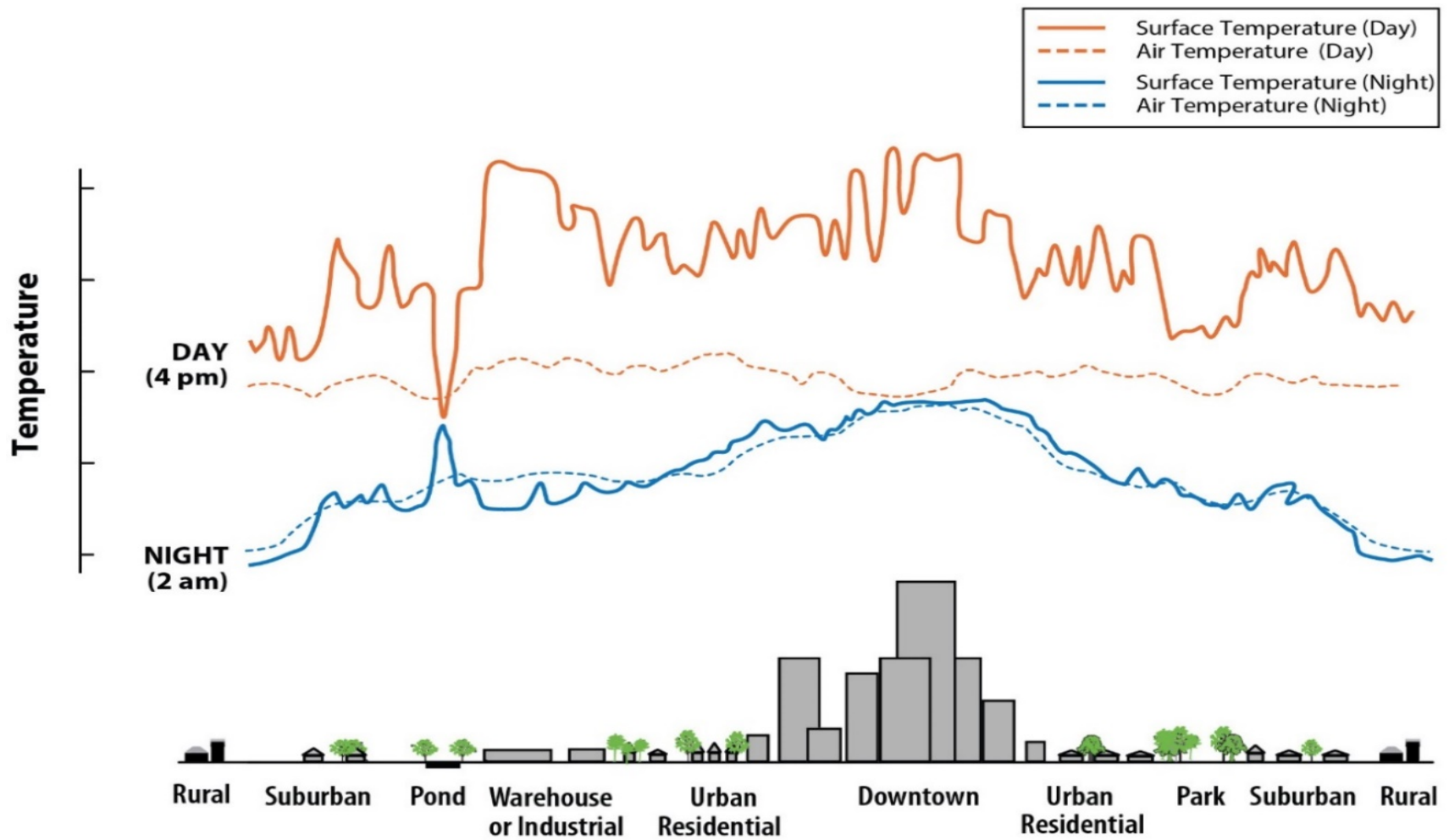
² Mid-century is defined as the period between 2035 to 2064.

Precipitation levels are also expected to shift significantly, with greater variability in average annual rainfall by the end of the century. In Newark, annual rainfall is expected to increase from 14 to 17 inches historically to between 13 to 21 inches by the end of the century (Cal-Adapt, 2021c).

Urban Heat Island Effect and Urban Greening

Urban communities, including Newark, will be affected more severely due to the **urban heat island effect**, a phenomenon where buildings, dark pavements, and urban infrastructure absorb and re-emit the sun's heat with more intensity than the natural landscape does (EPA, 2021). **Figure SAF-5** illustrates the urban heat island effect across urban and rural communities. Cities and urban neighborhoods experience higher daytime and nighttime temperatures (orange and blue lines, respectively) relative to less urban or rural areas.

Urban greening, such as tree canopy and parks, can contribute to local temperature conditions in communities. Trees are essential to mitigating the effects of climate change, especially extreme heat, as they provide natural cooling to surrounding areas, provide shade relief, and promote health and wellness (PHASoCal, 2018). As such, urban communities with more tree canopy and green surfaces are likely to experience lower effects from the urban heat island effect.



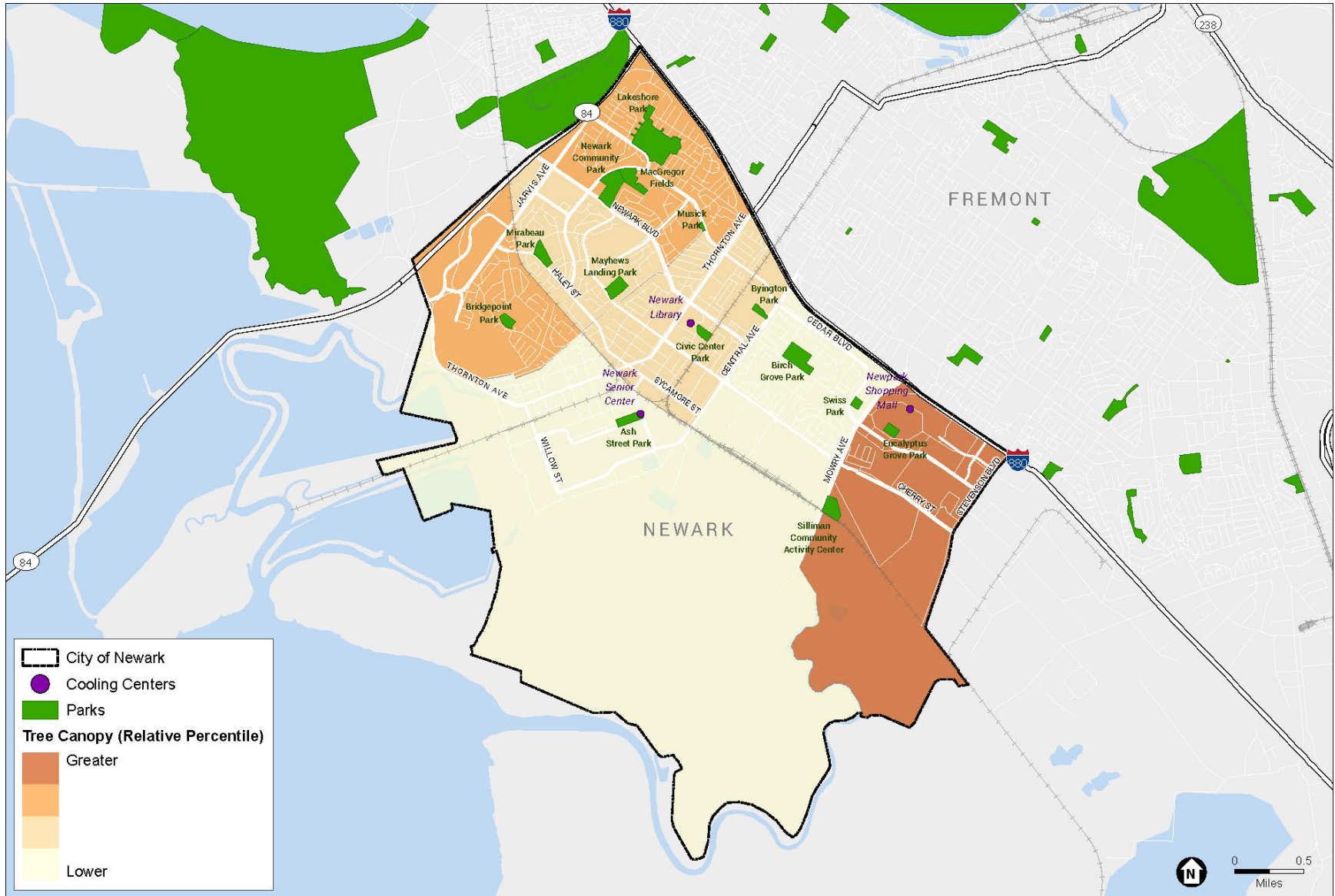
SOURCE: EPA (2021)

FIGURE SAF-5 URBAN HEAT ISLAND EFFECT

The availability of designated public spaces that serve as cooling centers can also provide relief from extreme heat and heat events. The city of Newark has three designated and publicly accessible **cooling centers** that serve as safe locations for individuals to get out of extreme heat temperatures, and have access to air conditioning and other resources and amenities (Alameda County, 2019). These are located at the Newark Library, Senior Center, and NewPark Shopping Mall. Access to these centers can help provide relief during extreme heat days, especially since approximately 64 percent of Newark households lack air conditioning (PHASoCal, 2018). Individuals lacking access to air conditioning and community cooling centers are more vulnerable, as these resources provide critical protection against extreme heat.



Figure SAF-6 shows the location of parks and cooling centers in the community, in addition to land with tree canopy. Approximately 5 percent of the city's land surface has tree canopy, and most residents (81 percent) live within a half-mile of a park or open space areas (TPL, 2022). Residential neighborhoods in the southwestern portion of the city, west of Willow Street, and near the eastern boundary of the city are outside of a half-mile of both parks and open spaces. Neighborhoods along the northwestern and eastern edges of the city have the most tree canopy compared to other areas of the city, while neighborhoods between Central and Mowry Avenue have the least.



SOURCE: ESA, 2022.

FIGURE SAF-6 URBAN GREENING IN NEWARK

Secondary Hazards

Warming global temperatures are projected to cause more negative health events and create suitable conditions for other harmful hazards over time. For instance, higher temperatures can contribute to increases in harmful air pollutants, exacerbating health conditions for individuals with existing health concerns, such as asthma, which affects approximately 8 percent of the population (PHASoCal, 2018). Other significant secondary hazards from extreme weather and heat include:

- More frequent and intense wildfires that last longer in duration, are more intense, and contribute further to increasing temperatures and worsening pollution.
- Worsening drought conditions that affect water resources, plants and trees, biodiversity, food production, wildlife and other sectors.
- Impacts to the economy and jobs, including stress on healthcare and government operations that are critical to emergency response and are likely to experience increased pressure due to funding and staffing to address more heat-related illnesses.
- Increased temperatures of outdoor areas lacking in canopy and cooling, as well as reductions in visitors due to heat conditions.
- Stress and loss of plants and biodiversity, affecting trails and open space amenities.
- Increases in local and regional energy demand as communities seek cooling relief. This can cause increased costs for customers and can contribute to blackouts caused by energy spikes during heat waves.
- Decreased use of active transportation modes, as extreme weather may create uncomfortable and unsafe conditions.
- Potential for missed school and work days due to heat-related illnesses that can affect income stability for vulnerable populations.

LOCAL VULNERABILITIES

Extreme weather and heat can have severe impacts to people, infrastructure, and the environment. Extreme heat is the cause of more annual deaths across the United States than other weather hazards, including floods, storms, and lightning combined (Bedsworth et al., 2018). All individuals are at risk from extreme heat impacts, which pose a significant danger to human health. Some groups and

individuals have greater risk and sensitivity to these impacts, including individuals with preexisting health conditions, children, elderly, outdoor workers, people experiencing homelessness, and low-income individuals, among others.

Extreme heat can also affect buildings and infrastructure due to increases in the need and use of air conditioning, cooling centers, emergency response operations, healthcare facilities, and staffing and labor. Infrastructure impacts are often related to increasing energy costs; overheating of ventilation, heating and air conditioning (HVAC) systems; and/or lack of adequate HVAC systems, insulation, and air conditioning. Extreme heat can also lead to power outages caused by added stress on the electrical grid as demand for cooling is increased. Power outages can also result in traffic disruptions and resulting delays in emergency response. **Active transportation modes**, including walking paths and bikeways, may also be affected in terms of use and benefit to communities.

Extreme weather can also affect wildlife, plants and trees, and water resources. Extreme weather can make certain crops more vulnerable to diseases and pests, which can affect food supplies and availability from local to global scales.

LOCAL INITIATIVES

In 2007, the City signed the U.S. Conference of Mayors Climate Protection Agreement, with the goal of reducing local pollution, and in 2010 the City completed its Climate Action Plan Initial Framework to guide sustainability initiatives and address local climate issues. The City has expanded on these efforts over the years with programs and projects that help address greenhouse gas emissions and extreme weather impacts, including the following:

- The Street Tree Management Program develops and maintains a safe and healthy urban forest, which includes caring for trees, ensuring proper pruning and planting techniques, and replacing dead or dying trees. The City ensures that removed trees are replaced at the same location or somewhere else in the city, as suitable, and has an approved list of appropriate species for planting in Newark (City of Newark, 2022). This practice helps

to ensure trees are maintained sustainably and continue to provide natural cooling benefits to the community.

- The Pavement Maintenance Program helps to extend the life of streets and pavement areas through maintenance, resurfacing, and cool pavements. Cool pavements are able to provide local cooling benefits, with slurry resurfacing and seal that fades to gray, helping to combat the urban heat island effect (City of Newark, 2010).
- The 2016 Hazard Mitigation Plan for the city identifies extreme weather hazards and vulnerabilities within the community. The plan also provides recommended actions for mitigation and resiliency.
- The 2019 Green Stormwater Infrastructure Plan provides a guide for green infrastructure projects within Newark. These projects help to address weather runoff that occurs from precipitation in a sustainable manner (City of Newark, 2019).

KEY FINDINGS

- Average temperatures, extreme heat days, and the urban heat island effect are expected to worsen by the end of the century, creating a new “normal” of warmer climate conditions in Newark.
- Warmer temperatures increase the risk for heat-related illnesses, which can be deadly.
- Approximately 64 percent of Newark households lack air conditioning, which increases risk of exposure and heat-related illnesses for residents (PHASoCal, 2018).
- Residential neighborhoods in the southwestern and eastern areas of the city are outside of a half-mile radius to parks and designated cooling centers. Residents in these neighborhoods may be more vulnerable to extreme heat impacts as there is lower access to cooling amenities.
- There is less tree canopy near the center of the community, between Central and Mowry Ave.

COMMUNITY/STAKEHOLDER INPUT

The City released a community survey to elicit input on topics related to community hazards, sea-level rise, pollution, and air quality to get a better understanding of how the City can improve safety in Newark.

Overall, respondents indicated the following relating to extreme weather in Newark:

- There is community concern regarding more frequent and intense heat waves.
- There is need for increasing trees and drought-tolerant plants and landscaping in the community.



Wetlands near Newark. *Courtesy of KQED Website.*

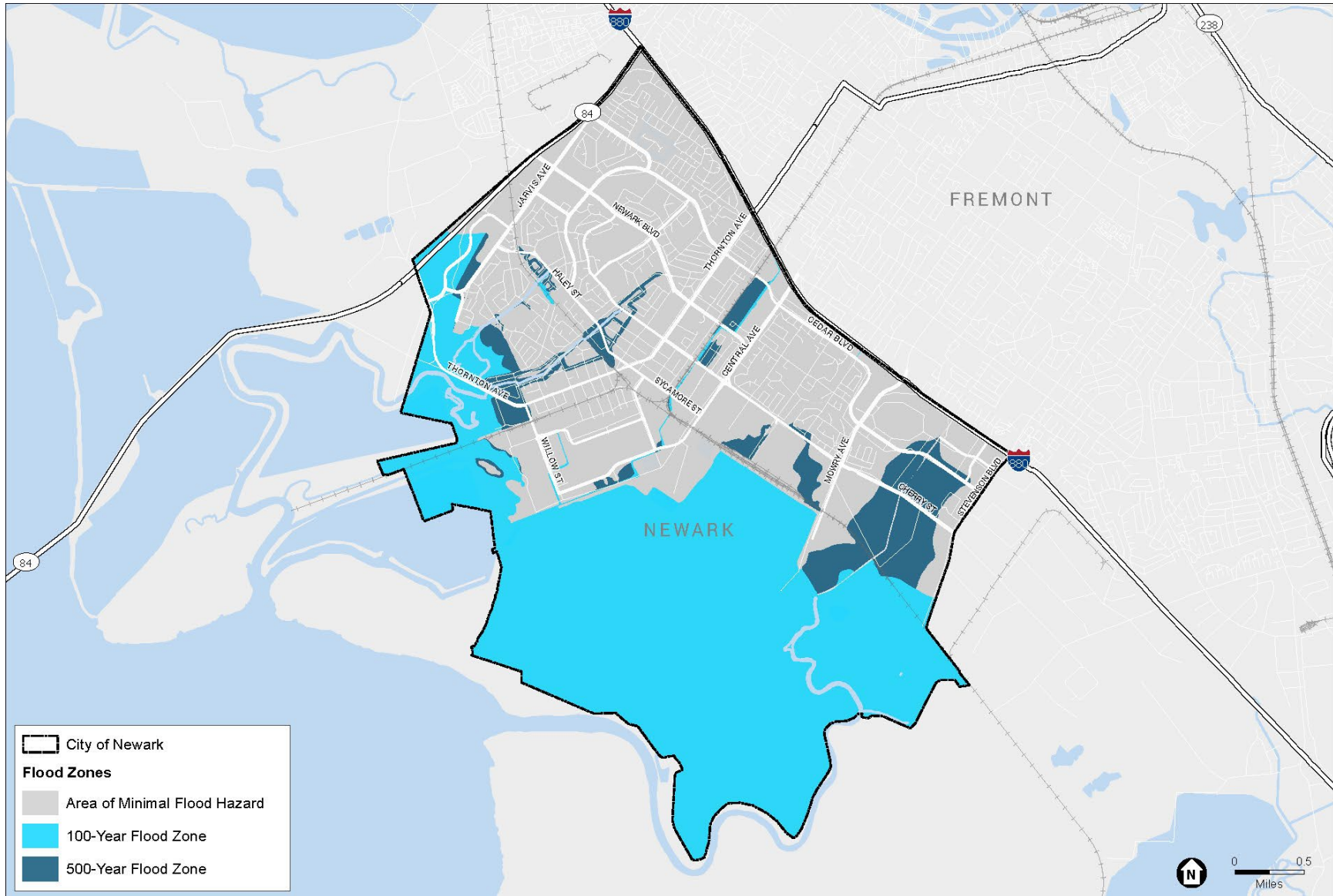
FLOODING HAZARDS

Flooding is a natural event, and floodplains provide many natural and beneficial functions. Nonetheless, flooding can have significant impacts on people, infrastructure, and the environment. **Flooding** occurs when the existing channel of a stream, river, canyon, or other water course cannot contain excess runoff from rainfall or snowmelt, resulting in overflow onto adjacent lands. Floods are one of the most common natural hazards in the United States. They can develop slowly over a period of days or develop quickly, with potential for disastrous effects.

The Federal Emergency Management Agency (FEMA) identifies hazardous flood zones, including the following floodplains:

- **500-year flood plain.** This is the portion of land that would be covered during a flood event that has a 0.2 percent annual chance of occurring. Statistically, this means the 0.2 percent (500-year) flood has a 6 percent chance of occurring during a 30-year period of time.
- **100-year flood plain.** This is the portion of land that would be covered during a flood event that has a 1 percent chance of being flooded in any given year. This means, statistically, the 1 percent (100-year) flood has about a 26 percent chance of occurring during a 30-year period of time.

Figure SAF-7 shows most of the northern portion of Newark is within the minimal flood hazard area. However, the southwestern and southern areas of the city are within the 100-year flood zone, and smaller areas throughout the city, including residential neighborhoods in the eastern portion of the city, are within the 500-year flood zone.



SOURCE: CEC; FEMA; Google Maps; HIFLD; OSM; UrbanFootprint; USGS; ESRI; ESA, 2021.

FIGURE SAF-7 FEMA FLOOD ZONE EXPOSURE MAP

LOCAL CONDITIONS

Flooding in the city of Newark typically occurs during the rainy season, between November and April. Flooding may result when heavy rainfall exceeds the capacity of Newark's storm drains and flood control channels. Water may overflow channel banks or back up from storm drain inlets, which can flood streets and surrounding properties. The risk of such flooding is highest in areas that are next to creeks, **sloughs**, and **waterways**. Flooding may also occur as a result of high tides, extreme rain, wind, sea-level rise, and dam and levee failure.

The channels that flow through the city of Newark are affected at their outlets by the variation of tidal elevations in the San Francisco Bay. Thornton Avenue and the Southern Pacific Railroad embankments (walls or banks of earth built to prevent flooding) act as dikes to protect the city from high tides. The areas on the bay side of these dikes are subject to tidal flooding. The channels that flow under Thornton Avenue are cut off from the effects of tidal flooding by flap-gated culverts. These culverts are a major cause of flooding in the city of Newark at times of high-water elevations of the Bay.

Flooding in the city can occur due to stormwater, riverine, flashfloods, coastal (tidal) flooding, and sea-level rise.

Stormwater Flooding

Stormwater flooding is a result of local drainage issues and high groundwater levels. Heavy precipitation, especially during high-tide events and storms, may produce flooding in areas other than delineated floodplains or along recognizable channels. There is also a propensity for **urban drainage flooding**, where the drainage systems cannot accommodate intense precipitation and, through a combination of infiltration and surface runoff, water may accumulate and create flooding. Urbanized areas with more impervious surfaces have low capacity to absorb rainfall, which results in ponding in low-lying areas and the concentration of flood waters in unnatural channels.

Slough: A small marshy tract lying in a swale or other local shallow, undrained depression; a sluggish creek or channel in a wetland.

Waterways: Waterways are the navigable parts of a body of water, and can be located within a bay or open sea, can connect two or more waterbodies, or may even form networks within a city.

SOURCES: USGS (2013); NOAA (2022a)

Urban Drainage Flooding: This type of flooding is caused by increased water runoff due to urban development and drainage systems. Drainage systems reduce the amount of time the surface water takes to reach surrounding streams, flooding in those streams can occur more quickly and reach greater depths than prior to development in that area (FEMA 2021a).

Riverine Flooding

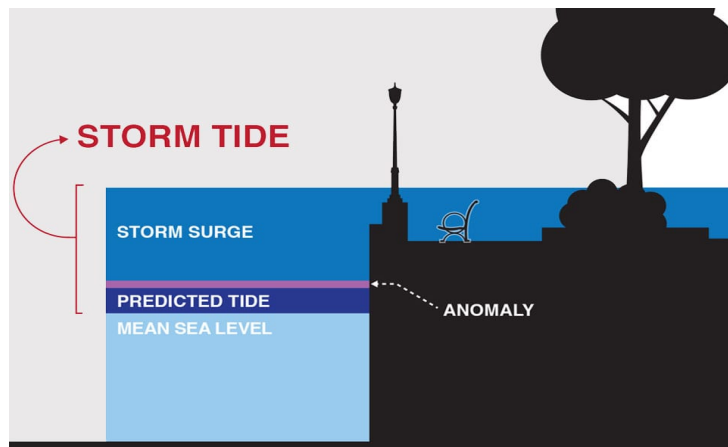
Riverine flooding is the flooding of rivers and stream banks. The natural processes of riverine flooding add sediment and nutrients to floodplain areas. Flooding in large river systems typically results from prolonged rainfall over a wide geographic area, causing flooding in hundreds of smaller streams, which then drain into major rivers.

Flash Flooding

Flash flooding refers to rapid and extreme flows of water into normally dry areas, or rapid water rising within waterways that rise above predetermined flood levels (NWS, 2022). Flash floods generally occur from intense precipitation or dam failures. Flash floods are capable of severe damage, such as undermining buildings and bridges, scouring new channels, and causing removal of vegetation and replacement of groundcover with impermeable surfaces such as roads, driveways, and parking lots. The greatest risk from flash floods is that they occur with little to no warning. The major factors in predicting potential damage are the intensity and duration of rainfall and watershed and stream steepness.

Coastal Flooding

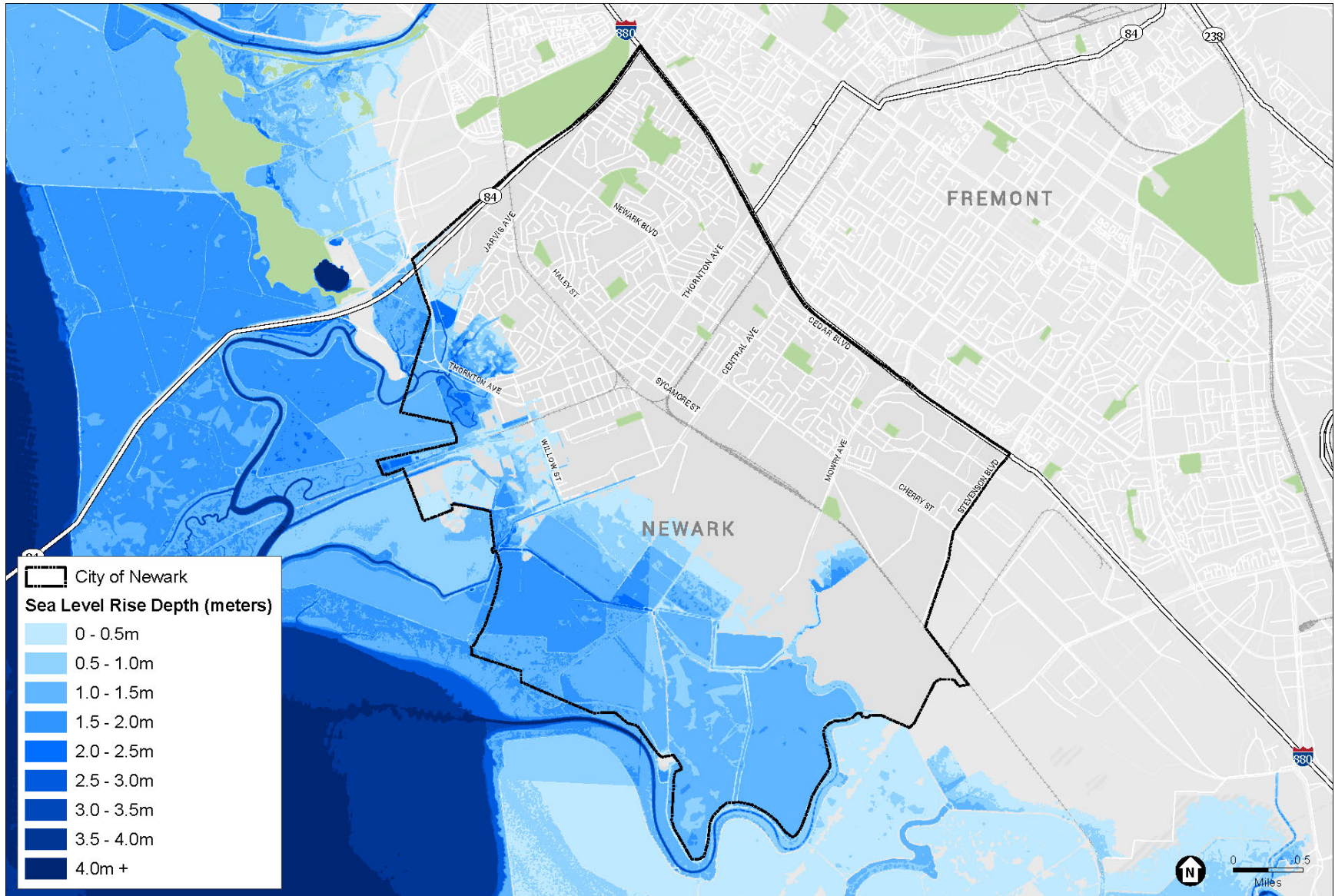
The city of Newark is at risk of coastal flooding from the San Francisco Bay. Coastal floods are characterized by inundation of normally dry lands by ocean waters. This flooding is often caused by a storm surge resulting from severe storms, tsunamis, or extreme high-tide events that produce shallow flooding of low-lying coastal areas. Storm surge floods typically result in coastal erosion, salinization of freshwater sources, and contamination of water supplies. These floods are also responsible for significant loss of life and damage to public and private structures and infrastructure. The graphic below shows how the tides resulting from a rise in sea level during a storm can cause a storm surge to flood coastal areas.



Storm surge is the rise in seawater level caused solely by a storm (NOAA, 2022b). Courtesy of the National Oceanic and Atmospheric Administration (NOAA) Website.

Sea-Level Rise

Sea-level rise is a direct result of global warming temperatures and is responsible for subsequent melting of the Earth's ice caps. In addition to melting ice sheets, other climate-related factors that contribute to sea-level rise include stormwater flooding, more frequent and intense precipitation, increasing river flows, groundwater fluctuations, and seismic activity. Global average sea level has risen 8–9 inches since 1880 (NOAA, 2022c). In California, climate science projects an average sea-level rise of up to 55 inches along the coast by 2100. The projection for the Bay Area is significantly higher, with a projection of up to 113 inches, almost 9.5 feet, by 2100 (Ackerly et al., 2018). **Figure SAF-8** shows the sea-level rise projection for the city of Newark. The area with the most vulnerability will be in the southern portion of the city, adjacent to the San Francisco Bay.



SOURCE: Cal-Adapt, CalFloD-3D, 2021; ESRI; ESA, 2022

FIGURE SAF-8 SEA-LEVEL RISE

LOCAL VULNERABILITIES

Flooding can pose severe hazards to individuals, including injury, death, and isolation due to being cut off from essential services. Property damage from flooding can be particularly burdensome for low-income families or renters who may face challenges rebuilding or finding other housing following a flood event. Flooding also has the potential to result in mold in buildings, which can result in long-term health impacts following flooding.

Low-lying areas are at higher risk of flooding, with sea-level rise creating a risk for permanent inundation. In these areas, critical transportation routes are particularly vulnerable, including all roads, railroads, and bridges in the flow path of water. This can affect emergency services as well as critical access functions for residents and emergency responders. Other impacts of flooding include:

- **Roads.** Severe flood events have the potential to damage or block roads and prevent access to some areas. The following major roads have segments that are at risk of flooding from a 100-year and/or 500-year flood:
 - State Route 84
 - Interstate 880
 - Thornton Avenue
 - Newark Boulevard
 - Jarvis Avenue
- **Bridges.** Flooding events can significantly impact road bridges, which can be the only ingress and egress to some neighborhoods. There are five bridges that are in or cross over the 100-year flood zone and the 500-year flood zone. These are located on the west side of the city, mostly over creeks and on the northern boundary of the city over the Dumbarton Pier.
- **Water and Sewer Infrastructure.** Water and sewer systems can be affected by flooding. Floodwaters can back up drainage systems, causing localized flooding. Culverts, or structures that channel water, can be blocked by debris from flood events, also causing localized urban flooding. Floodwaters can get into drinking water supplies, causing contamination. Sewer systems can be backed up, causing wastewater to spill into homes, neighborhoods, rivers, and streams.

- **Levees.** Levees have historically been used to control flooding in bay-front portions of the city and these areas are susceptible to flooding caused by levee failure. Many are older earthen levees built under earlier flood management standards. Many of these older levees are exposed to erosion and failure due to age and construction methods. The Alameda County Flood Control and Water Conservation District (ACFC&WCD) has jurisdiction over levee maintenance in Newark and has been evaluating their condition for FEMA certification. The evaluations include underground exploration, soil and stability testing, and operation and maintenance plans. Until FEMA certification is received, areas identified as flood prone are required to carry insurance through the National Flood Insurance Program.
- **Wildlife and Environment.** During flood events, migrating fish can wash into roads or over dikes into flooded fields, with no possibility of escape. Pollution from roads, such as oil, and hazardous materials can wash into rivers and streams. During floods, these can settle on to normally dry soils, polluting them for agricultural uses. Human development such as bridge abutments and levees, and log jams from timber harvesting, can increase streambank erosion, causing rivers and streams to migrate into non-natural courses.

LOCAL INITIATIVES

The City's Municipal Code sets standards to minimize flood hazard risks, including anchoring and flood-proofing and a requirement that the lowest floor, including basements, is at or above the 100-year flood elevation. Development within the 100-year flood zone is limited, with requirements for building at least 1 foot above the flood elevation. The City requires non-residential development to be elevated at least 8 feet above mean high tide and 11.25 feet for residential development. In addition, the City also requires drainage studies for major development projects to ensure that such projects will not cause or worsen downstream flooding.

The City's codes also require the use of materials and utility equipment that are resistant to flood damage. Electrical, heating, ventilation, plumbing, air conditioning, and other building systems must be designed to avoid exposure to flooding. Water and sewer systems must also be designed to minimize or eliminate the potential for infiltration

of floodwater. The City has adopted engineering standards and street design guidelines that further reduce the potential for flooding.

Additionally, the City has developed the Green Stormwater Infrastructure Plan to prioritize projects for flood control, using green technologies and natural methods to assist with flood control, adequate drainage, and roadway maintenance. The Green Stormwater Infrastructure Plan identifies targets for areas of impervious surface to be retrofitted with cover that facilitates drainage and reduces stormwater runoff and infiltration.

There are other agencies in the region that have established practices for reducing flood risks within and around the city of Newark. These include the following:

- ACFC&WCD maintains flood control systems, with channels following through historic drainage channels that were used for irrigation for agriculture. Major drainage courses in the city include Plummer Creek, Newark Slough, and Mowry Slough. Stormwater, which is water following a rainstorm that does not seep into the ground, flows to these drainage courses through gutters, drains, channels, and culverts. The ACFC&WCD also has jurisdiction over levee maintenance in Newark and has been evaluating levee conditions since 2007 as it works toward FEMA levee accreditation.
- FEMA administers the National Flood Insurance Program (NFIP) to provide subsidized flood insurance to communities that comply with FEMA regulations limiting development in floodplains. FEMA issues Flood Insurance Rate Maps for Newark and other cities throughout the Bay Area. In addition, FEMA has been working with flood control agencies across the country on a levee accreditation program. Levee systems must meet minimum FEMA standards and must be maintained according to an officially adopted maintenance plan to achieve certification. Removal from the flood plain requires a formal *Letter of Map Revision* from FEMA, and relieves the owner(s) of the mandate to have flood insurance. The Community Rating System (CRS) is also a program offered by the NFIP. It's a voluntary initiative that rewards and promotes efforts made by communities to manage floodplains better than the minimum requirements set by the NFIP. By participating in the CRS, communities can receive discounts on flood insurance premiums.

KEY FINDINGS

- The southern area of the city is within the 100-year flood zone, and smaller portions of the city that include households are within the 500-year flood zone.
- Flooding puts critical infrastructure, including roads, bridges, and water and sewer infrastructure, at risk. Major roads within the 500-year flood zone include Cherry Street, Thornton Avenue, and Haley Street.
- Urban development and urban drainage systems may be insufficient to accommodate future, severe flooding.
- Sea-level rise is expected to impact the southern portion of the city.

COMMUNITY/STAKEHOLDER INPUT

The City released a community survey to elicit input on topics related to community hazards, sea-level rise, pollution, and air quality to get a better understanding of how the City can improve safety in Newark.

Overall, respondents indicated the following relating to flooding in Newark:

- Sea-level rise and flooding hazards are the second-highest concern for the community, following drought.
- Residents are very concerned about flooding and sea-level rise impacts on low-lying communities.
- Infrastructure is needed to support adequate drainage and address flooding hazards.
- The city should coordinate with regional and state agencies to address sea-level rise.
- Wetlands should be protected from further development as they provide flooding control.

DAM FAILURE

A dam is an artificial barrier that has the ability to store water, wastewater, or liquid-borne materials for a number of purposes, including flood control, human water supply, irrigation, livestock water supply, energy generation, containment of mine tailings, recreation, or pollution control. Dams provide a life-sustaining resource to people in all regions of the United States.

The United States Society on Dams identifies twelve different types of dams that are commonly found in the built environment. The Union City/Newark MJHMP identifies Earthen and Hydraulic Fill dam types in Alameda County with potential failure hazards to the City of Newark. An earthen dam is made up mostly of compacted earth material (soil) generally smaller than 3 inches in size and a hydraulic fill dam is constructed by selectively placing soil and other materials using a stream of water instead of compacting the materials.

LOCAL CONDITIONS

According to the 2021 Alameda County Local Hazard Mitigation Plan, as of 2021, there were 26 dams in Alameda County (County of Alameda 2021). Of these, there are five dams that have the potential to impact the city if a failure were to occur, including the Calaveras, Del Valle, James H. Turner, Middlefield, and Patterson Dams.

The Calaveras Dam is a hydraulic fill dam that is owned by the City and County of San Francisco and is located close to the Calaveras fault line, which is one of the most geologically active and complex faults in the San Francisco Bay Area. The dam is located approximately 10 miles southeast of the city of Newark. The original dam structure was built in 1925. The San Francisco Public Utilities Commission recently built a replacement Calaveras Dam. Construction began in 2011 to build a new 210-foot-tall earth and rock (earthen) fill dam adjacent to the existing dam. The project was completed in May 2019. The new dam is located directly adjacent to the old dam and has been built to withstand a 7.25 magnitude earthquake on the nearby Calaveras Fault.

The Del Valle dam is an earthen dam owned by the California Department of Water Resources (DWR) that was constructed in 1968 to create Lake Del Valle, which serves as a reservoir and provides water

storage, flood control for Alameda Creek, and regulatory storage for a portion of water delivered through the South Bay Aqueduct. The dam is 235 feet in height and is the only flood control dam in the Livermore Valley. The dam typically stores 25,000 to 40,000 acre-feet of water and is located approximately 16 miles northeast of the city of Newark.

The James H. Turner Dam is an earthen dam owned by the City and County of San Francisco that is located on the San Antonio Reservoir that was built in 1964. The dam is 71 feet in height and is located approximately 8 miles northeast of the city of Newark.

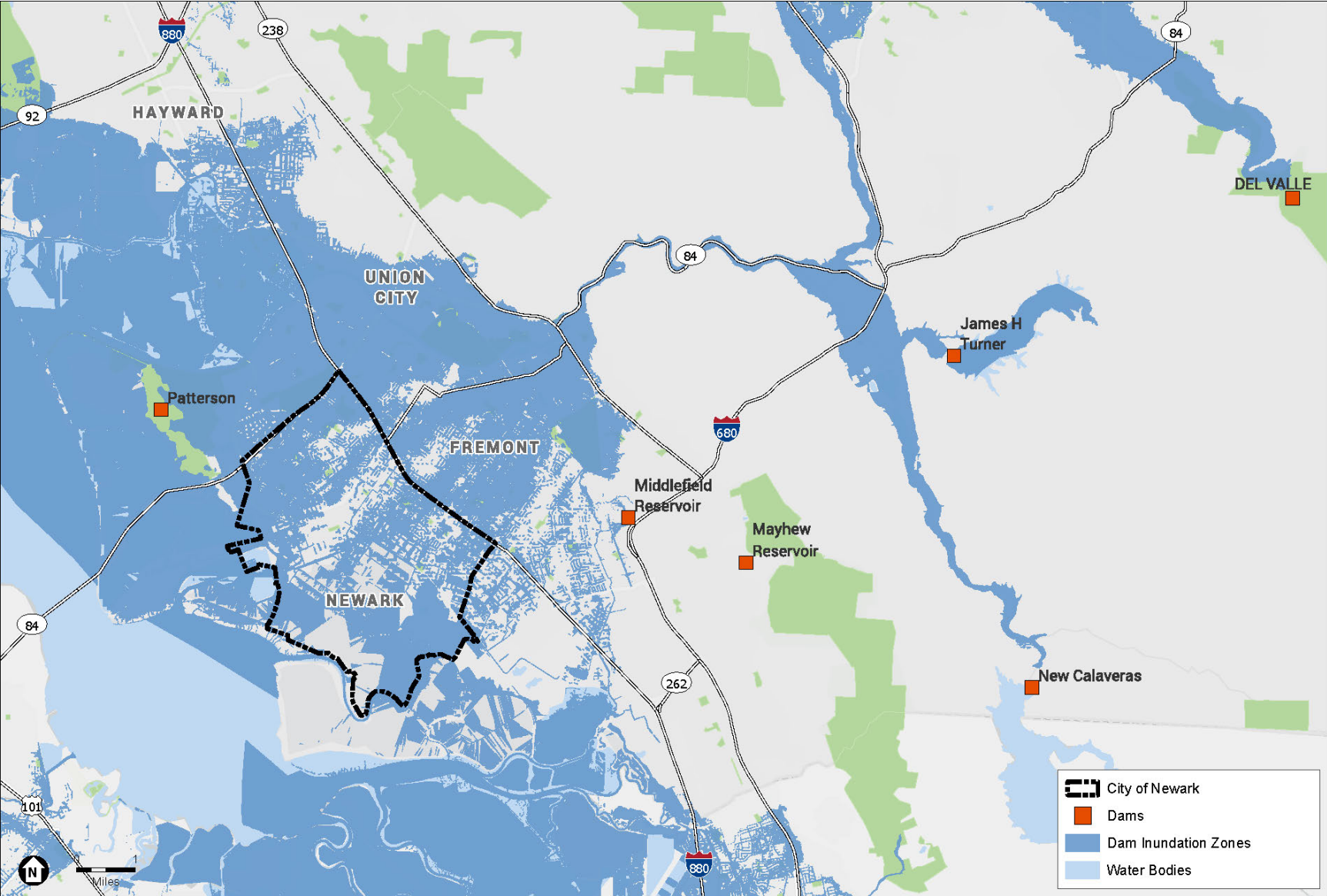
The Middlefield Dam is an earthen dam that was built in 1958, is owned by the Alameda County Water District, and is located on the Middlefield Reservoir. The dam is 147 feet in height and is located approximately 2 miles east of the city of Newark.

The Patterson Dam is an earthen dam that was built in 1962, is owned by the Alameda County Water District, and is located on the Middlefield Reservoir. The dam is 100 feet in height and is located approximately 0.8 miles northwest of the city of Newark.

These dams are shown in **Figure SAF-9 Dam Inundation Zones**.

LOCAL VULNERABILITIES

Earthquake-induced dam failure of the Calaveras, Del Valle, James H. Turner, Middlefield, or Patterson Dams could have serious effects on Newark. Dam failure from any of the existing reservoirs could cause flooding in Newark, with floodwaters reaching the city in as little as 90 minutes. Virtually all property in the city would be impacted. Failure of large water storage tanks in Fremont or Newark could also lead to localized flooding in Newark, although these hazards are less widespread. Dam failure inundation is the flooding of lands due to the failure or overtopping of a dam. As shown in Figure SAF-9, almost the entire city is within a dam inundation zone.



SOURCE: DWR; USDOT; ESRI; ESA, 2021.

FIGURE SAF-9 DAM INUNDATION ZONES

Populations that are particularly vulnerable to the impacts of flooding as a result of dam failure are those who may be less mobile and may be unable to get out of the inundation area. These populations include the elderly and the young, as well as individuals or families who may not receive adequate warning from warning systems, televisions, radios, reverse 911 systems, or cell phones. Properties closest to the dam failure inundation area would experience the largest, most destructive surge of water.

All critical infrastructure and facilities, including hospitals and schools, in the dam inundation zone are vulnerable to inundation. According to the Union City/Newark MJHMP, 127 of the city's critical facilities and infrastructure are in the inundation areas. Transportation routes are also vulnerable to dam failure inundation and have the potential to be damaged or destroyed, creating isolation issues. This includes all roads, railroads, and bridges in the path of the dam failure inundation. Those that are most vulnerable are those that are already in poor condition and would not be able to withstand a large water surge. Utilities such as overhead power lines and cable and phone lines could also be vulnerable. Loss of these utilities could create isolation issues for the inundation areas.

LOCAL INITIATIVES

In the event of dam failure, flood control efforts within the city are managed between the Newark Public Works Department, the Alameda County Flood Control District, FEMA, the U.S. Army Corps of Engineers (USACE), and Bay Conservation and Development Commission (BCDC).

The Engineering Division of the Newark Public Works Department is responsible for mitigating for flooding in the city through regulating public and private developments and capital improvement projects, performing cleanouts of storm drain inlets, and undertaking a variety of public education and outreach events.

The BCDC was established in 1965 to promote responsible planning and regulation of San Francisco Bay and currently focuses on research and adaptation strategies for sea-level rise.

USACE is responsible for safety inspections of federal and non-federal dams that meet size and storage limitations specified in the National

Dam Safety Act. USACE inventories dams; surveys state and federal agency capabilities, practices, and regulations regarding design, construction, operation, and maintenance of dams; and developed guidelines for inspection and evaluation of dam safety.

In addition, state laws have been adopted to reduce dam failure, such as Senate Bill 92, the National Dam Safety Act, and requirements set forth by the California Division of Safety of Dams. The California Division of Safety of Dams is a division of DWR that monitors the dam safety program at the state level. When a new dam is proposed, DWR staff inspects the site. There are 26 dams located in Alameda County, and all have been inspected by the DWR and USACE. The USACE National Inventory of Dams provides the most recent inspection dates for Alameda County dams. The most recent inspection date listed in the USACE National Inventory of Dams for the Calaveras Dam was November 13, 2020; November 10, 2020, for the Del Valle Dam; January 5, 2021, for the James H. Turner Dam; and February 25, 2021, for both the Middlefield and Patterson reservoir dams. USACE has a classification system for the hazard potential of dam failure. The system is meant to classify a dam according to the potential impact a dam failure or mis-operation leading to unscheduled release would have on upstream and/or downstream areas, or at locations near the vicinity of the dam. The Patterson Dam has a USACE hazard potential classification of "significant" and the Calaveras, Del Valle, James H. Turner, and Middlefield Dams have a USACE hazard potential classification of "high."

KEY FINDINGS RELATED TO DAM FAILURE

- The City needs to coordinate with USACE to ensure ongoing monitoring of physical dam conditions.
- There is no clear educational program for residents to prepare in case of a dam failure event.
- Many existing public and private critical facilities in the community are located in areas of hazard risk.
- There are no preparatory actions or evacuation orders in the event of a possible dam failure event.

COMMUNITY/STAKEHOLDER INPUT

The City released a community survey to elicit input on topics related to community hazards, sea-level rise, pollution, and air quality to get a better understanding of how the City can improve safety in Newark.

Specifically, sea-level rise and related flooding were reported within the top three choices of highest concern to community residents. However, there was no community input regarding hazards specifically related to dam failure.

FIRE HAZARDS

Wildfire is any uncontrolled fire occurring on undeveloped land that requires firefighting efforts. Wildfires can be ignited by natural causes such as lightning and severe weather, increased fuels that are exacerbated by drought conditions, or by human-caused activity such as smoking, campfires, downed powerlines, equipment use, and arson. Wildfire can be further exacerbated by severe weather, such as wind, extreme heat, and drought conditions.

LOCAL CONDITIONS

Newark is considered to be at low risk for wildfire. The California Department of Forestry and Fire Protection (CAL FIRE) has mapped areas at risk of fires around the state and has determined that the majority of Newark is neither in a State Responsibility Area (SRA) High Fire Severity Area nor a Local Responsibility (LRA) High Fire Severity Area. This means that the city of Newark is not subject to CAL FIRE regulations, but is instead subject to local development and wildfire protection regulations with respect to wildfire, such as defensible space and setback requirements.



Alameda County Fire Department

LOCAL VULNERABILITIES

The areas located to the immediate south of Newark city limits, adjacent to the San Francisco Bay and the Dumbarton Bridge, are mapped as being within a Federal Responsibility Area (FRA). As of 2022, these lands are used for salt harvesting, refining, and production activities and thus have few buildings that are vulnerable to wildfires.

LOCAL INITIATIVES

The Alameda County Fire Department (ACFD) provides all-risk emergency and non-emergency services to the unincorporated areas of Alameda County, the cities of San Leandro, Dublin, Newark, and Union City, the Lawrence Berkeley National Laboratory, and the Lawrence Livermore National Laboratory. There are three Alameda County Fire Stations within the Newark city limits that serve the city of Newark, including Alameda County Fire Department Stations 27, 28, and 29. In addition to fire suppression services, the Alameda County Fire Department provides residents resources for emergency preparedness.

Preventative measures in the Fire Code and Building Code reduce the risk of fire and ensure the ability to detect and respond to fires when they occur. These measures address evacuation, alarm systems, emergency response, water availability and pressure, road design, and building access.

Fire prevention and protection services in Newark are addressed in the Community Services and Facilities Element of the General Plan.



Newark Community Emergency Preparedness Workshop. Courtesy of the City of Newark

KEY FINDINGS RELATED TO WILDFIRE

- Newark is considered to be at low risk for wildfire. As of 2022, there have been no recorded incidents of loss of life from wildfires in Newark.
- The areas located to the immediate south of Newark city limits, adjacent to the San Francisco Bay and the Dumbarton Bridge, are mapped as being within an FRA. As of 2022, these lands are used for salt harvesting, refining, and production activities and thus have few buildings that are vulnerable to wildfires.

COMMUNITY/STAKEHOLDER INPUT

The City released a community survey to elicit input on topics related to natural disasters, sea-level rise, pollution, and air quality to get a better understanding of how the City can improve safety in Newark. There was no community input regarding concerns related to wildfire.

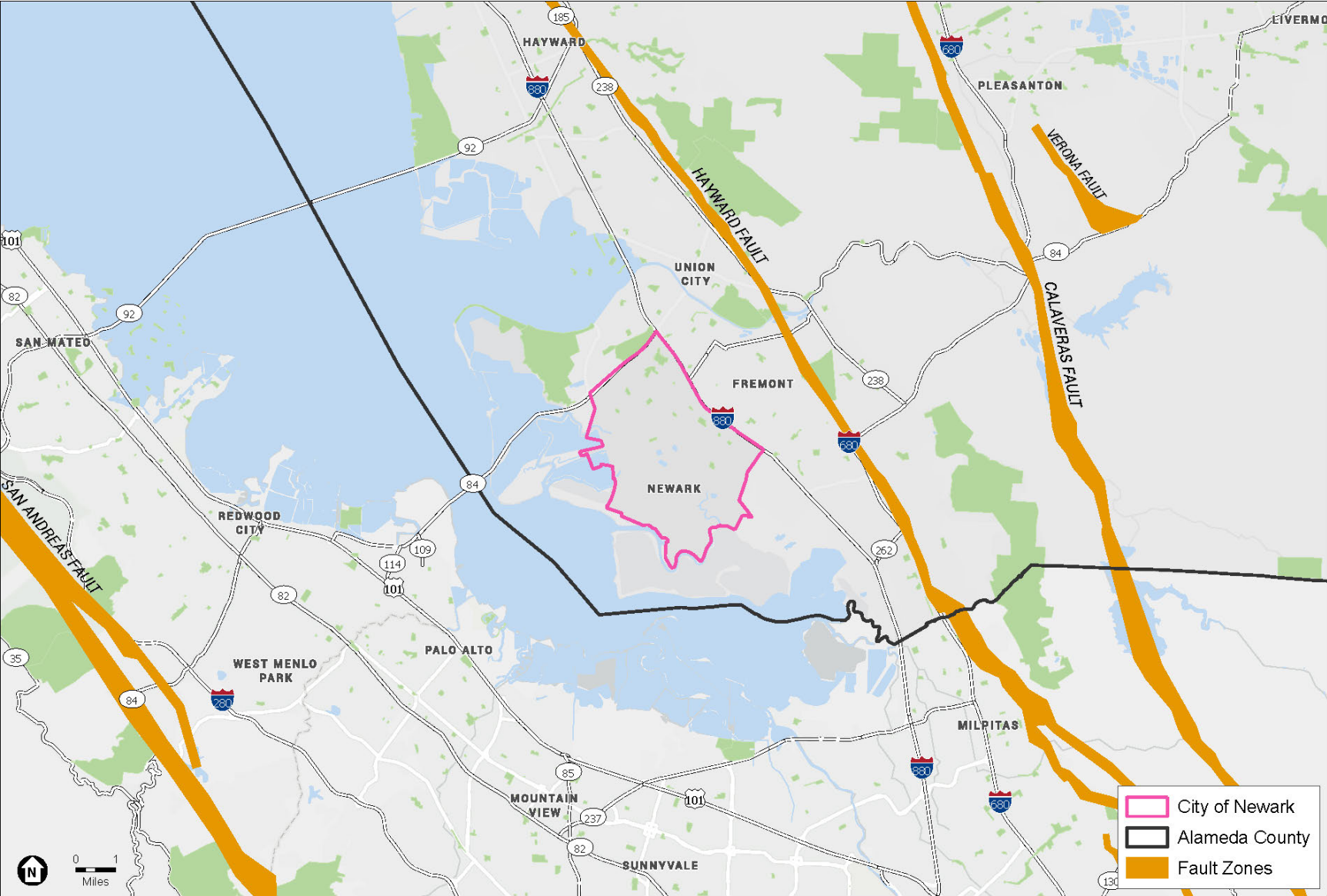
GEOLOGIC HAZARDS

Geologic hazards are those effects associated with earthquakes. An earthquake is the shaking of the ground caused by an abrupt shift of rock along a crack in the earth or a contact zone between tectonic plates. They often occur along geologic faults. Faults are narrow zones where rock masses move in relation to one another. Earthquakes result in fault rupture, which occurs when movement on a fault deep within the earth breaks through to the surface, creating an offset in the ground as the two sides of the fault slip past each other.

Geologic risks are defined as those associated with geologic hazards, such as seismically induced surface rupture, ground shaking, ground failure, tsunamis, seiches and dam failure, and slope instability leading to mudslides, landslides, and subsidence. All of these geologic hazards are capable of causing property damage and risks to life and safety of persons.

LOCAL CONDITIONS

Newark's geological conditions have been mapped by the US Geological Survey (USGS). There are no active earthquake faults that pass through the city of Newark. However, the city is located in the Bay Area, which, as a whole, is seismically active. Therefore, Newark is subject to the potential risks typically associated with earthquakes. The city is located 2 miles west of the Hayward Fault, 9 miles east of the San Andreas Fault, and 13 miles west of the Calaveras Fault. Of these, the Hayward Fault is of most significant threat to the city; it lies closest to Newark and has not experienced a major earthquake since 1868 (UC Berkeley, 2018). **Figure SAF-10** shows regional fault zones, including the San Andreas, Calaveras, and Hayward Faults. The USGS estimates that the probability of an earthquake with a magnitude of 6.7 or greater happening along these three faults within the next 30 years is 26 percent for the Calaveras Fault, 33 percent along the Hayward Fault, and 50 percent along the San Andreas Fault (USGS, 2003). Even though no known earthquake faults pass directly through Newark, an earthquake of moderate to high magnitude within the Bay Area could cause significant damage in the city.



SOURCE: DOC CGS; ESRI; ESA, 2022

FIGURE SAF-10 EARTHQUAKE FAULTS

LOCAL VULNERABILITIES

The entire city of Newark is primarily at risk for ground shaking, fault rupture, and liquefaction, as defined and described below (DOC, 2016). Other earthquake hazards, including landslides, subsidence, tsunamis, and seiches are not considered a risk in Newark.

Ground Shaking

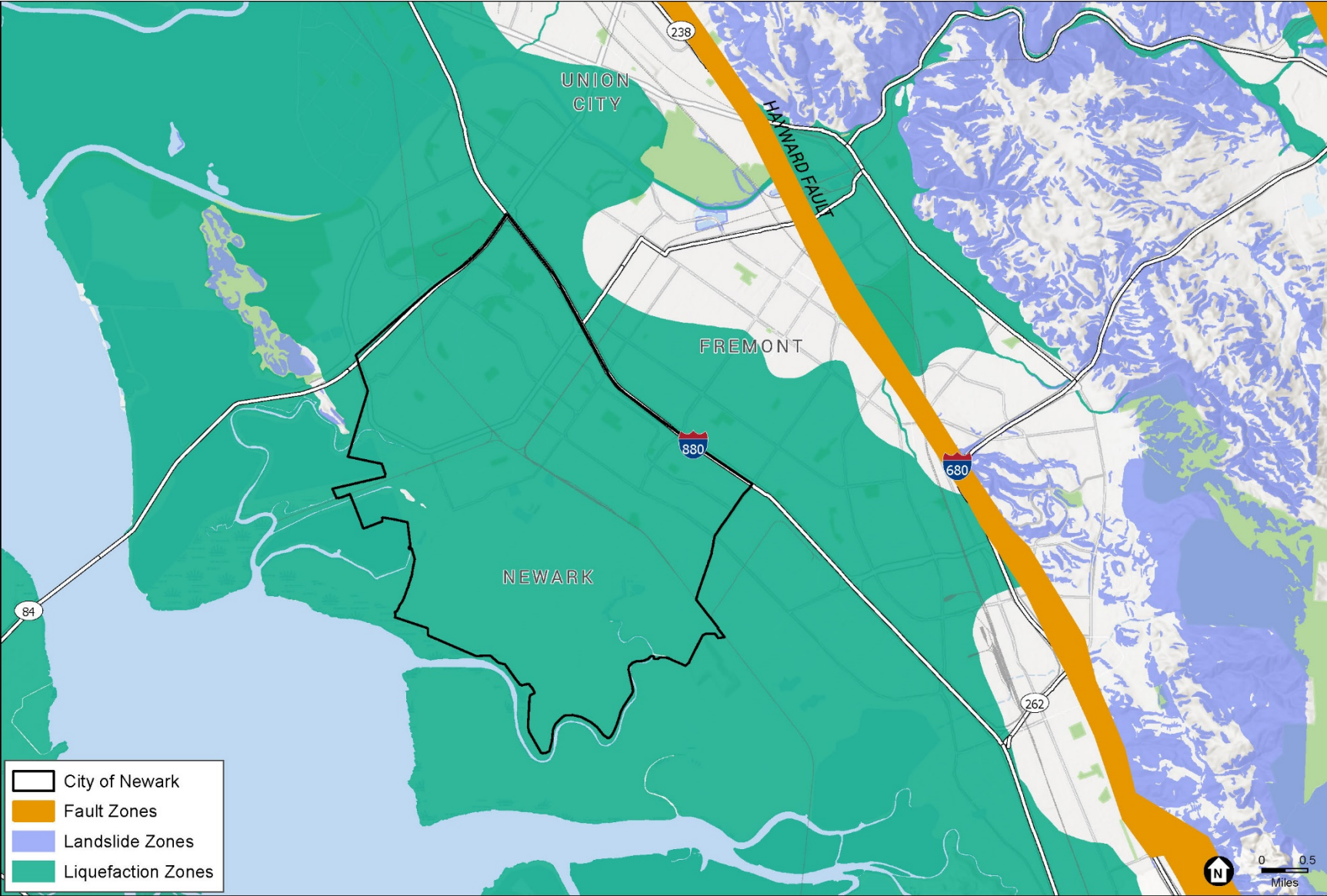
Ground shaking is a result of the energy created from an earthquake event as it moves out from the epicenter, or the point on the Earth's surface directly above the point in the Earth's crust where the seismic activity begins. The degree of shaking is dependent on the magnitude of the event, the duration of the event, the distance to the zone of rupture, and local geologic and soil conditions. Thus, an earthquake in Newark might be felt as a sharp relatively rapid vibration, or a swaying rolling motion, or it could have no effect, or it could trigger slumping near water bodies or a loss of support capacity near structures.

Ground shaking is measured on a scale ranging from I to X (the Modified Mercalli Scale) with shaking levels ranging from imperceptible to very violent. Most of the developed portions of Newark would experience "very strong" ground shaking (level VIII) in a 6.7 Hayward Fault earthquake, but some parts of the city would experience "violent" ground shaking (level IX). Ground shaking levels are higher on the southern and western fringes of the city.

Fault Rupture

In addition to ground shaking, earthquakes also create the risk of fault rupture. Fault rupture refers to the actual ground surface tearing apart as a result of an earthquake, which typically occurs along a fault trace line. A fault trace line is the line where the ground surface meets a fault, which is also the line commonly plotted on geologic maps to represent a fault.

The risk from fault rupture is considered very low in Newark, since there are no active faults within the city. **Figure SAF-11** shows there are no fault zones within the city of Newark, with the closest being the Hayward Fault.



SOURCE: DOC CGS; ESRI; ESA, 2022

FIGURE SAF-11 GEOLOGIC AND SEISMIC HAZARDS

According to the Union City/Newark Multi-Jurisdiction Hazard Mitigation Plan (MJHMP), the last significant earthquake event within the city of Newark or in vicinity was the 2014 Magnitude 6.0 earthquake that originated 6 miles southwest of Napa Valley. No significant earthquake events have been recorded within or in the vicinity of Newark since 2014.

Liquefaction

Liquefaction results from a loss of soil strength during earthquake vibrations. Soils that are most prone to liquefaction are loose, saturated, fine-grained sands with shallow groundwater. Liquefaction is a greater risk given Newark's soil characteristics and underlying geology. Most of the developed portion of the city is built on alluvial fan deposits, consisting of sandy clay. Areas closer to the bay consist of flood plain deposits with sandy or silty clay.

The city of Newark could experience seismic shaking levels with the potential to cause liquefaction in areas where groundwater is generally shallower than 30 feet. Based on data provided by the California Geological Survey, the entire city is considered a liquefaction hazard zone (see Figure SAF-8). The level of risk varies from location to location, and can best be determined through site-specific geotechnical studies. Areas nearest to the bay, along sloughs, or on artificial fill are generally considered more susceptible than other areas. Based on soil conditions and underlying geology, these areas may also be prone to more severe ground shaking in a major earthquake.

Soil liquefaction can cause severe damage to property, including damaging pipes, compromising building foundations, and bucking roads and airport runways.

Landslides

Landslides are masses of rock, earth, or debris that move down a slope. Landslides are most likely to occur in areas with a slope of greater than 25 percent (hillside areas) and along steep bluffs. Newark is comparatively flat, sloping gently from 37 feet above mean sea level (msl) in the northeastern part of the city to 5 feet below sea level in the marshes near the Bay shoreline. There are no significant hills or steep slopes. As shown in Figure SAF-11, *Geologic and Seismic Hazards*, there are no landslide hazard areas within the city.

Subsidence

Subsidence refers to the gradual settling or sudden sinking of the ground due to movements below. It can also occur due to prolonged pumping of groundwater. Groundwater elevations in Newark are generally 40 to 140 feet below the surface, beneath a thick silt and clay layer. The Alameda County Water District has been recharging the aquifer for the past 50 years to improve its stability and to reduce saltwater intrusion. Subsidence is not considered a risk in Newark.

Tsunamis and Seiche

Tsunamis are sea waves generated by earthquakes that have been known to cause serious damage to coastal locations, including California. Tsunamis usually occur shortly after an earthquake and appear as a rapid rising and falling of sea level over several minutes or hours. The Pacific Ocean is approximately 20 miles west of the City. Although the San Francisco Bay could be impacted by a Pacific Ocean tsunami, the effects would dissipate by the time they reached Newark. A seiche is a local water wave generated by an earthquake, which would include abnormal waves on San Francisco Bay generated by seismic activity, as well as waves on lakes. Due to the distance of the Pacific Ocean to Newark; the configuration of the shoreline; depth of water offshore; and the small size of lakes and ponds in the city, tsunamis and seiche are not considered a risk in Newark.

LOCAL INITIATIVES

State and local laws have been adopted to reduce exposure to seismic hazards, such as the Alquist-Priolo Earthquake Fault Zoning Act, Seismic Hazards Mapping Act, and the California Building Code (CBC). The Earthquake Fault Zoning Act was passed in 1972 to prevent the construction of buildings on top of active faults. Areas on either side of such faults are referred to as "Earthquake Fault Zones." Since there are no known active faults in Newark, there are no designated Fault Zones in the city. In 1990, California adopted the Seismic Hazards Mapping Act to assess the potential for other types of earthquake hazards, including liquefaction. One of the purposes of the act was to assist local governments with land use planning by mapping high hazard areas.

The CBC also incorporates standards that reduce exposure to seismic risks. The 2019 CBC, which has been adopted as part of the Newark

Municipal Code, provides specific requirements for seismic safety, excavation, foundations, retaining walls, grading, and demolition.

Given the risk of liquefaction and potential for strong ground shaking, the City requires site-specific soils reports and geotechnical evaluations as part of the approval process for major developments. This includes the preparation of a liquefaction study, which was implemented through Section 15.50.026 of the Newark Municipal Code (NMC). The liquefaction report is required to be prepared by a licensed engineer and should address the potential for seismic-induced liquefaction at a construction site and, if a potential for liquefaction does exist, recommend mitigating measures. The City further requires that recommendations from such reports be incorporated into the project design. Newark has adopted additional regulations under Chapter 15.50 of the NMC for grading to reduce the potential for erosion and to ensure the stability of filled areas.

In 2011, Newark voters approved Measure G, a bond measure that allocated \$63 million for school renovation, including seismic upgrades to existing Newark Unified School District facilities. The City itself periodically evaluates the seismic safety of public buildings, including City Hall, to determine the need for structural improvements to improve earthquake safety. A priority is placed on locating new facilities in areas where safety, access, and operational capacity can be ensured during and after an earthquake.

According to the Union City/Newark MJHMP, there is no current reliable way to predict the day or month that an earthquake will occur at any given location. Research is being done with warning systems that use the low-energy waves that precede major earthquakes. These potential warning systems would give approximately 40 seconds notice that a major earthquake is about to occur. The warning time is very short, but it could allow for someone to get under a desk, step away from a hazardous material, or shut down a computer system.

The City of Newark uses its radio system, the Radio 1610 AM, as well as Alameda County (AC) Alert software service to deliver important and timely information, including emergency messages and alerts, at no cost to the community. The Radio 1610 service broadcasts safety, health, and emergency messages. The AC Alert is a mass notification

system used by City and County agencies throughout Alameda County to rapidly disseminate emergency alerts to people who live, work in, or visit the county. AC Alert is capable of sending alerts by voice, text, and email, as well as messaging Nixle subscribers, posting to social media pages, and sending Federal Emergency Management Agency (FEMA) wireless alerts. AC Alert is a primary source of information to the public in the event of a major disaster, such as an earthquake, flood, or fire (Alameda County, 2019). This service could be used as a warning system during an earthquake event. Seconds and minutes of advance warning can allow people and systems to take actions to protect life and property from destructive shaking. Even a few seconds of warning can enable protective actions such as:

- Citizens to drop, cover, and hold on as well as turn off appliances and safely stop vehicles.
- Business personnel to move to safer locations; ensure that automated systems such as elevator doors, open; production lines are shut down; and equipment is placed in a safe mode.
- Surgeons, dentists, and others stop delicate procedures.
- Emergency responders such as fire departments can open firehouse doors, and have personnel prepare and prioritize response decisions.
- Power infrastructure and grid facilities can be protected from strong seismic shaking.

To encourage residents and businesses to be prepared for an earthquake or other natural or major disaster, the City provides links to the Great Shakeout webpage on the Southern California Earthquake Center) website (<https://www.shakeout.org/>) and a flyer on how to sign up for the AC Alert system (<https://www.acgov.org/emergencysite/>). The City recommends that everyone be prepared to provide for their care and safety before and after an earthquake event through proper planning and preparedness. The City provides Community Preparedness Resources and training information on the city website (<https://www.newark.org/residents/emergency-preparedness>).

The City of Newark works closely with the California Department of Transportation (Caltrans), Alameda County Water District (ACWD), and other utilities to support seismic upgrades to infrastructure. Caltrans completed major seismic upgrades to the Dumbarton Bridge in 2013 and regularly inspects overpasses and other facilities to ensure their safety

(MTC, 2013). The ACWD increased its rates in 2013 to fund a major seismic upgrade of its water mains and to replace aging pipelines in the Fremont, Newark, and Union City areas. The Hetch Hetchy Aqueduct has been upgraded to improve earthquake reliability.

KEY FINDINGS RELATED TO GEOLOGIC HAZARDS

All people, property, and environments in the city of Newark could be exposed to direct and indirect impacts, such as those listed below, from geologic and seismic events:

- Ground shaking levels are higher on the southern and western fringes of the city.
- Building damage: The most significant damage from earthquakes would be to buildings, i.e., commercial and industrial buildings that are more vulnerable to structural damage as opposed to wooden-frame structures. Based on the modeling of critical facility performance performed for the MJHMP a high number of facilities in the Planning Area for the MJHMP (i.e., Newark and Union City) are expected to have complete, or extensive, damage from earthquake events. These facilities are prime targets for structural retrofits.
- Transportation problems, such as roadways blocked by debris, unsafe structures, damaged routes.
- Displacement of populations: Employees working in the city could be stranded if transportation problems occur during an earthquake event.
- Destroyed utilities: Destroyed power and telephone lines and gas, sewer, or water mains may set off fires and/or hinder rescue efforts.
- Emergency operations: Emergency services could be affected by the loss of communications and damage to transportation routes within, to, and from the disaster area to hospitals and emergency shelters.
- Power outages: Power outages would create loss of communications, which could disrupt emergency systems and operations as well as elements of the financial community like banks and insurance companies.
- Liquefaction: Newark is located in a soil liquefaction zone and could experience seismic shaking levels with the potential to cause liquefaction in areas where groundwater is generally shallower than 30 feet. Building and road foundations may lose

load-bearing strength and sink into what was previously solid ground.

- Hazardous materials: Unless properly secured, hazardous materials can be released during an earthquake event, causing significant damage to the environment and people.
- The City periodically evaluates the seismic safety of public buildings, including City Hall, to determine the need for structural improvements to bolster earthquake safety. A priority is placed on locating new facilities in areas where safety, access, and operational capacity can be ensured during and after an earthquake.
- Earthquakes could trigger other natural hazard events, such as dam failures, which could severely impact the city.

COMMUNITY/STAKEHOLDER INPUT

The City released a community survey to elicit input on topics related to community hazards, sea-level rise, pollution, and air quality to get a better understanding of how the City can improve safety in Newark.

Overall, respondents indicated the following relating to geologic hazards in Newark:

- Safety was a primary concern to residents as they emphasized earthquakes as a significant hazard. Specifically, earthquakes were reported within the top three choices of highest concern to community residents.

HAZARDOUS MATERIALS

A hazardous material includes substances that may pose a threat to human health or the environment when they are improperly handled, stored, transported, or disposed (Title 22 of the California Code of Regulations (CCR)). Releases, leaks, or disposal of chemical compounds within the city can lead to contamination of surface water and underlying soil and groundwater. Disturbance of a previously contaminated area through grading or excavation operations could expose the public to health hazards from physical contact with contaminated materials or hazardous vapors.

Hazardous materials are classified based on the form of hazard(s) they pose, namely flammable, combustible, poisonous, and/or radioactive. For purposes of this section, the term “hazardous materials” refers to both hazardous substances and hazardous wastes. Hazardous substances include toxic metals, chemicals, gases, flammable and/or explosive materials, corrosive materials, infectious substances, and radioactive materials. Hazardous waste is the byproduct of various processes, including motor oil, gasoline, compressed gas tanks such as propane and oxygen, paints and solvents, household cleaners, drain openers, batteries, cleaners, and pesticides, all of which are potentially hazardous (EPA 2021).

LOCAL CONDITIONS

Newark has a sizeable number of industries where hazardous materials are used, and a rail and freeway network on which hazardous materials are frequently transported. There are several independent agencies that monitor hazard sites and hazardous materials at the state and federal level, which include the California Department of Toxic Substances Control (DTSC), the California State Water Resources Control Board (SWRCB), or the U.S. Environmental Protection Agency. As of February 2018, there were 146 listed facilities and sites in or near Newark (SWRCB 2018a; SWRCB 2018b; DTSC 2018a; DTSC 2018b; and EPA 2017). **Figure SAF-12** identifies the approximate locations of all these hazardous sites from the collective agency databases, including toxic release sites, permitted **underground storage tanks**, hazardous waste facilities, and hazardous waste cleanup sites. The figure identifies the approximate locations of cleanup sites in the city, which include sites that are being monitored by DTSC and SWRCB. Most chemical

Petroleum hydrocarbons are a broad range of chemicals that comprise oil and products refined from oil, such as gasoline and diesel.

An **underground storage tank** is defined by the EPA as a tank and any underground piping connected to the tank that has at least 10 percent of its combined volume underground.

SOURCE: EPA (2021b)

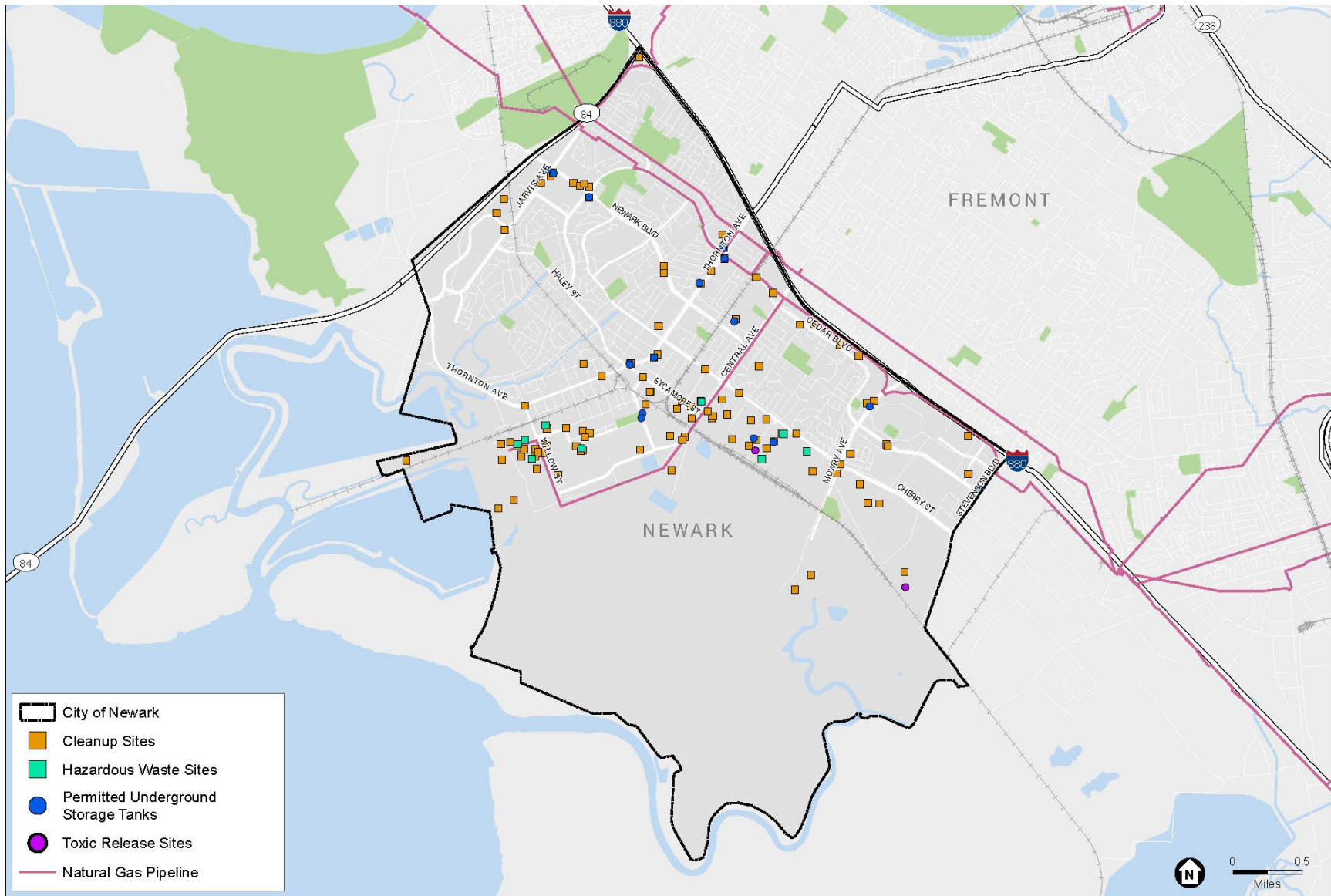
cleanup locations are situated in the industrial areas along Willow Street, Central Avenue, Sycamore Street, and Cherry Street. The hazardous facilities and documented hazardous sites in the city are also identified below under their respective monitoring agency.

California Department of Toxic Substances Control

DTSC maintains the EnviroStor Data Management System, which provides information on hazardous waste storage and disposal facilities (both permitted and in need of action) as well as any available site cleanup information. According to the DTSC, there are approximately nine hazardous waste storage facilities in the city. Of those nine facilities, eight have been closed and require no further remediation action and one site is operating under a permit. (DTSC 2018a; DTSC 2018b)

California State Water Resources Control Board

The SWRCB oversees the statewide Underground Storage Tank Program, which is aimed at protecting public health and safety and the environment from releases of petroleum and other hazardous substances from underground tanks. GeoTracker is the SWRCB's internet-accessible database system used by regional boards and local agencies to track and archive compliance data from authorized or unauthorized discharges of waste to land, or unauthorized releases of hazardous substances from underground storage tanks as well as any available site cleanup information. According to GeoTracker, there are 16 permitted underground storage tank facilities in the city (SWRCB 2018a). In addition, the SWRCB identified 96 cleanup sites (leaking underground storage tank cleanup, and cleanup program sites). Of the 96 cleanup sites, 11 sites are open and undergoing monitoring, 17 are undergoing site assessment, 9 are being remediated, 49 are closed, 4 are eligible for closure or are in the process of being closed down, 2 are inactive (closed down or cleaned up), and 4 are active (SWRCB 2018b).



SOURCE: DTSC; EPA; SWRCB; ESRI; ESA, 2022

FIGURE SAF-12 HAZARDOUS MATERIALS SITES

LOCAL VULNERABILITIES

Hazardous materials pose a significant long-term risk and threat to public health and safety, property and the environment. Hazardous materials also pose a risk to emergency response personnel. Many of the city's industries produce, use, and store hazardous materials. All residential neighborhoods in the city of Newark that are located in or within the vicinity of industrial areas known to have potential hazardous material (including industrial areas along Willow Street, Central Avenue, Sycamore Street, and Cherry Street) are physically vulnerable to a hazard caused by release of hazardous materials due to their proximity to hazardous materials sites. Public safety issues involve not only the use of these materials in populated areas but also the transportation and disposal of chemicals and other hazardous substances through the city.

Critical facilities and infrastructure that may be at risk are those that are essential to the health and welfare of the population, such as schools, senior centers, residences, hospitals, and emergency operations centers. Critical infrastructure that could be at risk includes the roads and bridges that provide ingress and egress and allow emergency vehicles access to those in need, and the utilities that provide water, electricity, and communication services to the community. Also included are facilities and railroads that hold or carry significant amounts of hazardous materials with a potential to impact public health and welfare in a hazard event.

TRANSPORTATION OF HAZARDOUS MATERIALS

Two major freeways, Interstate 880 (Nimitz Freeway) and State Route 84 (Dumbarton Freeway), and the urban arterials carry traffic transporting hazardous materials. The locations of these routes are to be periodically revisited, as a number of them pass through areas planned for future residential development (Newark Community Development Department 2017).

Two rail lines owned by Union Pacific Railroad traverse the city of Newark and also carry hazardous materials. The Union Pacific Railroad routes 142 freight trains a week through the city and includes two subdivision lines off the main line: These transportation routes carry a variety of materials, such as methanol and/or petroleum, that could pose

health risks to city residents in the event of an accident. The possibility of such an occurrence may be relatively higher in Newark than in other cities given the extent of freeway and railroad traffic that passes through and the concentration of manufacturing uses in the area. The locations of these routes will need to be periodically revisited, as a number of them pass through areas planned for future residential development. Backup routes also should be identified in the event a truck route is blocked or congested, impeding access by emergency vehicles.

With respect to the freeways and railroad, the City has less control over such activities due to the interstate nature of this traffic. Communication with state and federal regulatory agencies is critical to reduce the risk of accidents and ensure that response to transportation-related hazardous materials incidents is immediate and effective. In the event of a hazardous materials incident in Newark, the Alameda County Fire Department (ACFD) has a Hazardous Materials Unit that would provide the initial response.

TRANSMISSION PIPELINES

Gas and hazardous liquid transmission pipelines could also be at risk. Approximately 300,000 miles of gas transmission pipelines and 170,000 miles of hazardous liquid pipelines move their products throughout the United States every day. Transmission pipelines connect urban areas, and only occasionally traverse highly populated areas. Nearly all distribution pipelines, however, are concentrated in highly populated areas. Distribution pipelines serve homes and businesses and thus are located where people work and live. In the city of Newark, there are 131 miles of under-road pipelines.

There are also two large (20- and 30-inch) PG&E-owned and -operated high-pressure gas lines running through Newark along Central Avenue and along the northern boundary of the city. Figure SAF-12, *Hazardous Materials Sites*, shows the PG&E pipelines in or near the city. After a gas explosion in San Mateo County in 2010, PG&E began reviewing the safety of these lines and others. Moving forward, continued steps should be taken to ensure the long-term safety of the gas pipelines running through the city.

LOCAL INITIATIVES

Since 1990, state law has required that hazardous waste be properly disposed of in approved hazardous waste treatment or disposal facilities. To accomplish this, treatment methods and facilities have been developed and approved to pre-treat hazardous waste before its final disposal.

The City coordinates with the Alameda County Department of Environment Health (ACDEH), who is the Certified Unified Program Agency (CUPA) for Newark. The ACDEH has developed a Hazardous Waste Management Plan. The ACDEH coordinates and enforces environmental protection and hazardous material management, handling, and storage programs from the local to the federal level. These programs include the Hazardous Materials Business Plan (HMBP) Program; Hazardous Waste Generator Program; and California Accidental Release Program. Other County programs applicable to Newark include an underground storage tank program, an aboveground storage tank program, a tiered permitting program, and a risk management program.

In addition to the ACDEH, the City works with the ACFD in requiring hazardous materials users and generators to store and handle hazardous materials in accordance with best management practices to identify safety procedures for responding to accidental spills and emergencies. Fire codes, which are enforced by the ACFD, also address the handling of hazardous materials, and the Newark Municipal Code requires Hazardous Materials Storage Permits.

The storage of petroleum products and other chemicals on sites in Newark has created the risk of soil and groundwater contamination in parts of the city. The SWRCB monitors gas stations and industrial operations that operate subsurface gasoline or diesel storage units in Newark to ensure compliance with applicable hazardous material regulations. Groundwater monitoring and soil vapor testing are conducted regularly at contaminated and potentially contaminated locations to assess the degree of pollution.

HOUSEHOLD HAZARDOUS WASTE

The City encourages residents to properly dispose of household hazardous waste. The City partners with StopWaste.Org, an organization whose mission is to help Alameda County's businesses, residents, and schools waste less, recycle properly, and use water, energy, and other resources efficiently.

The City educates residents about the safe use and storage of household hazardous waste and its rules and regulations for waste disposal. Residents are often unaware of the potential damage these substances cause when they are disposed of in the trash, poured on the ground, or dumped down an indoor or outdoor drain. Household hazardous wastes must be safely disposed of in designated facilities. The facility closest to Newark is located just outside the city in Fremont.

HAZARDOUS MATERIALS BUSINESS PLANS

Businesses that use hazardous materials are required to prepare HMBPs for their operations. The HMBP must include a complete inventory of all materials that are handled by type, quantity, storage conditions, and routes of transport. Each HMBP assesses the potential hazards associated with the materials and the steps to be taken to minimize risks. The HMBP identifies actions to be taken in the event of a spill, identifies a responsible person for the facility, and includes any other data determined necessary to ensure public health and safety. The HMBP also addresses the methods for storing hazardous materials, including the design of storage tanks, containment facilities, and handling practices. As development occurs, each proposal will continue to be carefully evaluated to limit the potential for negative effects on adjacent uses. Businesses will continue to prepare HMBPs that indicate the protocol for minimizing risks. In addition, the City will continue to maintain distance thresholds in its zoning regulations that ensure that businesses storing hazardous materials are separated from residential uses.



KEY FINDINGS RELATED TO HAZARDOUS MATERIALS

- Hazardous materials pose a risk to emergency response personnel.
- All residential neighborhoods in the city that are located in or within the vicinity of industrial areas along Willow Street,

Central Avenue, Sycamore Street, and Cherry Street are physically vulnerable to hazards caused by the release of hazardous materials.

- Public safety issues involve the use, transportation, and disposal of chemicals and other hazardous substances through the city.
- Critical facilities and infrastructure that may be at risk from a hazardous materials release or groundwater contamination include schools, senior centers, residences, hospitals, and emergency operations centers.

COMMUNITY/STAKEHOLDER INPUT

The City released a community survey to elicit input on topics related to community hazards, sea-level rise, pollution, and air quality to get a better understanding of how we can improve safety in the city of Newark. However, there was no community input regarding hazardous materials.

NOISE

Noise is one of the seven mandated elements of a general plan in California. Because noise is considered a public safety issue, the City of Newark has merged this element with the State-mandated safety element. The noise section meets the requirements of Government Code Section 65302(f) and provides the framework for protecting Newark's residents from excessive noise.

The Noise section of the Safety Element describes the major sources of noise in the city. It includes measurements of existing noise levels along with projections of future noise levels based on expected increases in traffic and other factors. This section also establishes standards for acceptable noise levels for different land uses. The final section of the Safety Element includes the City's goals, policies, and actions related to noise.

Newark's location in a large metropolitan area makes it susceptible to high levels of noise. Each day, almost 200,000 cars pass along the city's eastern boundary on Interstate 880 while 60,000 cars pass along the northern boundary along State Route 84. Freight trains and large trucks pass through the city and aircraft fly overhead. Even in relatively quiet parts of the city, residents contend with domestic noise sources such as leaf blowers, barking dogs, and construction. Maintaining a relatively quiet environment is considered an important quality of life goal in Newark's neighborhoods.

Noise is an important factor in determining the distribution of land uses shown on the General Plan Land Use Map. Policies in the Land Use Element and in this Safety Element ensure that site planning for individual projects is responsive to local conditions, and protects public safety and well-being. For properties subject to high noise levels, this may mean that particular building orientations and buffering methods will be required, or that certain land uses may not be acceptable. Similarly, policies in the Transportation Element work in tandem with those in this Element to ensure that projected noise levels are considered in the design of transportation improvements.

Noise

This section and the accompanying policies in Section 3 are taken from the 2013 Environmental Hazards Element that will be updated in the next comprehensive General Plan Update.

NOISE DEFINITIONS AND STANDARDS

Noise can produce undesirable effects that range from irritability to hearing loss. The extent of adverse effects depends on the intensity, duration, time, and frequency of noise. Even noise of moderate volume and short duration, such as a heavy truck passing by, can have physiological effects.

The level of noise at a given location is usually expressed in decibels (dB). Decibels are measured on a logarithmic scale. This means that 10 dB is 10 times more intense than 1 dB, 20 dB is 100 times greater than 1 dB and 30 dB is 1,000 times greater than 1 dB. A particular type of decibel scale, called the "A" scale, is used to relate decibels to human perception. The A scale filters out very high and very low frequencies. Everyday sounds range from 30 dB, which is very quiet, to 100 dB, which is very noisy. Above 70 dB, noise can become irritating and disruptive.

When reporting noise levels, it is important to also report the distance between the source and receiver. Under typical atmospheric conditions, sound attenuates at a rate of 3 to 6 dB for each doubling of the distance. An untrained human ear typically cannot detect a difference in sound levels of less than 3 dB. It is difficult to tell the difference between 60 dB and 62 dB, but the difference between 60 dB and 65 dB is easily noticed.

Typical A-weighted sound levels for various sources of noise measured at specific distances are shown in **Table SAF-4**. Different rating scales have been developed to assess the severity of noise exposure, taking into consideration such factors as duration, repetition rate, background levels, and time of occurrence.

TABLE SAF-4 TYPICAL NOISE LEVELS

Common Outdoor Activities	Noise Level (dBA)	Common Indoor Activities
	110	Rock Band
Jet Flyover at 1,000 feet		
	100	
Gas Lawn Mower at 3 feet		
	90	
Diesel Truck at 50 feet, at 50 mph		Food Blender at 3 feet
	80	Garbage Disposal at 3 feet
Noisy Urban Area, Daytime		
	70	Vacuum Cleaner at 10 feet
Commercial Area		Normal speech at 3 feet
Heavy Traffic at 300 feet	60	
		Large Business Office
Quiet Urban Daytime	50	Dishwasher Next Room
Quiet Urban Nighttime	40	Theater, Large Conference Room (background)
Quiet Suburban Nighttime		
	30	Library
Quiet Rural Nighttime		Bedroom at Night, Concert Hall (background)
	20	
		Broadcast/Recording Studio
	10	
Lowest Threshold of Human Hearing	0	Lowest Threshold of Human Hearing

SOURCE: Caltrans, 2009.

The term Ldn is used to express the average sound level over a 24-hour period, with a 10 dBA weighting factor applied for noise that occurs between 10 PM and 7 AM. The adjustment for night-time noise accounts for the greater human sensitivity to noise during these hours. The use of a 24-hour measurement period accounts for the variations in the intensity of sound levels that may occur throughout the day.

NOISE CRITERIA FOR LAND USE PLANNING

The potential for adverse psychological and physiological impacts related to noise requires that criteria be established for determining acceptable levels of noise for different land uses. Certain land uses are considered "sensitive receptors," meaning they are more prone to the adverse effects of high noise levels than others. These include residential areas, schools, childcare centers, hospitals, churches, libraries, and nursing homes, among others. Future land use decisions should protect these uses from high levels of noise. At the same time, when land uses such as housing and schools are developed in the future, it is important that they are located and designed in a way that protects occupants from potential impacts from existing noise sources.

Table SAF-5 provides interior and exterior noise compatibility guidelines for different land uses. To avoid the potential for noise-related problems, future development proposals should comply with these guidelines to the greatest extent feasible.

Table SAF-5 uses four terms to define the level of noise compatibility for each land use:

- "Normally Acceptable" means that the specified land use is satisfactory based on the assumption that any buildings involved are of normal conventional construction, without any special noise insulation requirements.
- "Conditionally Acceptable" means that new construction or development should be undertaken only after a detailed analysis of noise reduction requirements is made and necessary noise mitigation measures are included in the design.
- "Normally Unacceptable" means that new construction or development of the particular land use should be discouraged. If new construction or development proceeds, a detailed noise analysis must be performed.
- "Clearly Unacceptable" means that new construction or development should generally not be undertaken.

TABLE SAF-5 NOISE COMPATIBILITY GUIDELINES FOR NEWARK

Land Uses	Interior CNEL or L _{dn} (dBA)	Exterior Noise Exposure, CNEL or L _{dn} (dBA)					
		55	60	65	70	75	80
Residential-Low Density Single-Family, Duplex, Mobile Homes	45*	Normally Acceptable	Normally Acceptable	Normally Acceptable	Conditionally Acceptable	Normally Unacceptable	Clearly Unacceptable
Residential-Multiple Family	45*	Normally Acceptable	Normally Acceptable	Normally Acceptable	Conditionally Acceptable	Normally Unacceptable	Clearly Unacceptable
Transient Lodging, Motels, Hotels	45*	Normally Acceptable	Normally Acceptable	Normally Acceptable	Conditionally Acceptable	Normally Unacceptable	Clearly Unacceptable
Schools, Libraries, Churches, Hospitals, Nursing Homes	45*	Normally Acceptable	Normally Acceptable	Normally Acceptable	Conditionally Acceptable	Normally Unacceptable	Clearly Unacceptable
Auditoriums, Concert Halls, Amphitheaters	--	Normally Acceptable	Normally Acceptable	Normally Unacceptable	Clearly Unacceptable	Clearly Unacceptable	Clearly Unacceptable
Sports Arena, Outdoor Spectator Sports	--	Normally Acceptable	Normally Acceptable	Normally Unacceptable	Clearly Unacceptable	Clearly Unacceptable	Clearly Unacceptable
Playgrounds, Neighborhood Parks	--	Normally Acceptable	Normally Acceptable	Normally Unacceptable	Clearly Unacceptable	Clearly Unacceptable	Clearly Unacceptable
Golf Courses, Riding Stables, Water Recreation, Cemeteries	--	Normally Acceptable	Normally Acceptable	Normally Unacceptable	Clearly Unacceptable	Clearly Unacceptable	Clearly Unacceptable
Office Buildings, Businesses, Commercial and Professional	50	Normally Acceptable	Normally Acceptable	Normally Unacceptable	Clearly Unacceptable	Clearly Unacceptable	Clearly Unacceptable
Industrial, Manufacturing, Utilities, Agricultural	--	Normally Acceptable	Normally Acceptable	Normally Unacceptable	Clearly Unacceptable	Clearly Unacceptable	Clearly Unacceptable



Normally Acceptable:

Specified land use is satisfactory based upon the assumption that any buildings involved are of normal conventional construction, without any special noise insulation requirements.



Conditionally Acceptable:

New construction or development should be undertaken only after a detailed analysis of the noise reduction requirements is made and the needed noise insulation features are included in the design. Conventional construction, but with closed windows and fresh air supply systems or air conditioning will normally suffice.



Normally Unacceptable:

New construction or development should generally be discouraged. If new construction does proceed, a detailed analysis of the noise reduction requirements must be made and needed noise insulation features included in the design.



Clearly Unacceptable:

New construction or development generally should not be undertaken.

* Noise level requirement with closed windows, mechanical ventilation, or other means of ventilation shall be provided per Chapter 12 Section 1205 of the Building Code.

SOURCE: State of California General Plan Guidelines, 2003.

The noise criteria for multi-family housing should also comply with the Noise Insulation Standards of the California Code of Regulations, Part 2, Title 24 (commonly referred to as "Title 24"). These standards establish minimum noise insulation levels for new hotels, motels, dormitories, long-term care facilities, apartments, and other attached or multi-family dwellings. Consistent with Title 24, when part of a development site is exposed to exterior noise levels greater than 60 dB Ldn, an acoustical analysis is required. The analysis should include measures that reduce the noise levels in interior living spaces to 45 dB Ldn or less.

NOISE EMISSION STANDARDS

In addition to the noise compatibility standards in the previous sections, State and federal agencies have established standards for motor vehicles. Section 38370 of the California Vehicle Code establishes noise emission standards that are enforced during licensing. The Newark Police Department may enforce noise violations caused by vehicles operating in excess of State standards.

Noise criteria which are designed to protect the health of employees in workplaces have been established at the federal level by the EPA and OSHA. The California Occupational Safety and Health Administration (Cal-OSHA) generally mirrors the federal standards.

GROUND VIBRATION

Ground-borne vibration can be detrimental to structures and can cause annoyance to persons within those structures. The level of vibration is influenced by a number of factors, including soil characteristics, groundwater depth, and geologic conditions. In the past, the greatest vibration-related concerns in Newark have been freight traffic along the Union Pacific Railroad, trucks along major thoroughfares, and heavy construction activity such as pile drivers, vibratory rollers, and jackhammers. Vibration levels usually dissipate rapidly with distance, so the area of concern is typically close to the source(s).

Policies in this Element ensure that vibration impacts are considered when development is proposed. Appropriate setbacks for structures are determined on a site-by-site basis during the environmental review process for any planned development along a railroad corridor.

Additionally, the City sets limits on construction hours and activities to reduce the potential for vibration-related impacts to become a source of annoyance and/or structural damage.

THE NEWARK NOISE ENVIRONMENT

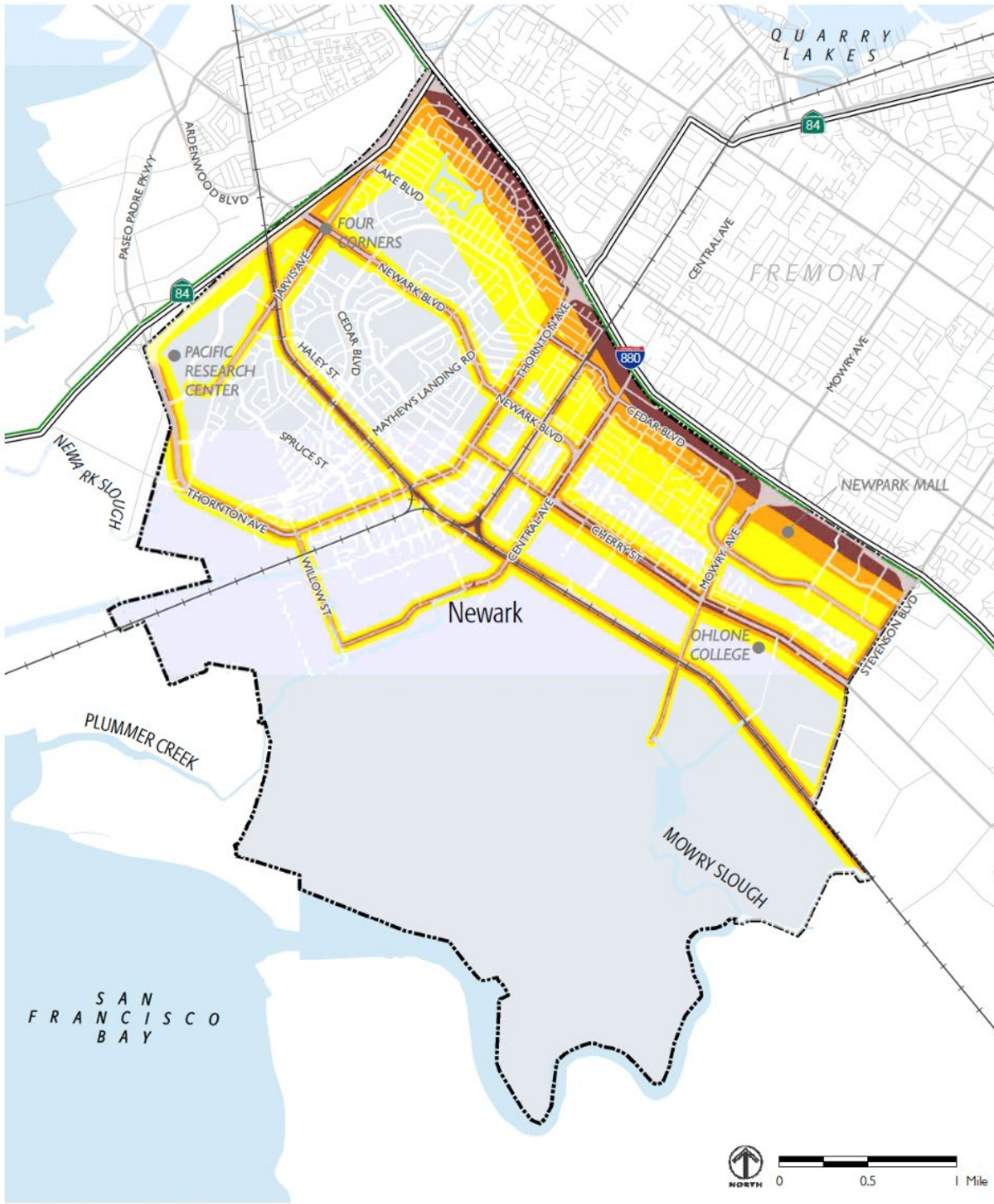
The noise environment in Newark is influenced primarily by roadway traffic, railroad operations, industrial activities, and to lesser extent, commercial and residential activities. Major noise sources include Interstate 880 and State Route 84, the Union Pacific Railroad, and major thoroughfares such as Mowry Avenue, Thornton Avenue, Stevenson Boulevard, Cherry Street, Cedar Boulevard, Central Avenue, Jarvis Avenue, and Newark Boulevard. There are also a number of stationary noise sources in the city's industrial areas that create localized areas with high noise levels.

To identify existing noise conditions and develop a baseline for the projection of future noise conditions, noise level measurements were made at three long-term (LT) sites and ten short-term (ST) sites as part of the 2013 General Plan revision. Noise levels reported in various EIRs and prior planning documents also were considered. Using the noise measurement data, noise contour maps have been prepared to show the noise environment in the city under both existing and future traffic conditions. **Figure SAF-13** shows current (2013) noise contours while **Figure SAF-14** shows projected contours in 2035. The contour maps also consider existing and projected railroad noise.

The major types of noise sources within the city are profiled below.

Vehicles

Cars, motorcycles, trucks, and buses are the principal sources of vehicle noise in Newark. Vehicle noise is generated by engines, tires, and exhaust systems. The highest noise levels are associated with Interstate 880, which borders the city on the east, and State Route 84, which borders the city on the north. Both freeways are at grade, with under-crossings or overpasses at major interchanges. In addition, arterial, collector, and local streets create a significant source of ambient noise around the city.



Source: City of Newark; U.S. Fish and Wildlife Services, 2012

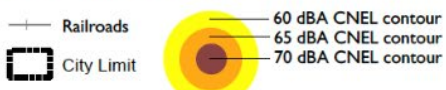
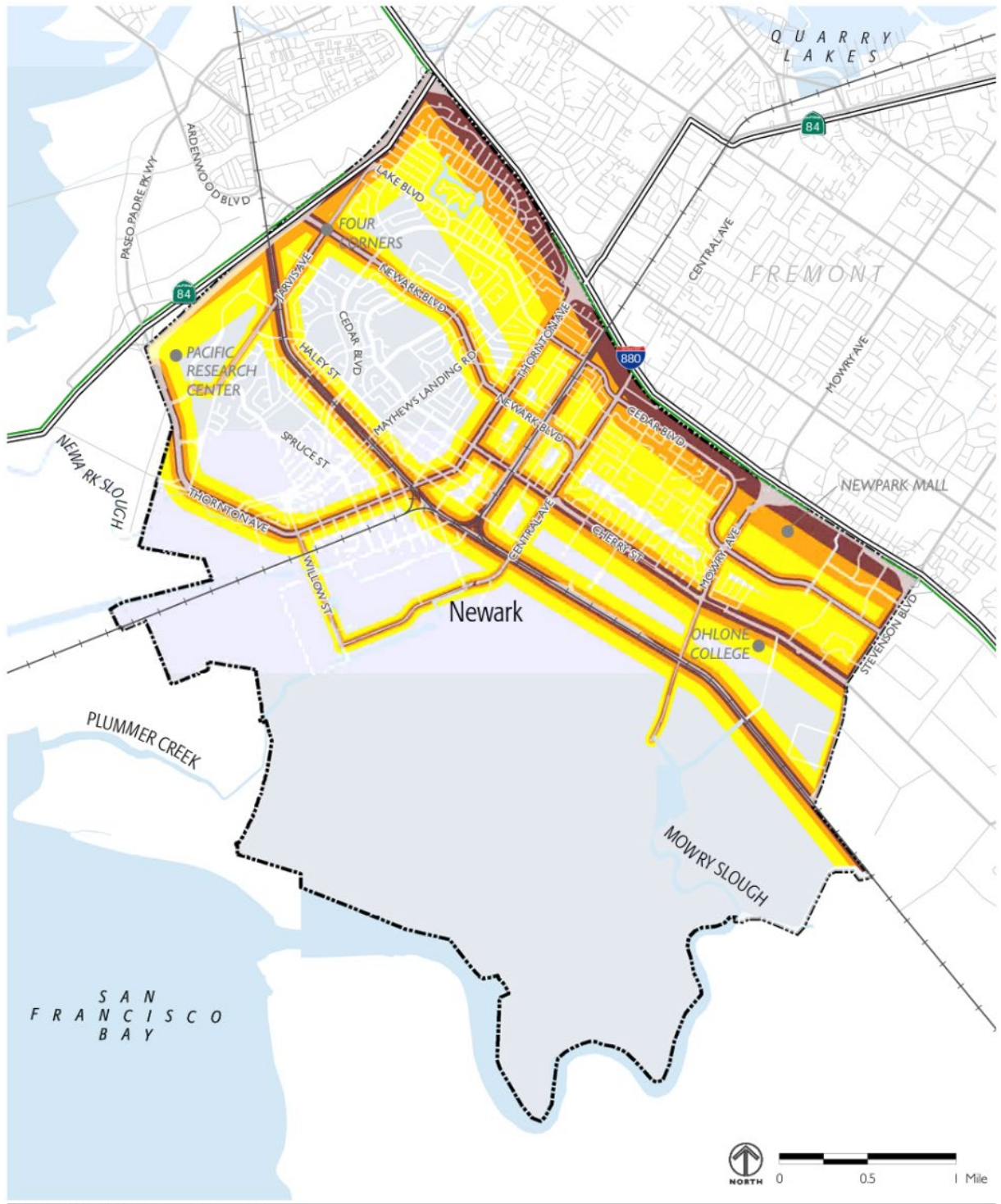


FIGURE SAF-13 EXISTING NOISE CONTOURS

FIGURE EH-3
EXISTING NOISE CONTOURS



Source: City of Newark; U.S. Fish and Wildlife Services, 2012



FIGURE SAF-14 FUTURE (2035) NOISE CONTOURS

FIGURE EH-4
FUTURE (2035) NOISE CONTOURS

Figure SAF-13 shows the noise contour lines along the Newark side of the two freeways and along major arterials as of 2013. Figure SAF-14 shows projected noise levels in 2035 in the same locations. A slight increase in noise levels is anticipated as a result of increased traffic volumes. The General Plan EIR may be consulted for a more detailed evaluation of the data. Policies and actions later in this Element indicate the steps that should be taken to mitigate the impacts of roadway noise on existing development and future development that takes place near the freeways and along major arterials.

Railroad

The Union Pacific Railroad includes two lines that bisect the city – one running north-south and another running east-west. The two lines intersect near Thornton Avenue and Sycamore Street. Newark's railways serve freight trains and passenger trains. In 2013, there were eight Altamont Commuter Express trains and 14 Capitol Corridor trains each weekday. The number of freight trains varies from day-to-day, depending on the local and regional demand for the movement of goods.

Noise from passing trains is generated by locomotive engines, mechanical components, warning horns, crossing guard bells, and the interaction of steel wheels and rails. Federal regulations require that trains sound a warning horn ¼-mile before they approach a grade-level crossing. Some cities have established "Quiet Zones" where these regulations are suspended, but Newark has not done so.

Aircraft

Aircraft contribute to the noise environment in Newark, but they are not considered a major problem at this time. The city is located roughly 10 to 15 miles from runways at the region's three international airports. At these distances, the city is not within the airport land use planning areas or runway protection zones associated with these airports. Smaller airports, including the Palo Alto and Hayward Airports, are located more than 5 miles away from the city. Low-altitude regular traffic patterns to and from the region's airports do not occur over the city. Further, there are no heliports in Newark or in immediate proximity to the city. While intermittent aircraft or helicopters over-

flights may produce single-event noise levels of approximately 60 to 70 dBA, aviation noise, in general, is minimal throughout the city.

STATIONARY NOISE SOURCES

Stationary noise is generated by day-to-day activities associated with industrial, commercial, residential, and public uses. These land uses may generate noise from heating, ventilation, and air conditioning (HVAC) systems, loading and delivery activities at local businesses, and the use of motorized equipment and heavy machinery. Even public uses such as schools and parks may generate noise associated with outdoor activities such as physical education programs and sporting events.

Industrial uses are generally located in the area west of Cherry Street and along both sides of Central Avenue between Cherry and Willow Streets. There are also areas of industrial activity along Cedar Boulevard near Central Avenue and along the southern perimeter of Old Town Newark along Wells Avenue and Enterprise Drive. Noise from these areas varies widely, with some businesses operating only during typical work-day hours and others operating on a 24-hour basis. The city's heavier industrial activities, such as Pabco Gypsum and Cargill Salt, tend to be more distant from residential uses. The potential for noise conflicts may be greater where industrial uses are adjacent to homes or generate noise that is perceptible at nearby neighborhoods.

Domestic noise also has the potential to create conflicts. This includes noise associated with yard maintenance activities such as leaf blowers and lawn mowers, and noise from loud music, barking dogs, parties, and other household sources. These types of noise issues are typically controlled through administrative processes such as police complaints, rather than through land use planning.

IMPACTS OF LAND USE CHANGES ON NOISE-RELATED ISSUES

The future noise environment in Newark will be impacted not only by changes in traffic volumes, but also by changes in land use. In particular, new transit-oriented development around the future Dumbarton Rail station and residential development in Southwest Newark will result in a larger population in areas that are presently vacant. New homes may be built in areas subject to railroad noise and in areas where there is audible noise from nearby industrial activities.

The environmental impact reports (EIRs) prepared for approved development in these areas included measures to mitigate potential noise impacts. Likewise, future EIRs will include such measures, as appropriate.

Similarly, the development of new medium-density housing along Cedar Avenue between NewPark Mall and Mowry Avenue and potentially in the NewPark area could result in higher populations near Interstate 880. Infill development in Old Town Newark and on other housing sites will likely mean more residents living along major thoroughfares in the city. Development of the remaining vacant sites in Pacific Research Center, Stevenson Point Technology Park, and other industrial areas of the city could create new noise sources, which in turn could affect nearby residential areas.

Policies and actions in the General Plan have been developed to reduce the potential for impacts associated with these changes. As appropriate, through implementation of a new Noise Ordinance, the City will continue to require acoustical studies when development is proposed near noise sources, or when new development will generate noise that could impact nearby sensitive receptors.

When an acoustical analysis is required, it must be submitted at the same time as the application for a planning or building permit. The City requires that the analysis be prepared under the supervision of a person experienced in the field of acoustical engineering. The reports must include noise data obtained from on-site sound level measurements with appropriate variations based on the time of day and different locations on the site. Factors such as topography, the location, and characteristics of noise sources, and projected noise sources must be considered and discussed. As appropriate, acoustical reports also must include noise attenuation measures, and an analysis that demonstrates that interior noise level requirements will be achieved in a manner consistent with Title 24 and other applicable building code requirements.

CONTROLLING FUTURE NOISE EFFECTS

Noise problems are usually associated with one of three components: 1) noise sources, 2) the noise transmission pathway, and 3) noise receivers. Most measures to reduce the effects of noise focus on some

combination of these three components. These measures include reducing noise at the source, providing greater distance separation (buffering) and/or barriers along the path between the noise source and the noise receiver, and modifying the receiver through sound insulation and/or other means.

NOISE SOURCE CONTROLS

One of the most effective ways to reduce noise is to control it at the source. This can be accomplished by placing enclosures around motors, requiring quieter machinery and equipment, regulating the hours during which noise is generated, and similar measures. For example, conditional use permits may specify that certain businesses activities are prohibited during night-time hours to reduce potential noise conflicts. Likewise, construction may be prohibited during certain times of the day and night. Other examples of noise source controls include federal regulations for quieter aircraft and motor vehicle mufflers, and the designation of certain streets as truck routes to direct truck traffic away from residential streets.

The Newark Municipal Code regulates industrial operations to reduce noise levels that could disturb nearby sensitive uses. The code sets strict limits on the emission of noise from industrial sites and also sets limits for the reception of noise at certain land uses adjacent to industrial districts. Noise from home occupations, animals, agriculture, alarms, and vehicles is also addressed by different sections of the Municipal Code. As noted earlier, an action in the General Plan calls for the reorganization of these various provisions into a City Noise Ordinance.

NOISE PATHWAY CONTROLS

Noise levels can be reduced by modifying the pathway that noise travels between its source and nearby receivers. Typical noise barriers include earthen berms and sound walls. Fences are sometimes used on private properties to absorb noise and increase privacy. Planting and shrubbery are less effective as roadway noise barriers, although they do provide privacy and visual screening. Another example of noise path control is to increase the separation distance between the source and receiving point.

Sound walls have been constructed along portions of Interstate 880 to reduce noise levels in adjoining residential areas in the northeastern part of Newark. Residents have expressed interest in using taller walls to further reduce noise levels in this area. The City has also constructed back-up masonry walls along arterials where noise levels exceed residential compatibility guidelines. These walls exist along portions of Thornton Avenue, Cherry Street, Cedar Boulevard, Newark Boulevard, Mowry Avenue, and Jarvis Avenue.

NOISE RECEIVER CONTROLS

Adjusting the noise receiver is typically done through site planning, building design, and construction. Lower noise levels can be achieved by designing a development to maximize separation distance between noise sources and receptors, and taking advantage of natural barriers and topography. For example, mechanical equipment should be placed away from sleeping areas. Likewise, decks and balconies should be avoided on facades that face noisy streets. Interior rooms should be arranged so that noise-sensitive spaces such as bedrooms are placed further away from the roadway or other nearby noise sources. Within the building itself, noise levels can be reduced by increasing wall mass and thickness, using double glazed windows and solid core doors, and through interior finishes such as carpeting, drapes, and acoustical ceiling tiles.

EMERGENCY PREPAREDNESS

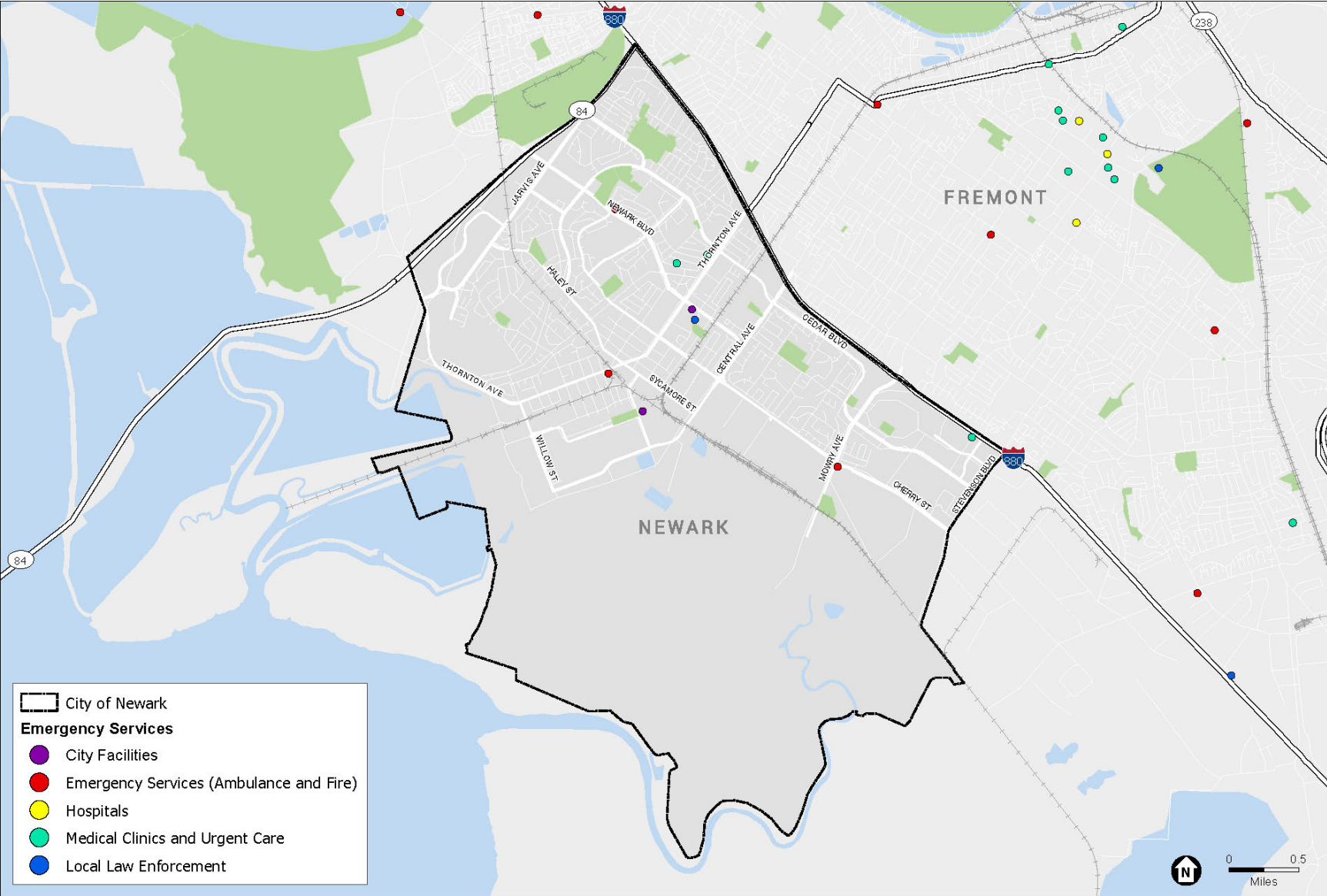
Emergency preparation is key to the safety of a community in the event of a disaster. Newark's location in an area prone to earthquakes, floods, and hazardous material incidents means it is essential to be prepared in the event of an emergency. Emergency preparedness infrastructure (emergency response facilities, community gathering spaces, and emergency evacuation routes) as well as a strong communication and response network aid with the City's ability to address multiple hazards and build community resilience broadly.

CITY CAPACITY TO RESPOND TO EMERGENCIES AND BUILD RESILIENCE

Newark has adopted a comprehensive emergency response plan. The *Emergency Operations Plan* sets forth operational procedures for responding to a variety of emergency conditions. The procedures address the needs of the entire community and identify key responsible agencies and personnel. The City has designated an Emergency Operations Center so that citywide emergencies can be dealt with effectively from a central location.

This comprehensive plan is periodically updated in response to new requirements, technology and communication protocol, and real-world experiences. Newark has also designated a Disaster Council consisting of the Mayor, City Manager, department heads, and representatives of schools and utilities, to discuss disaster preparedness. Disaster planning efforts are coordinated with the cities of Fremont, Hayward, and Union City to maximize mutual aid response.

The City of Newark and the Alameda County Fire District work collaboratively to reduce exposure to hazards, implement training programs for residents, and ensure effective response and quick recovery following an incident. There are three Alameda County Fire Stations that serve the City of Newark, which includes Alameda County Fire Department Stations 27, 28, and 29, the Newark Police Department, and three medical facilities (see **Figure SAF-15**).



SOURCE: Google Maps; HIFLD; OSM; ESA, 2022.

FIGURE SAF-15 EMERGENCY PREPAREDNESS AND RESILIENCE

The City also encourages its residents and businesses to be better prepared for disasters. The ACFD offers a local Community Emergency Response Team (CERT) training program for community volunteers. The training provides basic skills in firefighting, search and rescue, first aid, and emergency preparedness. Lastly, the City's Disaster Preparedness webpage includes information related to different types of emergency preparedness workshops, such as the CERT program and the Personal Emergency Preparedness workshop hosted by the Alameda County Fire Department. The webpage also includes links and resources to other local, county, state, and federal agency emergency preparedness guides.

EVACUATION PLANNING

Emergency evacuation of residents, businesses, and particularly our vulnerable communities has become an important focus of emergency preparedness. Two recently adopted legislative bills (SB 99 & AB 747) require that cities update their Safety Elements to identify and evaluate evacuation routes. AB 747 specifically requires that safety elements be updated to identify evacuation routes and assess the capacity, safety, and viability of those routes under a range of emergency scenarios. Senate Bill 99 similarly requires the agencies to identify residential developments in hazard areas that do not have at least two emergency evacuation routes.

The City's emergency evacuation scenarios and constrained parcels are evaluated in **Appendix B**. Several maps identify residential parcels with only one access route. The maps also show the relationship between the identified parcels and Newark's most significant hazards including earthquakes and flooding from dam inundation or sea level rise.

Appendix B also illustrates three evacuation scenarios, each focusing on the availability of roadways during flood emergencies. These scenarios assess various factors affecting evacuation, such as access to arterial roadways and highway overpasses. The analysis also recognizes the city's distinctive topographical features bordering the Bay, and industrial sites such as salt harvesting, refining, and production facilities, which further constrain the direction and quantity of viable evacuation routes.

The analysis provided in Appendix B also includes potential measures to enhance the evacuation preparation and process focusing on both the



supply side (increasing evacuation capacity) and demand side (managing evacuation volumes). Supply-side strategies include increasing capacity through transit lanes or shoulders, managed traffic control for maximized evacuation flow, and street parking management on high-risk days. On the demand side, strategies include improved communication systems for disaster alerts, dynamic route guidance, and programs for better accounting of households needing assistance. Other suggested measures include coordination with public transit for special evacuation shuttles, neighborhood programs for advanced ride-sharing coordination, and phased evacuations. Evacuation measures such as these should aim to reduce vehicle volumes during evacuations, encouraging households to evacuate in as few vehicles as possible.

KEY FINDINGS RELATED TO EMERGENCY PREPAREDNESS

- Newark has a robust emergency management system in place based on a the existing Emergency Operations Plan.
- The City of Newark and the Alameda County Fire District work collaboratively to reduce exposure to hazards, implement training programs for residents, and ensure effective response and quick recovery following an incident.
- The City encourages residents and business to be better prepared for disasters through education and preparedness programming.
- Parcels constrained by less than two access routes exist throughout the city (mapped in Appendix B).
- The city's distinctive topographical features as it borders the San Francisco Bay, and industrial facilities such as salt harvesting, refining, and other production facilities constrain the direction and quantity of viable evacuation routes.
- Measures to enhance the evacuation preparation and processes include increasing road capacity and monitoring of households with special evacuation needs including those without personal vehicles.

COMMUNITY/STAKEHOLDER INPUT

The City released a community survey to elicit input on topics related to natural disasters, sea-level rise, pollution, and air quality to get a better understanding of how the City can improve safety in Newark. There

was no community input regarding hazards related to emergency preparedness systems and related efforts in Newark.

3. GOALS, POLICIES, AND ACTIONS

The following goals, policies, and actions are organized in the order they appear in the existing conditions section 2. Policies and actions indicated with accompanying black titles mirror the presentation in the Newark 2013 General Plan. Policies and actions paired with red titles maintain similarities to those in the previous 2013 plan but have been revised to align with current conditions or mandates. Policies and actions bearing green/teal titles are entirely new or have undergone substantial modifications compared to the 2013 plan.

AIR QUALITY

GOAL SAF-1 A community with clean and healthy air.

POLICIES

- Policy SAF-1.1** **Cooperation Among Agencies.** Continue to cooperate with regional, state and federal jurisdictions, including BAAQMD and CARB to minimize exposure to air pollution.
- Policy SAF-1.2** **Climate Action and Adaptation Planning.** Ensure that the forthcoming Climate Action Plan is a qualified climate action and adaptation plan that comprehensively addresses GHG emissions reductions, and includes strategies and actions to not only reduce vehicular and other emissions, but protect and mitigate the impact of those emissions on sensitive resources, particularly in areas most exposed to air pollution.
- Policy SAF-1.3** **Sensitive Uses.** Amend the zoning ordinance to include standards and restrictions that protect sensitive uses (residential areas, parks, schools, etc.) from pollutants originating from freeways, truck routes, heavy industrial or other polluting sources.

- Policy SAF-1.4** **Land Use Planning.** Take actions to expand infill development within job centers and around transportation nodes. Require multifamily developments and large commercial projects over one acre in size to mitigate, to the extent feasible, anticipated emissions which exceed BAAQMD guidelines.
- Policy SAF-1.5** **Truck Congestion.** Develop and implement strategies to reduce traffic congestion and pollution in collaboration with the business community to encourage mutually beneficial operations such as off-peak truck deliveries.
- Policy SAF-1.6** **Funding.** Apply for alternative financing mechanisms for local air quality improvement programs.
- Policy SAF-1.7** **Transportation Demand Management.** Develop and implement **transportation demand management (TDM)** policies, strategies, and incentives as a vital tool for reducing vehicle emissions, improving air quality and promoting active transportation.

ACTIONS

- Action SAF-1.A** **Zoning Ordinance Amendments.** Amend the zoning ordinance to create provisions that protect or restrict sensitive uses within 1,000 feet of I-880 and SR 84 rights-of-way, and near heavy industrial or other polluting uses that could impact the health and safety of sensitive populations. Incorporate recommendations from the forthcoming Climate Action Plan into the zoning ordinance. *(Implements Policy SAF-1.3 Sensitive Uses)*
- Action SAF-1.B** **Climate Action and Adaptation Plan Preparation.** Prepare, adopt, and implement a qualified Climate Action and Adaption Plan within 3 years. *(Implements Policy SAF-1.2 Climate Action and Adaptation Planning)*

- Action SAF-1.C Transportation Demand Management (TDM) Strategies.** Update the zoning ordinance to include TDM standards and incentives to be implemented at the project scale. Standards may include mandating the inclusion of bike infrastructure and pedestrian amenities; developing parking caps and unbundling parking; establishing narrow street standards and traffic calming requirements; requiring higher-density developments near transit. Incentives may include employer-based programs such as subsidized transit passes and bike storage facilities *(Implements Policy SAF-1.4 Land Use Planning)*
- Action SAF-1.D Wood Burning Fireplaces.** Require compliance with state and federal standards for wood-burning fireplaces and stoves in new or remodeled homes. *(Implements Policy SAF-1.1 Cooperation Among Agencies)*
- Action SAF-1.E Air Quality Studies for New Development.** Use the environmental review process to require mitigation of potential air quality impacts generated by new development. Site-specific air quality studies should be required for future development that includes sensitive receptors (such as schools, hospitals, daycare centers, or retirement homes) located within designated air quality buffer areas along Interstate 880 and State Route 84. *(Implements Policy SAF-1.1 Cooperation Among Agencies)*
- Action SAF-1.F Furnace Replacement and Clean Appliances.** Invest in programs that help property owners replace residential, commercial, and industrial furnaces and gasoline powered appliances with cleaner fuel, low emission furnaces, and clean energy appliances. *(Implements Policy SAF-1.1 Cooperation Among Agencies)*

Action SAF-1.G Restaurant Exhaust Systems. Require new restaurants located in mixed-use developments or adjacent to residential developments to install kitchen exhaust vents with filtration systems, re-route vents away from residential development, and use other accepted methods of odor control, in accordance with local building and fire codes. Restaurant Exhaust Systems. *(Implements Policy SAF-1.3 Sensitive Uses)*

Action SAF-1.H Health Risk Assessments. Require submittal of a Health Risk Assessment (HRA) for applicants proposing major development or redevelopment within 1,000 feet of the I-880 or SR 84 freeways. For projects where the incremental cancer risk exceeds ten in one million, PM_{2.5} concentrations exceed 0.3 µg/m³, or the appropriate non-cancer hazard index exceeds 1.0, the HRA shall identify mitigation measures capable of reducing potential risks to acceptable levels. *(Implements Policy SAF-1.4 Land Use Planning)*.

HRAs shall be done in accordance with the latest State Office of Environmental Health Hazard Assessment and Bay Area Air Quality Management District guidelines, and shall mitigate impacts to levels deemed acceptable by these agencies. The City shall modify its standard conditions of approval to implement this action.

Action SAF-1.I Construction-Related Pollutants. Require that construction contractors implement basic control measures consistent with BAAQMD recommendations to limit emissions of construction-related criteria pollutants, including fugitive dust. *(Implements Policy SAF-1.1 Cooperation Among Agencies)*

Action SAF-1.J Nuisance Odors. Evaluate the potential for proposed projects to emit nuisance odors beyond the property line and require that property owners submit odor management plans consistent with BAAQMD regulations. *(Implements Policy SAF-1.1 Cooperation Among Agencies)*

Action SAF-1.K Standard Conditions of Approval. Update the City’s Standard Conditions of Approval to require measures which reduce particulate emissions (PM₁₀) from construction and reduce construction-related emissions if project-level environmental review determines that BAAQMD thresholds for criteria pollutants may be exceeded. *(Implements Policy SAF-1.1 Cooperation Among Agencies)*

Mitigation measures for construction impacts could include using construction equipment rated by the EPA as complying with current emission limits, ensuring construction equipment is serviced and maintained to the manufacturer’s standards, and limiting nonessential construction equipment idling to no more than five minutes.

DROUGHT AND WATER QUALITY

GOAL SAF-2 A community that protects and enhances the availability, conservation, and health of water resources for long-term needs.

POLICIES

Policy SAF-2.1 Water Pollution Reduction. Identify pollution risks and levels of contamination for the city’s water bodies. Reduce pollutants entering and degrading water resources, including groundwater and surface waters in Newark, by minimizing hazardous materials accidents, spills, and vapor releases.

See also Safety Element policies on hazardous materials.

Policy SAF-2.2 Cleanup Sites. Cooperate with local and state agencies to address mitigation and improvements of cleanup sites. Prioritize the cleanup of sites that pose a risk to water bodies and sensitive populations.

- Policy SAF-2.3** **Cooperation Among Agencies to Address Lead Risk.** Work with the Alameda County Department of Public Health to identify and address lead risk in infrastructure and the housing stock to ensure access to clean lead-free water for all community members.
- Policy SAF-2.4** **Drought Awareness.** Collaborate with public agencies and community organizations to raise awareness of long-term climate and drought impacts and encourage emergency planning efforts to consider drought.
- Policy SAF-2.5** **Water Storage.** Raise awareness of on-site water storage and rainwater capture practices for conservation and emergency drought events, that can be used for fresh water supply, watering of plants, and other uses. Utilize public campaigns and starter kits for households to engage in water storage practices, such as using rain barrels.
- Policy SAF-2.6** **Water Conservation.** Identify technologies and retrofits at municipal facilities for expanding water conservation. Develop new programs to encourage water conservation for residential, business, and commercial sectors.
- Policy SAF-2.7** **Protection of Surface Water Bodies.** Protect surface water bodies in the city, including lakes, rivers, streams, creeks, and wetlands, from development and other activities that impact water quality.
- Policy SAF-2.8** **Lakeshore Park Amenity.** Identify pollution risks to Lakeshore Park Lake and plan improvements for the health and water quality of the lake for its benefit to the community and wildlife.
- Policy SAF-2.9** **Long-Term Water Supply.** Invest resources in expanding water desalination projects to help ensure long-term supply of water and build local resiliency against long-term droughts.

ACTIONS

- Action SAF-2.A** **Prioritize Cleanup Sites.** Identify a funding source and prioritize cleanup sites that are contributing to pollution and degradation of water resources, considering contamination levels and proximity to residential neighborhoods, community amenities, and parks and recreation. Work to address and minimize material leakages and water quality concerns from cleanup sites in the community. *(Implements Policy SAF-2.1 Water Pollution Reduction; Policy SAF-2.2 Cleanup Sites; Policy SAF-2.7 Protection of Surface Water Bodies; and Policy SAF-2.8 Lakeshore Park Amenity)*
- Action SAF-2.B** **Address Pollution in Water Bodies.** Identify contaminated surface water bodies in the city, and conduct regular evaluation of clean-up efforts. *(Implements Policy SAF-2.7 Protection of Surface Water Bodies)*
- Action SAF-2.C** **Collaborate with the ACWD.** Collaborate with the ACWD to identify prevention measures to protect water bodies from pollution risk. *(Implements Policy SAF-2.1 Water Pollution Reduction; Policy SAF-2.2 Cleanup Sites; Policy SAF-2.7 Protection of Surface Water Bodies; and Policy SAF-2.8 Lakeshore Park Amenity)*
- Action SAF-2.D** **Lead Risk Education.** Develop and implement special training workshops and projects related to education on lead risk and reduction. Regularly test water supplies and publish results for public viewing. Implement a program to replace lead pipes and fixtures in public and private properties. *(Implements Policy SAF-2.1 Water Pollution Reduction; and Policy SAF-2.3 Cooperation Among Agencies to Address Lead Risk)*

Action SAF-2.E Lead Risk Mediation. Pursue funding to mediate lead pollution in the community. Implement a program to replace lead pipes and fixtures in both public and private properties. Offer free or subsidized home inspections for lead, particularly targeting older homes and vulnerable communities. Provide grants or low-interest loans for homeowners to remediate lead issues. *(Implements Policy SAF-2.1 Water Pollution Reduction; and Policy SAF-2.3 Cooperation Among Agencies to Address Lead Risk)*

Action SAF-2.F Ensuring Water Availability. Coordinate with the Alameda County Water District to monitor water availability and drought conditions and conduct regular water supply assessments. Create and distribute a plan for precautionary measures to ensure water availability during drought periods. *(Implements Policy SAF-2.4 Drought Awareness; Policy SAF-2.6 Water Conservation; and Policy SAF-2.9 Long-Term Water Supply)*

See also Community Services and Facilities Element policies on water supply availability.

Action SAF-2.G Emergency Supplies. Collaborate with ACWD to prepare emergency drought supplies and resources prioritizing the needs of vulnerable populations, including low-income households, outdoor workers, homeless individuals, and individuals with existing health conditions who may have less capacity or financial stability to withstand severe droughts. *(Implements Policy SAF-2.4 Drought Awareness; Policy SAF-2.5 Water Storage; Policy SAF-2.6 Water Conservation; and Policy SAF-2.9 Long-Term Water Supply)*

Action SAF-2.H Water Use Restrictions. Collaborate with the ACWD to disseminate water shortage information and enforce water use restrictions, especially during drought periods. *(Implements Policy SAF-2.4 Drought Awareness; Policy SAF-2.5 Water Storage; and Policy SAF-2.6 Water Conservation)*

Action SAF-2.I **Clean-up Events.** Organize regular cleanup events for wetland and lake areas, including Lakeshore Park Lake, with public engagement and collaboration with residents, schools, and community organizations. Use events as opportunities to increase local drought awareness and best practices for conservation. *(Implements Policy SAF-2.4 Drought Awareness; Policy SAF-2.7 Protection of Surface Water Bodies; and Policy SAF-2.8 Lakeshore Park Amenity)*

Action SAF-2.J **Landscaping Guidance.** Enhance the city’s existing Bay-Friendly Landscape Guidelines to exceed state requirements for municipal landscape areas, with stronger requirements for climate-friendly and drought-tolerant trees and low-flow irrigation systems. *(Implements Policy SAF-2.6 Water Conservation)*

EXTREME WEATHER

GOAL SAF-3 A resilient and healthy community that adapts to changing climate conditions and mitigates the effects of extreme weather impacts.

POLICIES

Policy SAF-3.1 **Urban Heat Island Effect.** Develop standards and requirements for municipal projects that can incorporate natural cooling techniques to reduce the urban heat island effect.

Policy SAF-3.2 **Cooling Amenities.** Evaluate and asses the need for additional cooling centers in the southern and eastern areas of the community and reduce barriers to access existing centers.

- Policy SAF-3.3** **Household Cooling.** Identify and educate residents on programs and solutions for helping households with cooling during extreme heat periods, including new or replacement air conditioning, and other household cooling mechanisms where air conditioning is not feasible, such as improved insulation, tree canopy, urban greening, cool roofs, cool pavements, cool paints and materials, and other mechanisms to help reduce extreme heat impacts for households.
- Policy SAF-3.4** **Parks and Open Spaces.** Identify potential for expanding existing parks or creating new parks in the community that are accessible by all residents in under-resourced locations, including the southwestern and eastern areas of the community, where access to existing parks is low.
- Policy SAF-3.5** **Urban Forest Management.** Plan for the sustainable growth and management of the urban forest to help mitigate greenhouse gas emissions and extreme heat impacts.
- Policy SAF-3.6** **Urban Greening.** Prioritize urban greening where the tree canopy is relatively lower than other parts of the city, including near the center of the community between Central and Mowry Avenue.
- Policy SAF-3.7** **Health and Safety.** Coordinate with local health providers, schools, and community organizations to share information and resources regarding extreme heat and heat-related illnesses.
- Policy SAF-3.8** **Heat and Active Transportation.** Identify active transportation routes in need of amenities to protect against extreme heat, and prioritize bikeways, walkways, and trails near schools, community centers, and commuter routes.

ACTIONS

- Action SAF-3.A Cool Roofs Requirements.** Amend the City's building ordinance to exceed Title 24 standards by requiring cool roofs for all new or replacement roofs. *(Implements Policy SAF-3.1 Urban Heat Island Effect)*
- Action SAF-3.B Cool Pavements.** Expand cool pavements as streets become in need of resurfacing, conduct this work through the Pavement Maintenance Program. *(Implements Policy SAF-3.1 Urban Heat Island Effect; and Policy SAF-3.8 Heat and Active Transportation)*
- Action SAF-3.C Cooling Center Access.** Identify potential sites for new cooling centers, prioritizing areas where there is less access to existing centers and areas with sensitive populations, including children, low-income, and individuals with existing health conditions. Identify municipal facilities that may provide cooling amenities during extreme heat events. *(Implements Policy SAF-3.2 Cooling Amenities)*
- Action SAF-3.D Street Amenities.** Add street amenities along active transportation routes, including bikeways, sidewalks, walking paths, and trails, to protect users from extreme heat and other climate elements. Add bus stop shelters, tree canopy, natural landscaping, green pavements, and other features that enhance cooling and reduce the urban heat island effect. *(Implements Policy SAF-3.1 Urban Heat Island Effect; and Policy SAF-3.8 Heat and Active Transportation)*
- Action SAF-3.E New Parks Development.** Identify potential sites for new parks in the southwestern and eastern portions of the community that are outside of a half-mile to existing parks. *(Implements Policy SAF-3.4 Parks and Open Spaces)*
- Action SAF-3.F Existing Parks Access.** Increase access to existing parks in close proximity (Ash Street Park, Eucalyptus Grove Park, and Silliman Community Activity Center) with designated bikeways and urban pathways, signage, lighting, and landscaping that connects underserved neighborhoods to park amenities. *(Implements Policy SAF-3.4 Parks and Open Spaces)*

Approximately 60 percent of surfaces in urban communities are covered by roofs or pavements, which are typically dark surfaces that absorb sunlight and contribute to hotter temperatures. Replacing these with **cool roofs** and **cool pavements** means using more reflective materials, such as white surface, to help reflect sunlight, keep buildings cool, and reduce energy costs. Cool roofs and pavements may also incorporate vegetation, tree canopy, and other permeable surfaces to complement cooling effects.

Source: Global Cool Cities Alliance, 2012.

- Action SAF-3.G** **Community Resources.** Identify organizations with resources and programs for households to be able to stay safe from extreme heat impacts, including for lower-income households and households lacking air conditioning, and educate residents about these resources available to them. *(Implements Policy SAF-3.3 Household Cooling; and Policy SAF-3.7 Health and Safety)*
- Action SAF-3.H** **Tree Inventory.** Develop a citywide tree inventory and management plan to increase the urban forest, prioritizing areas with less tree canopy as well as climate-appropriate and water-efficient or drought-tolerant species that can provide long-term benefits for cooling, air quality, and public health. *(Implements Policy SAF 3.5 Urban Forest Management; and Policy SAF 3.6 Urban Greening)*
- Action SAF-3.I** **Climate-Friendly Trees.** Develop and adopt a list of approved tree and plant species that are climate-appropriate and water-efficient or drought-tolerant. Require any new and replacement plantings to be from the City's approved list. *(Implements Policy SAF 3.5 Urban Forest Management; and Policy SAF 3.6 Urban Greening)*

FLOODING HAZARDS

GOAL SAF-4 A community with sustainable development practices that reduce risks to life and property associated with flooding.

POLICIES

- Policy SAF-4.1** **Planning to Avoid Flood Hazards.** Monitor flood-prone areas in Newark and use this data for land use, transportation, and infrastructure capital improvement and planning purposes. Flood-resistant construction techniques and minimum building elevations shall be required to reduce flood hazards.

- Policy SAF-4.2 Maintaining Drainage Patterns.** Prohibit development, grading, and land modification activities that would adversely affect Newark’s drainage system or create potential erosion impacts.
- Policy SAF-4.3 Residential Development in the Flood Plain.** Limit development within low-lying areas at high risk from flooding. Require any *new residential* development, including streets and other surface improvements, to be constructed above the 100-year flood elevation.
- Policy SAF-4.4 Non-Residential Development in the Flood Plain.** Limit development within low-lying areas at high risk from flooding. Require that any new *non-residential* development, including commercial and industrial uses, be flood-proofed or constructed on pads elevated above the 100-year flood elevation.
- Policy SAF-4.5 Storm Drain Maintenance.** Manage and maintain the storm drainage system to avoid flooding and reduce the negative effects of stormwater runoff.
- Policy SAF-4.6 Mitigating Downstream Flood Impacts.** Create standards to ensure that the design of new development reduces the potential for downstream flooding, including measures for maximizing porous pavement and on-site drainage retention.
- Policy SAF-4.7 Flood Control Improvements.** Work with ACFC&WCD on improvements to the storm drain, flood control channel, and levee system to ensure that these systems continue to protect Newark neighborhoods and business districts from flooding.

Policy SAF-4.8 **Sea-Level Rise.** Evaluate the effects of rising sea level on the potential for flooding in low-lying areas, and monitor sea-level rise modeling for anticipated impacts. Consider compounding impacts from sea-level rise, including storm surges and extreme tides.

Policy SAF-4.9 **Regional Planning for Sea-Level Rise.** Participate in regional planning and adaptation efforts to address sea-level rise impacts to low-lying areas. Information on flood hazards related to sea-level rise should be used to ensure that flood risk is reduced.

See also Community Services and Facilities Element policies on storm drainage.

See also Conservation and Sustainability Element policies on climate change.

Policy SAF-4.10 **Wetlands Preservation.** Protect wetlands and natural open space from development by creating setback and buffer zones, and increase awareness of natural flooding benefits provided by wetlands.

Policy SAF-4.11 **Green Infrastructure.** Identify green technologies and natural systems that can be incorporated into planning and development practices to address flooding hazards and provide community co-benefits.

Policy SAF-4.12 **Impervious Surfaces.** Continue to identify opportunities for retrofitting impervious surfaces and increasing natural land cover to provide flooding mitigation and community co-benefits.

Policy SAF-4.13 Roadway Maintenance. Identify risks to critical roadways and plan for the sustainable management and maintenance of roadways, prioritizing those that serve as evacuation routes and connect to essential services, emergency response, and critical facilities. Coordinate with surrounding local and regional agencies, including the County and ACFC&WCD, on roadway maintenance for stormwater and flooding mitigation.

ACTIONS

- Action SAF-4.A Flooding Risk Studies.** Require new developments to assess flooding risks and identify measures that will reduce the risk of flooding and flooding impacts, including downstream impacts. Limit developments in low-lying areas within flood hazard zones. *(Implements Policy SAF-4.1 Planning to Avoid Flood Hazards; Policy SAF-4.3 Residential Development in the Flood Plain; Policy SAF-4.4 Non-Residential Development in the Flood Plain; and Policy SAF-4.6 Mitigating Downstream Flood Impacts)*
- Action SAF-4.B Flood Insurance Rate Maps.** Maintain up-to-date Flood Insurance Rate Maps for use in planning and public works decisions. *(Implements Policy SAF-4.1 Planning to Avoid Flood Hazards; SAF-4.3 Residential Development in the Flood Plain; SAF-4.4 Non-Residential Development in the Flood Plain; and Policy SAF-4.6 Mitigating Downstream Flood Impacts)*
- Action SAF-4.C Flood Prevention Code Provisions.** Enforce municipal code provisions for construction in flood hazard areas, and amend these provisions as needed to conform to National Flood Insurance Program criteria. *(Implements Policy SAF-4.1 Planning to Avoid Flood Hazards; Policy SAF-4.3 Residential Development in the Flood Plain; and Policy SAF-4.4 Non-Residential Development in the Flood Plain)*

- Action SAF-4.D Design Standards Code Enhancements.** Update the City's municipal code to add additional design standards for mitigation of downstream flood impacts, including green infrastructure and impervious surface best practices. *(Implements Policy SAF-5.1 Planning to Avoid Flood Hazards; and Policy SAF-5.6 Mitigating Downstream Flood Impacts)*
- Action SAF-4.E Infrastructure Improvements.** Collaborate with ACFC&WCD to identify priorities for infrastructure improvements that can be budgeted in the upcoming CIPs to protect the community from potential flooding. Prioritize maintenance of critical facilities and evacuation routes. *(Implements Policy SAF-4.1 Planning to Avoid Flood Hazards; Policy SAF-4.5 Storm Drain Maintenance; Policy SAF-4.7 Flood Control Improvements; Policy SAF-4.11 Green Infrastructure; Policy SAF-4.12 Impervious Surfaces; and Policy SAF-4.13 Roadway Maintenance)*
- Action SAF-4.F Review of Potential Flood Impacts.** Evaluate potential impacts of new development on the flood control system. Ensure that post-development runoff rates do not exceed the capacity of the flood control system using the environmental review process. *(Implements Policy SAF-4.1 Planning to Avoid Flood Hazards; Policy SAF-4.2 Maintaining Drainage Patterns; Policy SAF-4.3 Residential Development in the Flood Plain; Policy SAF-4.4 Non-Residential Development in the Flood Plain; and Policy SAF-4.6 Mitigating Downstream Flood Impacts)*
- Action SAF-4.G Alameda County Flood Control and Water Conservation District Referrals.** Continue to refer projects in flood prone areas to the ACFC&WCD for review and comment. *(Implements Policy SAF-4.3 Residential Development in the Flood Plain; Policy SAF-4.4 Non-Residential Development in the Flood Plain; and Policy SAF-4.7 Flood Control Improvements)*

Action SAF-4.H Green Stormwater Infrastructure Implementation.

Continue to track and report the implementation of the City’s Green Stormwater Infrastructure Plan and take additional green measures to address flooding hazards. *(Implements Policy SAF-4.10 Green Infrastructure; and Policy SAF-4.11 Impervious Surfaces)*

Action SAF-4.I Regional Collaboration.

Continue to collaborate with the ACFC&WCD, FEMA, U.S. Army Corps of Engineers, and other regional and state agencies to assess risk and impacts from flooding, including sea-level rise. *(Implements Policy SAF-4.1 Planning to Avoid Flood Hazards; Policy SAF-4.7 Flood Control Improvements; Policy SAF-4.9 Regional Planning for Sea-Level Rise; and Policy SAF-4.13 Roadway Maintenance)*

Action SAF-4.J Climate Action Planning for Sea-Level Rise and Flooding.

In the update to the City’s Climate Action Plan include the latest data and best practices on flooding hazards and associated risks from climate change. Consider mitigation and adaptation efforts to reduce risk and impacts to the community from flooding hazards. *(Implements Policy SAF-4.1 Planning to Avoid Flood Hazards; Policy SAF-4.8 Sea-Level Rise; and Policy SAF-4.11 Green Infrastructure)*

DAM FAILURE

GOAL SAF-5 A community protected from the risk of flood and dam inundation hazards with reliable drainage infrastructure and flood-ready development practices.

POLICIES

Policy SAF-5.1 Dam Safety. Advocate for dam safety and maintenance at the Calaveras, Del Valle, James H. Turner, Middlefield, and Patterson Dams and take the precautions necessary to protect Newark properties from related flood hazards in the event of dam failure.

- Policy SAF-5.2** **Coordinate with USACE.** Ensure ongoing monitoring of physical dam conditions in coordination with USACE.
- Policy SAF-5.3** **Critical Facilities and Services.** Ensure that public facilities and services in flooding and dam inundation zones (such as police and fire stations, and water and sewer facilities) are designed to maximize their resilience and ability to function during and after a flood event.
- Policy SAF-5.4** **New Development.** Require development projects to submit hydrologic and drainage studies to ensure that new development in Newark is designed to mitigate for dam inundation and is not located within hazard zones.
- Policy SAF-5.5** **Flooding Resource Education.** Provide communities within dam inundation zones to access flood hazard mitigation and protection resources.
- Policy SAF-5.6** **Dam Failure in Emergency Plans.** Ensure that city emergency response plans include contingencies for catastrophic dam failure.

ACTIONS

- Action SAF-5.A** **Hydrologic and Drainage Studies.** Require hydrologic and drainage studies for new development, and use these studies to identify measures and best practices that will reduce the risk of flooding and dam inundation. *(Implements Policy SAF-5.4 New Development)*
- Action SAF-5.B** **Flood Insurance Awareness and Coverage in Dam Inundation Zones.** Develop a public outreach program that informs property owners located in the dam inundation zones about voluntary flood insurance and increasing participation in the National Flood Insurance Program. *(Implements Policy SAF-5.5 Flooding Resource Education)*

- Action SAF-5.C Accessible Flooding Insurance Resources.** Publicize the availability of flood insurance to Newark residents and business owners. *(Implements Policy SAF-5.5 Flooding Resource Education)*
- Action SAF-5.D Flood Risk Disclosure for New Development.** Require developments in the flooding and other high-risk inundation areas to disclose flood risks and identify appropriate flood mitigation actions for incorporation into project design. *(Implements Policy SAF-5.4 New Development; and Policy SAF-5.5 Flooding Resource Education)*
- Action SAF-5.E Protect Critical Facilities, Services, and Infrastructure.** Identify and implement cost-effective strategies to protect publicly-owned critical facilities in flooding and dam inundation zones. Cost-effective measures may involve a combination of engineering solutions, natural barriers, and community warning and education. Whenever possible, opt for solutions that serve multiple purposes. *(Implements Policy SAF-5.1 Dam Safety; and Policy SAF-5.3 Critical Facilities and Services)*
- Action SAF-5.F Flood Prevention Strategies.** Assess and identify risks and prioritize facilities based on their vulnerability and importance. Evaluate electrical systems above potential flood levels to prevent water damage and ensure continued operation during floods. Enhance drainage systems to divert water away from critical facilities. Restrict new construction of critical facilities in flood-prone areas and considering relocating existing ones if feasible. *(Implements Policy SAF-5.1 Dam Safety; and Policy SAF-5.3 Critical Facilities and Services)*
- Action SAF-5.G Dam Failure Emergency Preparedness and Evacuation.** Prepare dam failure inundation maps in order to determine emergency operation procedures and evacuation routes. These shall be included in all city emergency response plans. *(Implements Policy SAF-5.1 Dam Safety; and Policy SAF-5.6 Dam Failure in Emergency Plans)*

- Action SAF-5.H Dam Zone Prevention and Protection Strategies.** Implement early warning systems that can alert facility managers to evacuate or initiate emergency protocols. Regularly inspect dams and their safety features to ensure they are up to code and functional. Ensure that critical facilities have backup power sources that are elevated and protected from potential inundation. *(Implements Policy SAF-5.1 Dam Safety; and Policy SAF-5.6 Dam Failure in Emergency Plans)*
- Action SAF-5.I Development Review.** Ensure development applications comply with all relevant building and safety codes, including those related to flooding and dam failure. *(Implements Policy SAF-5.4 New Development)*
- Action SAF-5.J Code Updates.** Revise construction codes and regulations to incorporate the latest information and technology related to dam failure. *(Implements Policy SAF-5.4 New Development)*
- Action SAF-5.K Dam Failure Evacuation Education.** Distribute updated emergency evacuation plans for dam failure and inundation to residents. *(Implements Policy SAF-5.6 Dam Failure in Emergency Plans)*
- Action SAF-5.L District Coordination.** Work with the ACWD to ensure the city is provided with current information regarding reservoir and dam safety, particularly for the Calaveras, Del Valle, James H. Turner, Middlefield, and Patterson Dams. *(Implements Policy SAF-5.1 Dam Safety)*

FIRE HAZARDS

GOAL SAF-6 A city where life and property are protected from urban wildfire hazards.

POLICIES

- Policy SAF-6.1** **Fire Hazard Reduction.** Identify wildfire fuel reduction planning programs to reduce the quantity of flammable material in Newark, including in those areas in Newark adjacent to the San Francisco Bay.
- Policy SAF-6.2** **Interagency Coordination.** The City shall coordinate with ACFD and neighboring fire agencies to plan for and coordinate future fire prevention and suppression needs.
- Policy SAF-6.3** **Adequacy of Access.** Require adequate access and clearance for fire equipment, fire suppression personnel, and evacuation for new development.

ACTIONS

- Action SAF-6.A** **Landscape Protection.** Develop a jurisdiction-wide tree inventory and long-term tree management plan to increase tree canopy in urban areas and increase resilience to wildfire and extreme heat-related hazards, including an outreach initiative encouraging Newark residents to conduct tree maintenance on private property. *(Implements Policy SAF-6.1 Fire Hazard Reduction)*
- Action SAF-6.B** **Community Education.** Launch a public awareness campaign as part of a broader emergency preparedness event to educate residents about fire-resistant landscaping and the importance of maintaining a defensible space around their homes. This could include school programs, workshops or online resources. *(Implements Policy SAF-6.1 Fire Hazard Reduction)*

- Action SAF-6.C** **Climate Adaptation.** Integrate fire hazard reduction measures into the city's broader climate adaptation strategy in the next update of the Climate Action Plan, ensuring that actions are aligned with future climate projections and risks. *(Implements Policy SAF-6.1 Fire Hazard Reduction)*
- Action SAF-6.D** **Stormwater Management.** Implement effective stormwater management systems can help reduce flooding risks, which in turn can mitigate fire risks by maintaining moisture levels in soil and vegetation. *(Implements Policy SAF-6.1 Fire Hazard Reduction)*
- Action SAF-6.E** **Joint Training Exercises.** Conduct joint training exercises with ACFD and neighboring fire agencies to simulate various types of fire scenarios, including urban wildfires, to assess and improve the department's readiness and improve coordination. *(Implements Policy SAF-6.2 Interagency Coordination)*
- Action SAF-6.F** **Public Buildings and Spaces.** Conduct an audit of existing public buildings and spaces to ensure they meet fire safety standards, including standards for fire equipment access and personnel clearance. *(Implements Policy SAF-6.2 Interagency Coordination and Policy SAF-6.3 Adequacy of Access)*
- Action SAF-6.G** **Infrastructure Upgrades.** Identify and prioritize upgrades to roads and other infrastructure to ensure they can support the weight and size of fire equipment. *(Implements Policy SAF-6.2 Interagency Coordination; and Policy SAF-6.3 Adequacy of Access)*

See Community Services and Facilities Element policies on Fire and EMS.

GEOLOGIC HAZARDS

GOAL SAF-7 Reduced risks to life and property associated with geologic hazards such as seismically induced surface rupture, ground shaking, ground failure, tsunamis, seiches, dam failure, and liquefaction.

POLICIES

- Policy SAF-7.1 Earthquake Safety in New Construction.** Continue to require new development to meet structural integrity standards which minimize the potential for damage during earthquakes.
- Policy SAF-7.2 Seismic Retrofits.** Continue to encourage the retrofitting of existing structures to reduce the potential for damage during earthquakes, especially on southern and western fringes of the city where ground shaking levels are higher.
- Policy SAF-7.3 Earthquake Awareness.** Inform Newark residents and businesses of specific steps they can take to reduce earthquake-related hazards.
- Policy SAF-7.4 Infrastructure Resilience.** Maintain standards for roads and infrastructure that consider geologic hazards, including subsidence and liquefaction.
- Policy SAF-7.5 Evaluate Critical Facilities.** Work with private property owners of critical facilities that are prime targets for structural retrofits as identified in the MJHMP (e.g., churches, hotels, hospitals, other gathering facilities) to evaluate the ability of the buildings to withstand earthquakes and to address any deficiencies identified to improve earthquake safety.

- Policy SAF-7.6 Evaluate Critical Public Facilities.** Evaluate public facilities that are critical to health and safety, including emergency response (e.g., police and fire stations, and water and sewer facilities) for their ability to withstand earthquakes, and prioritize addressing any deficiencies identified to improve earthquake safety.
- Policy SAF-7.7 Require Geotechnical Investigation in High-Risk Liquefaction Zones.** Require geological and geotechnical investigations in areas with high potential for earthquake-induced liquefaction as part of the environmental and development review process.

ACTIONS

- Action SAF-7.A Homeowner Education on Earthquake Safety.** Educate homeowners on the importance of retrofitting their homes for earthquake safety, particularly bolting of foundations where there are currently no connections between the foundation and frame. *(Implements Policy SAF-7.3 Earthquake Awareness)*
- Action SAF-7.B Development Review.** Review all development applications to ensure their compliance with all relevant building and safety codes, including those related to geologic hazards. *(Implements Policy SAF-7.1 Earthquake Safety in New Construction)*
- Action SAF-7.C Code Updates.** Annually review, and revise as necessary, construction codes and regulations to incorporate the latest information and technology related to geologic hazards, such as seismically induced surface rupture, ground shaking, ground failure, tsunamis, seiches, dam failure, and liquefaction. *(Implements Policy SAF-7.1 Earthquake Safety in New Construction; and Policy SAF-7.4 Infrastructure Resilience)*

- Action SAF-7.D Geotechnical Studies.** At the discretion of the Director of Public Works, continue to require detailed investigations of ground shaking, liquefaction, oil stability, and other geologic hazards as specific development projects are proposed. Such investigations shall be prepared by a qualified geologist or soils engineer, with appropriate mitigation measures identified and implemented. *(Implements Policy SAF-7.1 Earthquake Safety in New Construction; and Policy SAF-7.7 Require Geotechnical Investigation in High-Risk Liquefaction Zones)*
- Action SAF-7.E Geotechnical Staff Assistance.** As needed, retain outside consulting to assist City staff in conducting specialized evaluations of geotechnical and structural engineering issues. *(Implements Policy SAF-7.1 Earthquake Safety in New Construction; and Policy SAF-7.7 Require Geotechnical Investigation in High-Risk Liquefaction Zones)*
- Action SAF-7.F Mandatory Seismic Upgrades.** Implement a tiered system for mandatory seismic upgrades based on the building's age, use, and location. For example, critical facilities like hospitals and emergency response centers should be prioritized for immediate retrofitting, regardless of renovation plans. *(Implements Policy SAF-7.5 Evaluate Critical Facilities; and Policy SAF-7.6 Evaluate Public Facilities)*
- Action SAF-7.G Seismic Safety at Schools.** Work with Newark Unified School District to enhance the seismic safety of all school facilities. *(Implements Policy SAF-7.6 Evaluate Public Facilities)*
- Action SAF-7.H State-Licensed Professional for Investigations.** Conduct an investigation by a State-licensed professional to identify the potential for liquefaction in areas within high-risk liquefaction zones. *(Implements Policy SAF-7.7 Require Geotechnical Investigation in High-Risk Liquefaction Zones)*

- Action SAF-7.I** **Mapping Liquefaction Areas.** Prepare a map and priority listing identifying all areas subject to liquefaction and include the locations of critical facilities and infrastructure. This information can be used for public education awareness, for planning and public works projects, and for developing a warning system. *(Implements Policy SAF-7.7 Require Geotechnical Investigation in High-Risk Liquefaction Zones)*
- Action SAF-7.J** **Interagency Coordination.** Establish a standing Interagency Coordination Committee comprising representatives from the Public Works Department, utility providers, and other relevant stakeholders. This committee will meet at least annually to review the latest geotechnical data and adjust strategies accordingly. *(Implements Policy SAF-7.4 Infrastructure Resilience)*
- Action SAF-7.K** **Structural Retrofits.** Develop a public database that tracks the seismic resilience of both public and private critical facilities. Update this database annually and use it to guide grant applications and public-private partnerships aimed at funding the most urgent retrofitting projects. *(Implements Policy SAF-7.2 Seismic Retrofits)*

HAZARDOUS MATERIALS

GOAL SAF-8 A community that protects residents and workers from the potential adverse effects of hazardous materials.

POLICIES

- Policy SAF-8.1** **Hazardous Materials Risk Reduction.** Reduce the risk of hazardous materials accidents, spills, and vapor releases, and minimize the effects of such incidents if they occur.

- Policy SAF-8.2 Hazardous Materials Source Reduction and Recycling.** Undertake source reduction programs, recycling programs, and household hazardous waste reduction programs to reduce the quantity of hazardous waste generated in Newark and to ensure its safe disposal.
- Policy SAF-8.3 Mutual Aid.** Improve mutual aid cooperation and coordination with other jurisdictions to ensure swift, effective response to hazardous materials incidents. Ongoing training should be provided to first responders to ensure readiness in the event of a hazardous materials incident.
- Policy SAF-8.4 Design and Construction of Hazardous Materials Facilities.** Require that all facilities in which hazardous materials are used, handled, or stored are designed and constructed to minimize the possibility of environmental contamination and off-site impacts. The City will work with county, state, and federal agencies to ensure that such facilities are regularly inspected and that applicable regulations are enforced.
- Policy SAF-8.5 Hazardous Materials Information.** Provide the means for Newark residents and businesses to obtain information about hazardous materials handling, storage, and regulations in the community, particularly for residents who reside in or within the vicinity of industrial areas along Willow Street, Central Avenue, Sycamore Street, and Cherry Street.
- Policy SAF-8.6 Hazardous Materials Transport.** Seek to reduce the risk of accidents in the transportation of hazardous materials. The City will require compliance with all hazardous waste transport standards established by state and federal agencies.

- Policy SAF-8.7 Containment of Contaminated Runoff.** Regulate land uses such as auto dismantling, waste disposal, gas stations, and industries in a manner that minimizes the potential for hazardous materials to enter groundwater, surface water, or storm drains.
- Policy SAF-8.8 Waste Reduction Program.** Maintain a solid waste reduction and management program that is coordinated with and consistent with the countywide StopWaste.org program. The program should include regularly scheduled trash collection, compost and recycling collection, bulk waste and e-waste collection events, household hazardous materials disposal provisions, education and outreach to promote waste diversion, and other components that minimize landfilled waste.
- Policy SAF-8.9 Facility Use or Storage of Hazardous Materials.** Require that all facilities storing, using, or otherwise involved with substantial quantities of on-site hazardous materials near sensitive uses comply with applicable codes and standards to reduce the risk of hazardous materials release due to a natural hazard.
- Policy SAF-8.10 Certified Unified Program Agency (CUPA) Coordination.** Continue to work with the Alameda County Department of Environmental Health (ACDOEH) to administer and enforce state and federal hazardous materials regulations. The ACDOEH is the CUPA for the City of Newark and enforces requirements for HMBPs, hazardous waste generator reporting, and underground storage tank removal and cleanup.
- Policy SAF-8.11 New Development.** Review all new development applications to ensure their compliance with all relevant building and safety codes, including those related to hazardous materials release.

ACTIONS

- Action SAF-8.A Hazardous Material Inventories and Inspections.** In cooperation with the CUPA, inventory and regularly inspect those buildings and facilities in which hazardous materials accidents would pose a threat to the community. Work with the owners to develop and implement programs for reducing risks associated with these buildings and facilities.
(Implements Policy SAF-8.1 Hazardous Materials Risk Reduction; Policy SAF-8.4 Design and Construction of Hazardous Materials Facilities; and Policy SAF-8.10 Certified Unified Program Agency (CUPA) Coordination)
- Action SAF-8.B Zoning for Hazardous Materials.** Create a zoning standard or a zoning regulation that ensures safe distances (e.g., 1000 feet) between businesses using or emitting hazardous materials and sensitive uses, including but not limited to residential areas, schools, and hospitals. Consider proximity to earthquake and liquefaction areas when establishing zoning for hazardous materials. *(Implements Policy SAF-8.4 Design and Construction of Hazardous Materials Facilities)*
- Action SAF-8.C Underground Tanks.** In cooperation with the CUPA, enforce State standards for the design, monitoring, and testing of underground storage tanks.
(Implements Policy SAF-8.10 Certified Unified Program Agency (CUPA) Coordination)
- Action SAF-8.D Hazardous Materials Business Plans.** Continue to require the preparation of HMBPs for uses that will handle hazardous materials, including a complete inventory of materials by type, quantities, conditions of storage and transportation, an assessment of the potential hazards associated with the materials, steps to be taken to minimize risks, and outline actions to be taken in the event of a spill.
(Implements Policy SAF-8.10 Certified Unified Program Agency (CUPA) Coordination)

- Action SAF-8.E Hazardous Materials Resources.** Provide links from the City's website to the websites of the county, state, and federal agencies that regulate hazardous materials. Distribute information about hazardous materials to businesses and residents. *(Implements Policy SAF-8.5 Hazardous Materials Information)*
- Action SAF-8.F Hazardous Materials Transport Routes.** Work with appropriate State and federal agencies to designate and periodically update official routes for the transportation of hazardous materials. *(Implements Policy SAF-8.6 Hazardous Materials Transport)*
- Action SAF-8.G Household Hazardous Waste Collection Awareness.** Continue to work with Alameda County to publicize household hazardous waste collection events and provide Newark residents with information on safe disposal procedures for household waste such as paint, motor oil, and batteries. *(Implements Policy SAF-8.2 Hazardous Materials Source Reduction and Recycling; and Policy SAF-8.5 Hazardous Materials Information)*
- Action SAF-8.H Community Disclosure Laws.** Enforce community disclosure laws (e.g., Right to Know laws) that inform property owners of the presence of hazardous materials nearby. *(Implements Policy SAF-8.5 Hazardous Materials Information)*
- Action SAF-8.I Phase I Assessments.** Continue to require a Phase I Environmental Site Assessment when a property is changed from an existing use to a more sensitive use (for example, industrial to residential). If potential hazardous materials issues are identified, ensure they are investigated and that sites are cleaned to regulatory agency standards prior to development. *(Implements Policy SAF-8.9 Facility Use or Storage of Hazardous Materials; and Policy SAF-8.11 New Development)*

Action SAF-8.J Hazardous Building Materials Abatement.
 Incorporate hazardous building materials abatement provisions into building permit and development approvals. The City will continue to work with property owners to ensure remediation of hazardous building materials such as asbestos, lead, and mercury. *(Implements Policy SAF-8.9 Facility Use or Storage of Hazardous Materials; and Policy SAF-8.11 New Development)*

NOISE

GOAL SAF-9 Maintain the peace and quiet of Newark neighborhoods and promote an environment where noise does not adversely affect sensitive land uses.

- Policy SAF-9.1 Vehicle Roadway Noise.** Actively coordinate with Caltrans, neighboring jurisdictions, and other transportation providers during the planning and design phases of proposed roadway projects so that noise impacts are minimized and appropriate noise mitigation measures are provided.
- Policy SAF-9.2 Truck Noise.** Establish, maintain, and enforce designated truck routes within the city to reduce noise from truck traffic near residential areas.
- Policy SAF-9.3 Public Transit Noise.** Coordinate with transit service providers in the planning and design of proposed transportation projects to incorporate noise-reduction technologies and operations processes both on a system-wide and vehicle-specific basis. Technologies and processes should minimize noise impacts from public transportation systems, including existing and future bus service(s) and the proposed Dumbarton Rail system.

- Policy SAF-9.4 Railroad Noise.** Actively coordinate with Union Pacific, Caltrans, neighboring jurisdictions, and other transportation service providers during the planning and design of proposed rail-related projects so that noise impacts to the community are minimized and appropriate mitigation measures are provided.
- Policy SAF-9.5 Aviation Noise.** Actively coordinate with operators at Palo Alto Airport (PAO), Moffett Federal Airfield (NUQ), Hayward Executive Airport (HWD), and all local heliports so that take-off and landing procedures are prepared and implemented in a manner that minimizes noise impacts to the Newark community. Likewise, if changes to flight paths or transit routes from Oakland, San Francisco, or San Jose (Mineta) International Airports are proposed, the City should actively coordinate with airfield operators and the FAA so that future noise impacts from aircraft over-flights are minimized in the Newark community.
- Policy SAF-9.6 Construction Noise- Regulating Construction Hours.** Reduce noise associated with construction activities by prohibiting construction in residential neighborhoods between the hours of 7 PM and 7 AM Monday through Friday and at all times on Saturdays, Sundays, and State/federal holidays.
- Policy SAF-9.7 Construction Noise- Addressing Sources of Construction Noise.** Reduce noise associated with construction activities by requiring properly maintained mufflers on construction vehicles, requiring the placement of stationary construction equipment as far as possible from developed areas, and requiring temporary acoustical barriers/ shielding to minimize construction noise impacts at adjacent receptors. Special attention should be paid to noise-sensitive receptors (including residential, hospital, school, and religious land uses).

Policy SAF-9.8 Domestic Noise. Reduce the negative effects of domestic noise sources, such as residential maintenance activities (e.g. leaf blowers or automobile repair), car alarms, barking dogs, and loud music through the establishment and enforcement of municipal codes. The enforcement provisions should ensure that response(s) to resident noise complaints are prompt and effective so as to maintain a quiet and peaceful environment within the city.

ACTIONS

Action SAF-9.A Noise Ordinance- Limits on Noise Levels. Draft and adopt a Noise Ordinance that establishes acceptable noise levels and standards, as well as provisions for enforcement and penalties in the event these levels are exceeded. The Ordinance should include a requirement that no person shall be allowed to cause any noise beyond his/her property line that exceeds prescribed noise levels limits. These limits should be consistent with and promote the implementation of the land use compatibility standards, as shown in Table SAF-5. *(Implements Policy SAF-9.1 through Policy SAF-9.8)*

Action SAF-9.B Noise Ordinance- Limits on Hours of Operation. Draft the Noise Ordinance (described in Action SAF-6.A above) to include limits on the intensity and hours of use for selected noise sources such as construction equipment, manufacturing equipment, motors, delivery trucks, and parking lot vacuum equipment. Limits on hours of operation should be consistent with and achieve the goals of the land use compatibility standards (as shown in Table SAF-5). *(Implements Policy SAF-9.1 through Policy SAF-9.8)*

Action SAF-9.C Railroad Quiet Zones. Explore the feasibility of creating railroad "Quiet Zones" in existing and planned residential areas along the UP right-of-way per Federal Rail Administration rules and procedures. *(Implements Policy SAF-9.4 Railroad Noise)*

- Action SAF-9.D Motor Vehicle Code Enforcement.** Request that the California Highway Patrol actively enforce the California Vehicle Code sections relating to adequate vehicle mufflers and modified exhaust systems to limit vehicle noise emissions. Likewise, the City of Newark Police Department should be trained and equipped to properly enforce all local and state ordinances related to excessive vehicle noise emissions. *(Implements Policy SAF-9.1 Vehicle Roadway Noise; Policy SAF-9.2 Truck Noise; and Policy SAF-9.3 Public Transit Noise)*
- Action SAF-9.E Street Resurfacing to Reduce Noise.** Conduct regular maintenance and resurfacing of city streets to reduce road noise due to potholes, grade irregularities, and uneven surfaces. Additionally, explore the feasibility of using 'quiet' paving materials or techniques to reduce road noise at the tire-surface interface. *(Implements Policy SAF-9.1 Vehicle Roadway Noise)*
- Action SAF-9.F Reducing Noise from City Operations.** Periodically review City operations procedures and timing to ensure that noise from refuse collection, street sweeping, outdoor recreational programs, and other activities has been reduced to the lowest practical level. *(Implements Policy SAF-9.8 Domestic Noise)*
- Action SAF-9.G Reducing Noise from City Equipment.** If feasible, purchase new municipal equipment and vehicles which comply with noise level performance standards based upon the best available noise reduction technologies. *(Implements Policy SAF-9.8 Domestic Noise)*

Action SAF-9.H Sound Wall Improvements. Work with Caltrans to enhance and supplement the benefits of sound walls in residential areas along I-880 and SR-84. The coordination should be aimed at determining where improvements to these walls may further reduce noise impacts to nearby neighborhoods. Appropriate cost vs. benefit assessments should be part of this coordination and alternative funding sources should be explored. *(Implements Policy SAF-9.1 Vehicle Roadway Noise)*

EMERGENCY PREPAREDNESS

GOAL SAF-10 Fast, efficient, and coordinated response to natural and man-made emergencies and disasters.

POLICIES

- Policy SAF-10.1 Complete Circulation System.** Provide for a traffic circulation system that assures the City's capacity to deliver emergency services. This should include measures to ensure that all areas of the city can be accessed by emergency vehicles in the event a grade-level railroad crossing is blocked or otherwise inaccessible.
- Policy SAF-10.2 Awareness of Preparedness Programs.** Increase public awareness of City emergency preparedness programs and resources, including the CERT program.
- Policy SAF-10.3 Hazard Awareness.** Promote public awareness of hazards, along with the resources available to help homeowners make their homes safer and be better prepared for an emergency. Individuals and businesses should have access to up-to-date information that allows them to collaborate with regional agencies and community-based organizations to expand communications, to improve hazard preparation and response, and to be able to make informed decisions about potential safety hazards and the level of risk they are willing to accept.

Policy SAF-10.4 Standard Emergency Management System (SEMS) Plan. In cooperation with the ACFD, maintain and regularly update emergency plans for floods, earthquakes, fires, hazardous materials, and other disasters. Plans should be consistent with SEMS protocol.

Policy SAF-10.5 Interagency Coordination. Cooperate with other public agencies, nearby cities, community groups, and private enterprise in developing comprehensive disaster preparedness, assistance, and post-disaster recovery plans in order to maximize mutual aid response.

Policy SAF-10.6 Utility Resilience. Work with local gas, electric, cable, water, sewer, and other utility providers to maintain their facilities and ensure their ability to function (or be quickly restored) during and following a disaster.

Policy SAF-10.7 Utilize Technology. Support the use of communication technologies to transmit information to other agencies and the public during emergencies, including:

- Nixle emergency alert system.
- Integrated Public Alert and Warning System (IPAWS).
- Social media operated by Alameda County Fire Department, Newark Police Department and other public safety agencies and municipalities.
- Other systems to provide outreach to residents without telephone or Internet service.

Policy SAF-10.8 Expanding Outreach. Ensure that emergency preparedness information is available in multiple languages, consistent with Newark's demographics.

Policy SAF-10.9 Critical Facilities. Ensure that public facilities that are critical to health and safety (such as police and fire stations, and water and sewer facilities) are designed to maximize their resilience and ability to function during and after a natural disaster.

Policy SAF-10.10 Evacuation Planning. Using the methodology and conclusions from the Evacuation Planning analysis in **Appendix B**, consider the following when formalizing potential or imminent evacuation routes:

- Increasing capacity through the use of contraflow lanes or shoulders.
- Managed traffic control, including turn restrictions and route or ramp closures, to maximize outflows from evacuation areas.
- Faster clearing of fire-induced road closures.
- Prohibiting or restricting street parking on high hazard days.
- Continually improving communication systems and strategies that improve disaster alerts.
- Instigating dynamic route guidance and monitoring.
- Phase evacuations.
- Vehicle volume reduction during evacuations, such as encouraging household to use only one vehicle to evacuate.
- Close monitoring of power issues that could affect traffic signals and slow down evacuations.

Policy SAF-10.11 Resident Evacuation. To improve emergency preparedness, inform residents of shelter locations and evacuation routes and procedures for storing or taking valued items before large-scale evacuations.

Policy SAF-10.12 Residential Care and Assisted Living Facility Planning. Require all residential care and assisted living facilities to produce an emergency action plan, to ensure these facilities are well prepared for a disaster and have alternative access plan and evacuation routes to protect the vulnerable during a disaster.

Policy SAF-10.13 Private Sector Collaboration. Encourage the involvement of the private sector in disaster response and post-disaster recovery efforts.

Policy SAF-10.14 First Responder Collaboration. Continue to collaborate with ACFD and Newark Police Department to ensure effective response and quick recovery following an incident.

Policy SAF-10.15 Natural Hazards Education Programming & Events. Establish a natural hazards public education program and events to develop comprehensive public outreach for emergency preparedness during natural hazards and implementing risk reduction strategies for Newark residents.

ACTIONS

Action SAF-10.A Capital Improvements to Improve Emergency Response. Update the City's capital improvements program as needed to include railroad grade separations, traffic signal overrides, and other improvements that will expedite emergency response. *(Implements Policy SAF-10.1 Complete Circulation System; Policy SAF-10.3 Hazard Awareness; and Policy SAF- 10.5 Interagency Coordination)*

Action SAF-10.B Local Hazard Mitigation Plan Updates. Continue to support and actively participate in the plan maintenance strategy identified in the Union City – Newark Hazard Mitigation Plan. *(Implements Policy SAF-10.1 through Policy SAF- 10.11)*

Action SAF-10.C Emergency Operation Planning. Evaluate and update the City's Emergency Operations Plan to ensure that it is up to date with new legislation, technology and communication protocol, and real-world conditions. *(Implements Policy SAF-10.1 through Policy SAF-10.11)*

Action SAF-10.D Emergency Response Training. Mandate regular emergency response training exercises for Newark City employees. *(Implements Policy SAF-10.5 Interagency Coordination)*

- Action SAF-10.E Emergency Facilities.** Identify specific facilities and lifelines critical to effective disaster response, and evaluate their ability to operate efficiently after a major disaster. Require all critical facilities to produce an emergency action plan, to ensure these facilities are well prepared for a disaster and are accessible during emergencies. Designate alternative facilities for post-disaster assistance in the event that primary facilities become unusable. Take appropriate actions to ensure that critical services and facilities return to normal levels of operation as soon as possible after a disaster. *(Implements Policy SAF-10.9 Critical Facilities; and Policy SAF-10.11 Residential Evacuation)*
- Action SAF-10.F CERT Teams.** Continue CERT training programs and expand public awareness of these programs. *(Implements Policy SAF-10.2 Awareness of Preparedness Programs)*
- Action SAF-10.G Multilingual Emergency Outreach.** Work with the cultural institutions serving Newark's non-English-speaking communities to ensure that information is communicated to all residents. Outreach programs also should be designed to reach seniors and persons with disabilities, including those with hearing or sight impairments. *(Implements Policy SAF-10.6 Utility Resilience)*
- Action SAF-10.H Comprehensive Outreach.** Utilize existing platforms – including the City's webpage, social media, regular events, and meetings – to disseminate information and resources for resilience against natural disasters, including poor air quality days, environmental pollution events, wildfire, earthquakes, and flooding. Develop materials to inform community members of public health risks from extreme heat, particularly for sensitive populations. *(Implements Policy SAF-10.2 Awareness of Preparedness Programs; Policy SAF-10.6 Utility Resilience; and Policy SAF-10.7 Utilize Technology)*

Action SAF-10.I Natural Hazards Awareness Week. Collaborate and work with city departments and public service providers such as the Department of Public Works and the Alameda County Fire District to implement hazard awareness, education, and preparation programming such as a Natural Hazards Awareness Week for Newark residents and businesses to learn about natural hazards, risk, and risk reduction strategies. *(Implements Policy SAF-10.13 Private Sector Collaboration)*

See Community Services and Facilities Element policies on Fire and EMS.

4. REFERENCES

AIR QUALITY

BAAQMD (Bay Area Air Quality Management District). 2014. Spare the Air. Bay Area Air Quality Management District: A Healthy Breathing Environment for Every Bay Area Resident. August 19, 2014. <https://www.baaqmd.gov/about-air-quality/spare-the-air>.

BAAQMD (Bay Area Air Quality Management District). 2016. About Air Quality. Bay Area Air Quality Management District: A Healthy Breathing Environment for Every Bay Area Resident. December 12, 2016. <https://www.baaqmd.gov/about-air-quality#:~:text=In%20the%20Bay%20Area%2C%20a,equipment%2C%20and%20other%20motor%20vehicles>.

Environmental Defense Fund (EDF). 2021. *New study reveals large and unequal health burden from air pollution in California's Bay Area*. March 31, 2021. Retrieved from: <https://www.edf.org/media/new-study-reveals-large-and-unequal-health-burden-air-pollution-californias-bay-area>. Accessed: April 28, 2022.

Healthy Places Index (HPI). 2022. Healthy Places Index 3.0. Select indicators for census tracts within the City of Newark. Retrieved from: <https://www.healthyplacesindex.org/>

DROUGHT AND WATER QUALITY

Alameda County Water District (ACWD). 2021a. *Water Efficiency Master Plan 2020/2021*. April 2021. Retrieved from https://www.acwd.org/DocumentCenter/View/3740/ACWD-Water-Efficiency-Master-Plan_FINAL?bidId=

Alameda County Water District (ACWD). 2021b. *Water Shortage Contingency Plan*. May 2021. <https://www.acwd.org/DocumentCenter/View/3817/Final-Water-Shortage-Contingency-Plan-May-2021>

Alameda County Water District (ACWD). 2022. *Newark Desalination Facility*. Retrieved from <https://www.acwd.org/383/Newark-Desalination-Facility>.

Cal-Adapt. 2021a. *Annual Averages Tool*. Selected indicators for the City of Newark (Precipitation). Cal-Adapt website developed by University of California at Berkeley's Geospatial Innovation Facility under contract with the California Energy Commission. <https://cal-adapt.org/tools/annual-averages>

Cal-Adapt. 2021b. *Local Climate Change Snapshot Tool*. Selected indicators for the City of Newark (temperature, precipitation). Cal-Adapt website developed by University of California at Berkeley's Geospatial Innovation Facility under contract with the California Energy Commission. <https://cal-adapt.org/tools/>.

City of Newark. 2013. *Newark California General Plan*. December 12, 2013. Retrieved from <https://www.newark.org/home/showpublisheddocument/76/636502245500200000>

Hall, Alex, Neil Berg, Katharine Reich. (University of California, Los Angeles). 2018. *Los Angeles Summary Report*. California's Fourth Climate Change Assessment. Publication number: SUM-CCCA4-2018-007. Retrieved from https://www.energy.ca.gov/sites/default/files/2019-11/Reg%20Report-%20SUM-CCCA4-2018-007%20LosAngeles_ADA.pdf.

Newark Community Development Department. (2017). *Union City/Newark Multi-Jurisdiction Hazard Mitigation Plan (MJHMP); Volume 1—Planning-Area-Wide Elements*. Retrieved from <https://www.newark.org/home/showpublisheddocument/270/636502394114000000>.

Office of Environmental Health Hazard Assessment (OEHHA). 2021. CalEnviroScreen 4.0. <https://oehha.ca.gov/calenviroscreen/report/calenviroscreen-40>

San Francisco Department of Public Health (SF DPH). 2014. San Francisco Climate & Health Profile. November 2014. Retrieved from https://sfclimatehealth.org/wp-content/uploads/2018/12/SFDPH_ClimateHealthProfile_FinalDraft.pdf.

State Water Resources Control Board (SWRCB). 2021. Site Cleanup Program (SCP). November 4, 2021. Retrieved from [https://www.waterboards.ca.gov/water_issues/programs/site_cleanup_program/#:~:text=The%20Site%20Cleanup%20Program%20\(SCP,%2C%20and%20sediment%2C%20have%20occurred](https://www.waterboards.ca.gov/water_issues/programs/site_cleanup_program/#:~:text=The%20Site%20Cleanup%20Program%20(SCP,%2C%20and%20sediment%2C%20have%20occurred).

United States Drought Monitor (USDM). 2023a. Drought Conditions for Alameda County. 2000 – Present (weekly). September 15, 2023. Retrieved from <https://www.drought.gov/states/california/county/alameda>.

United States Drought Monitor (USDM). 2022b. What is the USDM. April 12, 2022. Retrieved from [https://droughtmonitor.unl.edu/About/WhatistheUSDM.aspx#:~:text=The%20U.S.%20Drought%20Monitor%20is,%20and%20exceptional%20\(D4\)](https://droughtmonitor.unl.edu/About/WhatistheUSDM.aspx#:~:text=The%20U.S.%20Drought%20Monitor%20is,%20and%20exceptional%20(D4)).

United States Drought Monitor (USDM). 2022c. Current Map for California. April 12, 2022. Retrieved from <https://droughtmonitor.unl.edu/CurrentMap/StateDroughtMonitor.aspx?CA>.

Zeise, Lauren and Jared Blumenfeld. 2021. CalEnviroScreen 4.0 Report. Office of Environmental Health Hazard Assessment (OEHHA) and California Environmental Protection Agency (CalEPA). October 2021. Retrieved from <https://oehha.ca.gov/media/downloads/calenviroscreen/report/calenviroscreen4oreportf2021.pdf#page=113>.

EXTREME WEATHER

Ackerly, David, Andrew Jones, Mark Stacey, Bruce Riordan. (University of California, Berkeley). 2018. *San Francisco Bay Area Summary Report. California's Fourth Climate Change Assessment*. Publication number: CCCA4-SUM-2018-005. Retrieved from https://www.energy.ca.gov/sites/default/files/2019-11/Reg_Report-SUM-CCCA4-2018-005_SanFranciscoBayArea_ADA.pdf.

Alameda County. 2019. 2019 Alameda County Extreme Heat Cooling Centers. Retrieved from <https://www.acgov.org/emergencysite/documents/Cooling-Centers.pdf>.

Bedsworth, Louise, Dan Cayan, Guido Franco, Leah Fisher, Sonya Ziaja. (California Governor's Office of Planning and Research, Scripps Institution of Oceanography, California Energy Commission, California Public Utilities Commission). 2018. *Statewide Summary Report. California's Fourth Climate Change Assessment*. Publication number: SUMCCCA4-2018-013. Retrieved from https://www.energy.ca.gov/sites/default/files/2019-11/Statewide_Reports-SUM-CCCA4-2018-013_Statewide_Summary_Report_ADA.pdf.

Cal-Adapt. 2021a. Extreme Heat Days & Warm Nights. Cal-Adapt website developed by University of California at Berkeley's Geospatial Innovation Facility under contract with the California Energy Commission. Retrieved from <https://cal-adapt.org/tools/extreme-heat/#lat=37.529659&lng=-122.04024&boundary=locagrid&climvar=Temperature>.

Cal-Adapt. 2021b. Annual Averages. Cal-Adapt website developed by University of California at Berkeley's Geospatial Innovation Facility under contract with the California Energy Commission. Retrieved from <https://cal-adapt.org/tools/annual-averages>

Cal-Adapt. 2021c. Local Climate Change Snapshot. Selected indicators for the City of Newark (Temperature and Precipitation). Cal-Adapt website developed by University of California at Berkeley's Geospatial Innovation Facility under contract with the California Energy Commission. Retrieved from <https://cal-adapt.org/tools/>.

California Office of Emergency Services (Cal OES). 2018. California State Hazard Mitigation Plan (SHMP). Retrieved from https://www.caloes.ca.gov/HazardMitigationSite/Documents/002-2018%20SHMP_FINAL_ENTIRE%20PLAN.pdf

City of Newark. 2010. *City of Newark Climate Action Plan, January 2010 Initial Framework*. Retrieved from <https://www.newark.org/home/showpublisheddocument/328/636502463456000000>.

City of Newark. 2013. *Newark California General Plan*. December 12, 2013. Retrieved from <https://www.newark.org/home/showpublisheddocument/76/636502245500200000>.

City of Newark. 2019. *Green Stormwater Infrastructure Plan*. September 12, 2019. Retrieved from <https://www.newark.org/home/showpublisheddocument/5313/637051024922530000>.

City of Newark. 2022. Tree Maintenance. Retrieved from <https://www.newark.org/departments/public-works/maintenance-division/tree-maintenance>.

Global Cool Cities Alliance (GCCA). 2012. *A Practical Guide to Cool Roofs and Cool Pavements*. Retrieved from https://coolrooftoolkit.org/wp-content/pdfs/CoolRoofToolkit_Full.pdf.

Newark Community Development Department. (2017). *Union City/Newark Multi-Jurisdiction Hazard Mitigation Plan; Volume 1— Planning-Area-Wide Elements*. Retrieved from <https://www.newark.org/home/showpublisheddocument/270/636502394114000000>.

Public Health Alliance of Southern California (PHASoCal). 2018. Healthy Places Index (HPI). Selected indicators for Newark census tracts. Retrieved from <https://map.healthyplacesindex.org/>.

Trust for Public Land (TPL). 2022. ParkScore Index. Retrieved from <https://www.tpl.org/city/newark-california>.

United States Department of Agriculture (USDA). 2022. Extreme Weather. <https://www.climatehubs.usda.gov/content/extreme-weather>.

United States Drought Monitor (USDM). 2022a. Drought Conditions for Alameda County. 2000 – Present (weekly). June 14, 2022. Retrieved from <https://www.drought.gov/states/california/county/alameda>.

United States Environmental Protection Agency (EPA). 2021. Learn About Urban Heat Islands. September 15, 2021. Retrieved from <https://www.epa.gov/heatislands/learn-about-heat-islands>.

FLOODING HAZARDS AND DAM FAILURE

Ackerly, David, Andrew Jones, Mark Stacey, Bruce Riordan. (University of California, Berkeley). 2018. *San Francisco Bay Area Summary Report. California's Fourth Climate Change Assessment*. Publication number: CCCA4-SUM-2018-005. Retrieved from https://www.energy.ca.gov/sites/default/files/2019-11/Reg_Report-SUM-CCCA4-2018-005_SanFranciscoBayArea_ADA.pdf.

City of Newark. 2013. Newark California General Plan. December 12, 2013. Retrieved from <https://www.newark.org/home/showpublisheddocument/76/636502245500200000>.

County of Alameda. (2021). *2021 Alameda County Local Hazard Mitigation Plan, 4.2 Dam Failure*, pp. 4-6 through 4-8. September 2021.

Federal Emergency Management Agency (FEMA). (2021a). *Urban Drainage and Flood-Control District*. Retrieved from <https://www.fema.gov/case-study/urban-drainage-and-flood-control-district>.

National Oceanic and Atmospheric Administration (NOAA). 2022a. What is a canal? Retrieved <https://oceanservice.noaa.gov/facts/canal.html>.

NOAA. 2022b. What is storm surge? Retrieved from <https://oceanservice.noaa.gov/facts/stormsurge-stormtide.html>.

NOAA. 2022c. Climate Change: Global Sea Level Rise. Retrieved from <https://www.climate.gov/news-features/understanding-climate/climate-change-global-sea-level>

National Weather Service (NWS). 2022. Flood Hazard Information. Retrieved from https://www.weather.gov/arx/flood_awareness_week3.

Tetra Tech. 2017. *Union City/Newark Multi-Jurisdiction Hazard Mitigation Plan, Volume 1—Planning-Area-Wide Elements*. Retrieved from <https://www.newark.org/home/showpublisheddocument/270/636502394114000000>.

United States Geological Survey (USGS). (2013). Water Basics Glossary. Retrieved from https://water.usgs.gov/water-basics_glossary.html.

Newark Community Development Department. (2017). *Union City/Newark Multi-Jurisdiction Hazard Mitigation Plan; Volume 1—Planning-Area-Wide Elements*. Retrieved from <https://www.newark.org/home/showpublisheddocument/270/636502394114000000>.

GEOLOGIC HAZARDS

Metropolitan Transportation Commission (MTC). (2013). *Dumbarton Bridge Earthquake Upgrade Completed*. Thursday, February 21, 2013. Retrieved from <https://mtc.ca.gov/news/dumbarton-bridge-earthquake-upgrade-completed>.

HAZARDOUS MATERIALS

California Department of Conservation. (2016). Interactive Web Maps, *Earthquake Zones of Required Investigation*. Retrieved from <https://maps.conservation.ca.gov/cgs/EQZApp/>.

California Department of Toxic Substances Control (DTSC). (2018a). *Hazardous Waste Sites*. Retrieved from http://www.envirostor.dtsc.ca.gov/public/data_download

California State Water Resources Control Board (SWRCB). (2018a). *Permitted Underground Storage Tanks*. Retrieved from <https://geotracker.waterboards.ca.gov/datadownload>

DTSC. (2018b). *Hazardous Cleanup Sites*. Retrieved from http://www.envirostor.dtsc.ca.gov/public/data_download

EPA. (2017). *Toxic Release Inventory (TRI) Database*. Retrieved from <https://www.epa.gov/toxics-release-inventory-tri-program>.

SWRCB. (2018b). *Cleanup Sites*. Retrieved from <https://geotracker.waterboards.ca.gov/datadownload>.

U.S Environmental Protection Agency (EPA). 2021. *Household Hazardous Waste and Demolition*. Retrieved from <https://www.epa.gov/large-scale-residential-demolition/household-hazardous-waste-and-demolition>.

United States Geological Survey (USGS). (2003). *Earthquake Probabilities in the San Francisco Bay Region: 2002-2031*. Retrieved from http://pubs.usgs.gov/of/2003/of03-214/OFR-03-214_FullText.pdf.

University of California (UC) Berkeley. (2018). *California Faults*. Retrieved from <http://seismo.berkeley.edu/hayward/index.html>.

EMERGENCY PREPAREDNESS

Alameda County. (2019). Emergencies, AC Alert Resources. Retrieved from <https://acgov.org/emergencysite/>.

5. APPENDICES

APPENDIX A: EXISTING CONDITIONS REPORT

APPENDIX B: EMERGENCY EVACUATION ASSESSMENT