CHAPTER 6

CLIMATE CHANGE

Climate change contributes to ongoing, escalating impacts on people, the economy, and the environment on both the local and global level. Addressing and preparing for these impacts requires collaboration and transformative action among economic, governmental, social, environmental, and other elements. In recent years, California has been at the forefront of developing approaches to promote resiliency to the effects of climate change and reduce greenhouse gas (GHG) emissions while continuing to foster economic growth, social equity, and environmental protection. This section addresses the federal, state, and regulatory framework related to climate change and greenhouse gas emissions, the status of local climate action efforts, conditions related to climate change, including primary GHG emissions sources, and potential impacts associated with climate change, including sea-level rise, extreme heat, changes in precipitation and drought, increased risk of wildfire and flooding, and other impacts.

Topics:

6.1 BACKGROUND AND REGULATORY FRAMEWORK

This section identifies terminology associated with climate change and GHG issues and the associated regulatory framework at the federal, state, regional, and local levels.

KEY TERMS

Acre-feet (AF). A unit of volume equal to the volume of a sheet of water one acre in area and one foot in depth; equivalent to 43,560 cubic feet.

Bay Area Regional Reliability (BARR). A partnership made up of several large water suppliers serving six counties in the San Francisco Bay Area. Partners include Alameda County Water District, Bay Area Water Supply and Conservation Agency, Contra Costa Water District, East Bay Municipal Utility District, Marin Municipal Water District, San Francisco Public Utilities Commission, Santa Clara Valley Water District, and Zone 7 Water Agency.

CALGreen. The State of California mandatory green building code.

Carbon Dioxide-equivalent (CO_2e). A standard unit for measuring carbon footprints, expressed in terms of the amount of carbon dioxide that would create the same amount of global warming.

Cap-and-Trade Program. A Cap-and-Trade Program is a common term for a government regulatory program designed to limit, or cap, the total level of emissions of carbon dioxide as a result of industrial activity. The California Cap-and-Trade Program sets a statewide limit on sources responsible for 85 percent of California's greenhouse gas emissions, and establishes a price signal designed to drive long-term investment in cleaner fuels and more efficient use of energy.

Contra Costa Water District (CCWD). The water district that supplies the majority of the potable water supply to the City of Pittsburg (under a wholesale contract). In 2015, 87 percent of the City's potable water supply was provided by CCWD and 13 percent was from local groundwater wells.

Coastal Storm Monitoring System (CoSMoS). A tool developed by the United States Geologic Survey that can simulate sea-level rise in combination with storm events and other coastal dynamics.

Central Valley Project (CVP). A federal water management project providing irrigation and municipal water to a large portion of California's Central Valley.

East Contra Costa Integrated Regional Water Management (ECCC IRWM). A collaborate effort to manage all aspects of water resources in the East Contra Costa region. The East Contra Costa Region is a distinct geographic region, covering 50 square miles, which is isolated from its neighboring regions by the ridge lines of Mt Diablo to the south and west, and the Sacramento-San Joaquin Delta waterways to the north and east.

Federal Clean Air Act (FCAA). A federal law designed to control air pollution on the nation level.

Greenhouse Gas (GHG). A gas that contributes to the global greenhouse effect by absorbing infrared radiation, which include carbon dioxide and chlorofluorocarbons.

Intergovernmental Panel on Climate Change (IPCC). The United Nations body for assessing the science related to climate change.

State Water Project (SWP). The state water management project providing drinking water to more than 23 million people in California.

United States Environmental Protection Agency (EPA). An independent agency of the United States federal government for environmental protection.

Urban Water Management Plan (UWMP). Urban Water Management Plans are prepared by urban water suppliers every 5 year to support long-term resource planning and water supply sustainability.

Vector-borne Disease (VBD). Illnesses caused by parasites, viruses and bacteria that are transmitted by mosquitoes, sandflies, triatomine bugs, blackflies, ticks, tsetse flies, mites, snails, and lice.

Regulatory Framework

Federal

Clean Air Act

The Federal Clean Air Act (FCAA) was first signed into law in 1970. In 1977, and again in 1990, the law was substantially amended. The FCAA is the foundation for a national air pollution control effort, and it is composed of the following basic elements: NAAQS for criteria air pollutants, hazardous air pollutant standards, state attainment plans, motor National Ambient Air Quality Standards (NAAQS) vehicle emissions standards, stationary source emissions standards and permits, acid rain control measures, stratospheric ozone protection, and enforcement provisions.

The EPA is responsible for administering the FCAA. As discussed in Section 5.2, the FCAA requires the EPA to set NAAQS for several problem air pollutants based on human health and welfare criteria and recognizes the importance for each state to locally carry out the requirements of the FCAA, as consideration of local industries, geography, housing patterns, etc. are needed to address pollution control at the local level.

Energy Policy and Conservation Act

The Energy Policy and Conservation Act of 1975 required that all vehicles sold in the United States meet certain fuel economy goals. Through this Act, Congress established the first fuel economy standards for on-road motor vehicles in the U.S. Pursuant to the Act, the National Highway Traffic and Safety Administration, which is part of the U.S. Department of Transportation (USDOT), is responsible for establishing additional vehicle standards and for revising existing standards.

Since 1990, the fuel economy standard for new passenger cars has been 27.5 mpg. Since 1996, the fuel economy standard for new light trucks (gross vehicle weight of 8,500 pounds or less) has been 20.7 mpg. Heavy-duty vehicles (i.e., vehicles and trucks over 8,500 pounds gross vehicle weight) are not currently subject to fuel economy standards. Compliance with federal fuel economy standards is determined on the basis of each manufacturer's average fuel economy for the portion of its vehicles produced for sale in the U.S. The Corporate Average Fuel Economy (CAFE) program, which is administered by the EPA, was created to determine vehicle manufacturers' compliance with the fuel economy standards. The EPA calculates a CAFE value for each manufacturer based on city and highway fuel economy test results and vehicle sales. Based on the information generated under the CAFE program, the USDOT is authorized to assess penalties for noncompliance.

Energy Policy Act of 1992 (EPAct)

The Energy Policy Act of 1992 (EPAct) was passed to reduce the country's dependence on foreign petroleum and improve air quality. EPAct includes several parts intended to build an inventory of alternative fuel vehicles (AFVs) in large, centrally fueled

fleets in metropolitan areas. EPAct requires certain federal, state, and local government and private fleets to purchase a percentage of light duty AFVs capable of running on alternative fuels each year. In addition, financial incentives are included in EPAct. Federal tax deductions are allowed for businesses and individuals to cover the incremental cost of AFVs. States are also required by the act to consider a variety of incentive programs to help promote AFVs.

Energy Policy Act of 2005

The Energy Policy Act of 2005 was signed into law on August 8, 2005. Generally, the act provides for renewed and expanded tax credits for electricity generated by qualified energy sources, such as landfill gas; provides bond financing, tax incentives, grants, and loan guarantees for a clean renewable energy and rural community electrification; and establishes a federal purchase requirement for renewable energy.

Intermodal Surface Transportation Efficiency Act

The Intermodal Surface Transportation Efficiency Act (ISTEA) promoted the development of intermodal transportation systems to maximize mobility as well as address national and local interests in air quality and energy. ISTEA contained factors that metropolitan planning organizations (MPOs), such as the Metropolitan Transportation Commission (MTC), were to address in developing transportation plans and programs, including some energy-related factors. To meet the ISTEA requirements, MPOs adopted explicit policies defining the social, economic, energy, and environmental values that were to guide transportation decisions in that metropolitan area. The planning process was then to address these policies. Another requirement was to consider the consistency of transportation planning with federal, state, and local energy goals. Through this requirement, energy consumption was expected to become a criterion, along with cost and other values that determine the best transportation solution.

Moving Ahead for Progress in the 21st Century

MAP-21, the Moving Ahead for Progress in the 21st Century Act (P.L. 112-141), was signed into law on July 6, 2012. MAP-21 creates a streamlined, performance-based, and multimodal program to address the many challenges facing the U.S. transportation system. These challenges include improving safety, maintaining infrastructure condition, reducing traffic congestion, improving efficiency of the system and freight movement, protecting the environment, and reducing delays in project delivery.

Federal Climate Change Policy

According to the EPA, "the United States government has established a comprehensive policy to address climate change" that includes slowing the growth of emissions; strengthening science, technology, and institutions; and enhancing international cooperation. To implement this policy, "the Federal government is using voluntary and incentive-based programs to reduce emissions and has established programs to promote climate technology and science." The federal government's goal is to reduce the greenhouse gas (GHG) intensity (a measurement of GHG emissions per unit of economic activity) of the American economy by 18 percent over the 10-year period from 2002 to 2012. In addition, the EPA administers multiple programs that encourage voluntary GHG reductions, including "ENERGY STAR", "Climate Leaders", and Methane Voluntary Programs. However, as of this writing, there are no adopted federal plans, policies, regulations, or laws directly regulating GHG emissions.

Mandatory Greenhouse Gas Reporting Rule

On September 22, 2009, the EPA issued a final rule for mandatory reporting of GHGs from large GHG emissions sources in the United States. In general, this national reporting requirement will provide the EPA with accurate and timely GHG

emissions data from facilities that emit 25,000 metric tons or more of CO_2 per year. This publicly available data will allow the reporters to track their own emissions, compare them to similar facilities, and aid in identifying cost effective opportunities to reduce emissions in the future. Reporting is at the facility level, except that certain suppliers of fossil fuels and industrial greenhouse gases along with vehicle and engine manufacturers will report at the corporate level. An estimated 85% of the total U.S. GHG emissions, from approximately 10,000 facilities, are covered by this final rule.

STATE

Assembly Bill 1493

In response to Assembly Bill (AB) 1493, the CARB approved amendments to the California Code of Regulations (CCR) adding GHG emission standards to California's existing motor vehicle emission standards. Amendments to CCR Title 13 Sections 1900 (CCR 13 1900) and 1961 (CCR 13 1961), and adoption of Section 1961.1 (CCR 13 1961.1) require automobile manufacturers to meet fleet average GHG emission limits for all passenger cars, light-duty trucks within various weight criteria, and medium-duty passenger vehicle weight classes beginning with the 2009 model year. For passenger cars and light-duty trucks 3,750 pounds or less loaded vehicle weight (LVW), the 2016 GHG emission limits are approximately 37 percent lower than during the first year of the regulations in 2009. For medium-duty passenger vehicles and light-duty trucks 3,751 LVW to 8,500 pounds gross vehicle weight (GVW), GHG emissions are reduced approximately 24 percent between 2009 and 2016.

The CARB requested a waiver of federal preemption of California's Greenhouse Gas Emissions Standards. The intent of the waiver is to allow California to enact emissions standards to reduce carbon dioxide and other greenhouse gas emissions from automobiles in accordance with the regulation amendments to the CCRs that fulfill the requirements of AB 1493. The EPA granted a waiver to California to implement its greenhouse gas emissions standards for cars.

Assembly Bill 1007

AB 1007 (Pavley, Chapter 371, Statutes of 2005) directed the CEC to prepare a plan to increase the use of alternative fuels in California. As a result, the CEC prepared the State Alternative Fuels Plan in consultation with the state, federal, and local agencies. The plan presents strategies and actions California must take to increase the use of alternative non-petroleum fuels in a manner that minimizes costs to California and maximizes the economic benefits of in-state production. The Plan assessed various alternative fuels and developed fuel portfolios to meet California's goals to reduce petroleum consumption, increase alternative fuels use, reduce greenhouse gas emissions, and increase in-state production of biofuels without causing a significant degradation of public health and environmental quality.

Bioenergy Action Plan – Executive Order #S-06-06

Executive Order #S-06-06 establishes targets for the use and production of biofuels and biopower and directs state agencies to work together to advance biomass programs in California while providing environmental protection and mitigation. The executive order establishes the following target to increase the production and use of bioenergy, including ethanol and biodiesel fuels made from renewable resources: produce a minimum of 20 percent of its biofuels within California by 2010, 40 percent by 2020, and 75 percent by 2050. The executive order also calls for the state to meet a target for use of biomass electricity.

California Executive Orders S-3-05, S-20-06, and B-30-15, Assembly Bill 32, and Senate Bill 32

On June 1, 2005, then Governor Arnold Schwarzenegger signed Executive Order S-3-05. The goal of this Executive Order is to reduce California's GHG emissions to: 1) 2000 levels by 2010, 2) 1990 levels by the 2020 and 3) 80% below the 1990 levels by the year 2050.

In 2006, this goal was further reinforced with the passage of Assembly Bill 32 (AB 32), the Global Warming Solutions Act of 2006. AB 32 sets the same overall GHG emissions reduction goals while further mandating that the CARB create a plan, which includes market mechanisms, and implement rules to achieve "real, quantifiable, cost-effective reductions of greenhouse gases." Executive Order S-20-06 further directs state agencies to begin implementing AB 32, including the recommendations made by the state's Climate Action Team.

In April 2015, Governor Jerry Brown signed Executive Order B-30-15, which requires that there be a reduction in GHG emissions to 40% below 1990 levels by 2030. This intermediate target was codified into law by Senate Bill 32 (SB 32), which was signed into law on September 8, 2016.

Climate Change Scoping Plan

On December 11, 2008, the CARB adopted its *Climate Change Scoping Plan* (Scoping Plan), which functions as a roadmap of the CARB's plans to achieve GHG reductions in California required by AB 32 through subsequently enacted regulations. The CARB updated the Scoping Plan in 2013 (*First Update to the Climate Change Scoping Plan*) (2013 Update) and again in 2017 (the *Final 2017 Scoping Plan Update*) (2017 Update). The 2013 Update built upon the initial Scoping Plan with new strategies and recommendations, and also set the groundwork to reach the long-term goals set forth by the state. The 2017 Update expanded the scope of the plan further by focusing on the strategy for achieving the state's 2030 GHG target of 40 percent emissions reductions below 1990 levels (to achieve the target codified into law by SB 32), and substantially advances toward the state's 2050 climate goal to reduce GHG emissions by 80 percent below 1990 levels. The 2017 Update is helping the State of California to:

- Lower GHG emissions on a trajectory to avoid the worst impacts of climate change;
- Support a clean energy economy which provides more opportunities for all Californians;
- Provide a more equitable future with good jobs and less pollution for all communities; and
- Improve the health of all Californians by reducing air and water pollution and making it easier to bike and walk.

The California 2030 GHG reduction target of 40 percent emissions reductions below 1990 levels guides the 2017 Update. The 2017 Update includes a suite of specific actions to meet the State's 2030 GHG reduction target, including additional measures developed or required by legislation since the 2015 Update, such as extending the LCFS to an 18 percent reduction in carbon intensity beyond 2020, and the requirements of SB 350 to increase renewables to 50 percent and to double energy efficiency savings. The 2017 Update also included the Mobile Source Strategy targets for more zero emission vehicles and much cleaner trucks and transit, the Sustainable Freight Action Plan to improve freight efficiency and transition to zero emission freight handling technologies, and the requirements under SB 1383 to reduce anthropogenic black carbon by 50 percent and hydrofluorocarbon and methane emissions by 40 percent below 2013 levels by 2030. The adoption of AB 398 into State law on July 25, 2017, clarifies the role of the Cap-and-Trade Program through December 31, 2030.

Senate Bill 743

SB 743, passed into law in 2013, changes the way that public agencies evaluate the transportation impacts of projects under CEQA through balancing the needs of congestion management with statewide goals related to infill development, promotion of public health through active transportation, and reduction of GHGs. The 2017 Update to the Scoping Plan identified that slower VMT growth from more efficient land use development patterns would promote achievement of the state's climate goals.

As detailed in SB 743, the Governor's Office of Planning and Research (OPR) was tasked with developing potential metrics to measure transportation impacts and replace the use of vehicle delay and level of service (LOS). More detail about SB 743 is provided in the Chapter 2 (Circulation).

In December 2018, OPR released its final changes to the CEQA Guidelines, including the addition of Section 15064.3 that implements SB 743. In support of these changes, OPR published its Technical Advisory on Evaluating Transportation Impacts in CEQA, which recommends that the transportation impact of a project be based on whether it would generate a level of VMT per capita (or VMT per employee) that is 15 percent lower than existing development in the region. OPR's technical advisory explains that this criterion is consistent with Section 21099 of the California Public Resources Code, which states that the criteria for determining significance must "promote the reduction in greenhouse gas emissions". It is also consistent with the statewide per capita VMT reduction target developed by Caltrans in its Strategic Management Plan, which calls for a 15 percent reduction in per capita VMT, compared to 2010 levels, by 2020. Additionally, the California Air Pollution Control Officers Association (CAPCOA) determined that a 15 percent reduction in VMT is typically achievable for projects. CARB's First Update to the Climate Change Scoping Plan also called for local governments to set communitywide GHG reduction targets of 15 percent below then-current levels by 2020. Although not required, a lead agency may elect to be governed by the provisions of Section 15064.3 immediately. However, the provisions of Section 15064.3 do not apply statewide until July 1, 2020.

Executive Order B-48-18: Zero-Emission Vehicles

In January 2018, EO B-48-18 was signed into law and requires all State entities to work with the private sector to have at least 5 million zero-emission vehicles (ZEVs) on the road by 2030, as well as install 200 hydrogen fueling stations and 250,000 electric vehicle charging stations (EVCSs) by 2025. It specifies that 10,000 of the EVCSs should be direct current fast chargers. This Executive Order also requires all State entities to continue to partner with local and regional governments to streamline the installation of ZEV infrastructure. The Governor's Office of Business and Economic Development is required to publish a Plug-in Charging Station Design Guidebook and update the 2015 Hydrogen Station Permitting Guidebook to aid in these efforts. All State entities are required to participate in updating the 2016 Zero-Emissions Vehicle Action Plan (Governor's Interagency Working Group on Zero-Emission Vehicles 2016) to help expand private investment in ZEV infrastructure with a focus on serving low-income and disadvantaged communities. Additionally, all State entities are to support and recommend policies and actions to expand ZEV infrastructure at residential uses through the Low Carbon Fuel Standard Program, and recommend how to ensure affordability and accessibility for all drivers.

California Strategy to Reduce Petroleum Dependence (AB 2076)

In response to the requirements of AB 2076, the CEC and the CARB developed a strategy to reduce petroleum dependence in California. The strategy, *Reducing California's Petroleum Dependence*, was adopted by the CEC and CARB in 2003. The strategy recommends that California reduce on-road gasoline and diesel fuel demand to 15 percent below 2003 demand levels by 2020 and maintain that level for the foreseeable future. At the time of this writing, the Governor and Legislature are working to establish national fuel economy standards that double the fuel efficiency of new cars, light trucks, and sport utility vehicles

(SUVs) and increase the use of non- petroleum fuels to 20 percent of on-road fuel consumption by 2020 and 30 percent by 2030.

Assembly Bill 2188: Solar Permitting Efficiency Act

Assembly Bill (AB) 2188, enacted in California in 2015, required local governments to adopt a solar ordinance by September 30, 2015 that creates a streamlined permitting process that conforms to the bests practices for expeditious and efficient permitting of small residential rooftop solar systems. The act is designed to lower the cost of solar installations in California and further expand the accessibility of solar to more California homeowners. The bulk of the time and cost savings associated with a streamlined permitting process comes from the use of a standardized eligibility checklist and a simplified plan. This bill also shortens the number of days for those seeking Homeowner's Association (HOA) approval for a written denial of a proposed solar installation.

Governor's Low Carbon Fuel Standard (Executive Order #S-01-07)

Executive Order #S-01-07 establishes a statewide goal to reduce the carbon intensity of California's transportation fuels by at least 10 percent by 2020 through establishment of a Low Carbon Fuel Standard. The Low Carbon Fuel Standard is incorporated into the State Alternative Fuels Plan and is one of the proposed discrete early action GHG reduction measures identified by the CARB pursuant to AB 32.

Senate Bill 375

Senate Bill (SB) 375 (SB 375) was built on AB 32 (California's 2006 climate change law). SB 375's core provision is a requirement for regional transportation agencies to develop a Sustainable Communities Strategy (SCS) in order to reduce GHG emissions from passenger vehicles. The SCS is one component of the existing Regional Transportation Plan (RTP). The SCS outlines the region's plan for combining transportation resources, such as roads and mass transit, with a realistic land use pattern, in order to meet a state target for reducing GHG emissions. The strategy must take into account the region's housing needs, transportation demands, and protection of resource and farmlands. The current RTP/SCS for the San Francisco Bay Area is Plan Bay Area 2040. Plan Bay Area 2040 is the San Francisco Bay Area's roadmap for forecasting transportation needs through the year 2040, preserving the character of diverse communities, and adapting to the challenges of future population growth.

Additionally, SB 375 modified the state's Housing Element Law to achieve consistency between the land use pattern outlined in the SCS and the Regional Housing Needs Assessment allocation. The legislation also substantially improved cities' and counties' accountability for carrying out their housing element plans. Finally, SB 375 amended the California Environmental Quality Act (Pub. Resources Code, § 21000 et seq.) to ease the environmental review of developments that help reduce the growth of GHG emissions.

Climate Action Program at Caltrans

The California Department of Transportation, Business, Transportation, and Housing Agency, prepared a Climate Action Program in response to new regulatory directives. The goal of the Climate Action Program is to promote clean and energy efficient transportation, and provide guidance for mainstreaming energy and climate change issues into business operations. The overall approach to lower fuel consumption and CO_2 from transportation is twofold: (1) reduce congestion and improve efficiency of transportation systems through mixed-use, higher-density, and transit-oriented development, operational improvements, and Intelligent Transportation Systems; and (2) institutionalize energy efficiency and GHG emission reduction

measures and technology into planning, project development, operations, and maintenance of transportation facilities, fleets, buildings, and equipment.

The reasoning underlying the Climate Action Program is the conclusion that "the most effective approach to addressing GHG reduction, in the short-to-medium term, is strong technology policy and market mechanisms to encourage innovations. Rapid development and availability of alternative fuels and vehicles, increased efficiency in new cars and trucks (light and heavy duty), and super clean fuels are the most direct approach to reducing GHG emissions from motor vehicles (emission performance standards and fuel or carbon performance standards)."

Advanced Clean Cars Program

In January 2012, the CARB approved the Advanced Clean Cars program which combines the control of GHG emissions and criteria air pollutants, as well as requirements for greater numbers of zero-emission vehicles, into a single package of standards for vehicle model years 2017 through 2025. The new rules strengthen the GHG standard for 2017 models and beyond. This will be achieved through existing technologies, the use of stronger and lighter materials, and more efficient drivetrains and engines. The program's zero-emission vehicle regulation requires battery, fuel cell, and/or plug-in hybrid electric vehicles to account for up to 15 percent of California's new vehicle sales by 2025. The program also includes a clean fuels outlet regulation designed to support the commercialization of zero-emission hydrogen fuel cell vehicles by 2015 by requiring increased numbers of hydrogen fueling stations throughout the state. The program will have significant energy demand implications as battery, fuel cell, and/or plug-in hybrid electric vehicle sales increase overtime, creating new demand for electricity services both in residential and commercial buildings (e.g. charging stations) as well as demand for new EV and hydrogen fuel cell charging stations. The number of stations will grow as vehicle manufacturers sell more fuel cell vehicles. According to the CARB, by 2025, when the rules will be fully implemented, the statewide fleet of new cars and light trucks will emit 34 percent fewer global warming gases and 75 percent fewer smog-forming emissions than the statewide fleet in 2016.

California Building Energy Efficiency Standards

Title 24, Part 6 of the California Code of Regulations, known as the Building Energy Efficiency Standards, was established in 1978 in response to a legislative mandate to reduce California's energy consumption. The standards are updated periodically to allow consideration and possible incorporation of new energy efficiency technologies and methods. On January 1, 2010, the California Building Standards Commission adopted CALGreen and became the first state in the United States to adopt a statewide green building standards code. CALGreen requires new buildings to reduce water consumption by 20 percent, divert 50 percent of construction waste from landfills, and install low pollutant-emitting materials. The California Building Energy Efficiency Standards are updated periodically. The most recent standards are effective as of January 1, 2017.

The next update to the standards (the 2019 Building Energy Efficiency Standards) are planned to take effect on January 1, 2020. Included as part of the 2019 Building Energy Efficiency Standards are rooftop solar power requirements. These requirements mandate that all new homes under three stories high install solar panels (starting January 1, 2020), and that solar systems must be sized to net out the annual kilowatt-hour energy usage of the dwelling. The updated Standards also incentivize "demand-responsive technologies," including battery storage and heat pump water heaters.

CEQA Guidelines

In late 2018, amendments to the CEQA Guidelines were finalized, including changes to CEQA Guidelines Section 15064.4, which addresses the analysis of greenhouse gas emissions. The amendments were approved by the Office of Administrative

Law and filed with the Secretary of State. The amendments became effective on December 28, 2018.

The revision of CEQA Guidelines Section 15064.4 clarified several points, including the following:

- Lead agencies must analyze the greenhouse gas emissions of proposed projects.
- The focus of the lead agency's analysis should be on the project's effect on climate change, rather than simply focusing on the quantity of emissions and how that quantity of emissions compares to statewide or global emissions.
- The impacts analysis of greenhouse gas emissions is global in nature and thus should be considered in a broader context. A project's incremental contribution may be cumulatively considerable even if it appears relatively small compared to statewide, national or global emissions.
- Lead agencies should consider a timeframe for the analysis that is appropriate for the project.
- A lead agency's analysis must reasonably reflect evolving scientific knowledge and state regulatory schemes.
- Lead agencies may rely on plans prepared pursuant to Section 15183.5 (Plans for the Reduction of Greenhouse Gases) in evaluating a project's greenhouse gas emissions.
- In determining the significance of a project's impacts, the lead agency may consider a project's consistency with the State's long-term climate goals or strategies, provided that substantial evidence supports the agency's analysis of how those goals or strategies address the project's incremental contribution to climate change and its conclusion that the project's incremental contribution is consistent with those plans, goals, or strategies.
- The lead agency has discretion to select the model or methodology it considers most appropriate to enable decision makers to intelligently take into account the project's incremental contribution to climate change.

In addition, in order to assure that energy implications are considered in project decisions, CEQA requires that EIRs include a discussion of the potential energy impacts of proposed projects, with particular emphasis on avoiding or reducing inefficient, wasteful and unnecessary consumption of energy. The goal of conserving energy implies the wise and efficient use of energy.

LOCAL

Bay Area Air Quality Management District 2017 Clean Air Plan

The Bay Area Air Quality Management District (BAAQMD) 2017 Clean Air Plan is a roadmap for regional efforts to reduce air pollution and protect public health and the global climate. The 2017 Plan identifies potential rules, programs, and strategies to reduce GHG emissions and other harmful air pollutants in the Bay Area. The 2017 Plan complements and supports other important regional and state planning efforts, including Plan Bay Area and the State of California's 2030 Scoping Plan.

This Plan lays out 85 distinct control measures to decrease fossil fuel combustion, improve energy efficiency, and decrease emissions of potent GHGs and other pollutants. Numerous measures reduce multiple pollutants simultaneously, while others focus on a single type of pollutant - for example, "super-GHGs" like methane and black carbon.

San Francisco Bay Conservation and Development Commission

The San Francisco Bay Conservation and Development Commission (BCDC) was created in 1965 to address a shrinking San Francisco Bay due to haphazard filling and to increase shoreline public access. Since the San Francisco Bay is getting larger due to sea level rise, some flood protection strategies are expected to require larger amounts of fill than BCDC has ever previously permitted. In that vein, the BCDC has developed programs and tools to help prepare for and adapt to rising sea levels in the San Francisco Bay Area. It should be noted that while BCDC's jurisdiction does not extend to Pittsburg, their work is relevant to the entire San Francisco Bay Area.

The Policies for a Rising Bay project is part of the San Francisco Bay Conservation and Development Commission's climate change program, which involves building the region's capacity to plan for sea level rise and ensuring that the Commission's laws and policies support and encourage appropriate resilience and adaptation. Separately, the BCDC unanimously approved an amendment to the San Francisco Bay Plan to address climate change, which is included in the current version of the San Francisco Bay Plan. The BCDC also developed the Adapting to Rising Tides program, which provides guidance, tools, and information to address the specific challenges of climate change on the San Francisco Bay. The Adapting to Rising Tides program includes a Bay Shoreline Flood Explorer tool, which provides interactive mapping that illustrates sea level rise at the local level along the San Francisco Bay.

Pittsburg Updated 2005 and 2016 Greenhouse Gas Emissions Inventories & Analysis

In 2009, the City of Pittsburg (in collaboration with ICLEI – Local Governments for Sustainability) developed baseline year 2005 greenhouse gas inventories for the community and for government operations. In 2019, the City of Pittsburg updated its year 2005 baseline community inventory and also developed a new year 2016 GHG community GHG inventory. These GHG inventories provide a "snapshot" of existing GHG emissions within the community and includes details to guide decision making. They also serve as a benchmark against which future GHG reductions can be measured.

6.2 EXISTING CONDITIONS AND CLIMATE CHANGE SCENARIOS

Greenhouse Gases and Climate Change Linkages

Various gases in the Earth's atmosphere, classified as atmospheric GHGs, play a critical role in determining the Earth's surface temperature. Solar radiation enters Earth's atmosphere from space, and a portion of the radiation is absorbed by the Earth's surface. The Earth emits this radiation back toward space, but the properties of the radiation change from high-frequency solar radiation to lower-frequency infrared radiation.

Naturally occurring greenhouse gases include water vapor (H_2O), carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), and ozone (O_3). Several classes of halogenated substances that contain fluorine, chlorine, or bromine are also greenhouse gases, but they are, for the most part, solely a product of industrial activities. Although the direct greenhouse gases CO_2, CH_4, and N_2O occur naturally in the atmosphere, human activities have changed their atmospheric concentrations. From the pre-industrial era (i.e., ending about 1750) to 2011, concentrations of these three greenhouse gases have increased globally by 40, 150, and 20 percent, respectively (IPCC, 2013).

Greenhouse gases, which are transparent to solar radiation, are effective in absorbing infrared radiation. As a result, this radiation that otherwise would have escaped back into space is now retained, resulting in a warming of the atmosphere. This phenomenon is known as the greenhouse effect. Among the prominent GHGs contributing to the greenhouse effect are carbon dioxide (CO_2), methane (CH_4), ozone (O_3), water vapor, nitrous oxide (N_2O), and chlorofluorocarbons (CFCs).

Emissions of GHGs contributing to global climate change are attributable in large part to human activities associated with the industrial/manufacturing, utility, transportation, residential, and agricultural sectors. In California, the transportation sector is the largest emitter of GHGs, followed by the industrial sector (California Energy Commission, 2018).

As the name implies, global climate change is a global problem. GHGs are global pollutants, unlike criteria air pollutants and toxic air contaminants, which are pollutants of regional and local concern, respectively. California produced approximately

429 million gross metric tons of carbon dioxide equivalents ($MMTCO_2e$) in 2016 (California Energy Commission, 2018). By 2020, California would need to produce below 431 $MMTCO_2e$ by 2020 (California Air Resources Board, 2017).

Carbon dioxide equivalents are a measurement used to account for the fact that different GHGs have different potential to retain infrared radiation in the atmosphere and contribute to the greenhouse effect. This potential, known as the global warming potential of a GHG, is also dependent on the lifetime, or persistence, of the gas molecule in the atmosphere. Expressing GHG emissions in carbon dioxide equivalents takes the contribution of all GHG emissions to the greenhouse effect and converts them to a single unit equivalent to the effect that would occur if only CO_2 were being emitted.

Consumption of fossil fuels in the transportation sector was the single largest source of California's GHG emissions in 2016, accounting for 41% of total GHG emissions in the state. This category was followed by the industrial sector (23%), the electricity generation sector (including both in-state and out of-state sources) (16%), the agriculture sector (8%), the residential energy consumption sector (7%), and the commercial energy consumption sector (5%) (California Energy Commission, 2018).

Effects of Global Climate Change

The effects of increasing global temperature are far-reaching and extremely difficult to quantify. The scientific community continues to study the effects of global climate change. In general, increases in the ambient global temperature as a result of increased GHGs are anticipated to result in rising sea levels, which could threaten coastal areas through accelerated coastal erosion, threats to levees and inland water systems and disruption to coastal wetlands and habitat.

The impacts of climate change are already being felt in the San Francisco Bay Area and Northern California. Besides containing secular changes over several decades, the annual temperature record at San Francisco and surrounding San Francisco Bay locations (such as Pittsburg) also exhibit shorter period variability from time scales of a few years to a few decades. From the observed and from the model historical simulations, it is seen that the model simulations begin to warm more substantially in the 1970s; this is likely a response to effects of GHG increases which began to increase significantly during this time period (California Energy Commission, 2012).

Over the next century, increasing atmospheric GHG concentrations are expected to cause a variety of changes to global climate conditions, including sea level rise and storm surge in coastal areas, increased riverine flooding, and higher temperatures more frequently (leading to extreme heat events and wildfires), particularly in inland areas. Local impacts stemming from climate related conditions range from impacts to extreme temperatures, flooding, public health, wildfires and infrastructure.

For example, if the temperature of the ocean warms, it is anticipated that the winter snow season would be shortened. Snowpack in the Sierra Nevada provides both water supply (runoff) and storage (within the snowpack before melting), which is a major source of supply for the state. The snowpack portion of the supply could potentially decline by 50% to 75% by the end of the 21st century (National Resources Defense Council, 2014). This phenomenon could lead to significant challenges securing an adequate water supply for a growing state population. Further, the increased ocean temperature could result in increased moisture flux into the state; however, since this would likely increasingly come in the form of rain rather than snow in the high elevations, increased precipitation could lead to increased potential and severity of flood events, placing more pressure on California's levee/flood control system.

According to the most recent California Climate Change Assessment (*California's Fourth Climate Change Assessment*) (2018), and the Contra Costa Health Services *Climate Change Vulnerability in Contra Costa County: A Focus on Heat* report (2015), the impacts of global warming in California are anticipated to include, but are not limited to, the following:

- Ocean Warming
- Extreme Heat
- Precipitation
- Wildfires
- Flooding & Sea Level Rise
- Water Resources
- Public Health
- Biological Resources
- Agriculture
- Energy Consumption
- Infrastructure

Because local governments largely determine the shape of development through land-use plans, regulations, and implementing decisions, local governments play an important role in developing climate change strategies including resiliency planning and adaptation. Inasmuch as local governments play an important role in adaptation strategies through local land use plans and policies, many climate adaptation strategies will need to be coordinated as part of a larger regional, or statewide strategy requiring cooperation by many local governments, and decision making and regulatory bodies.

This section addresses future conditions anticipated to result from climate change as well as resiliency planning and adaptation strategies at the statewide, regional, and local levels, where applicable. Information in this section is primarily derived from the *Adapting to Rising Tides: Contra Costa County Assessment and Adaptation Project*, the *Bay Area Sea Level Rise Analysis and Mapping Project*, and the California Energy Commission's Cal-Adapt tool.

Ocean Warming

California has recently experienced unprecedented events along its coasts including a historic marine heat wave, record harmful algal blooms, fisheries closures, and a significant loss of northern kelp forests. These events increase concern that coastal and marine ecosystems are being transformed, degraded, or lost due to climate change impacts, particularly sea-level rise, ocean acidification, and warming. From 1900 to 2016, California's coastal oceans warmed by 1.26 °F.

"The Blob," a very warm patch of ocean water off the coast of California from 2013-2016, demonstrated that anomalously warm ocean temperatures can produce unprecedented events, including the mass abandonment of sea lion pups and California's record-setting drought. Rising bay water and groundwater levels will also increase salinity intrusion and subsurface flooding. If this groundwater intrudes into sewer systems, treatment processes will become more expensive and wastewater recycling capabilities will be reduced. Additionally, climate change will require improved stormwater management in the Bay Area as extreme storm events increase in size and frequency (State of California, 2018).

Extreme Heat

Temperature is a climate variable, and is directly affected by changes in global atmospheric and oceanic temperatures. While trends in average annual temperature are an important indicator of climate change, extreme temperature events have greater impacts on society due to their episodic nature. Therefore, vulnerability and risk assessment tends to specifically focus on extreme heat events and not on average temperature changes.

The United Nations' Intergovernmental Panel on Climate Change (IPCC) defines extreme heat events as a period of abnormally hot weather. While extreme heat events can have various durations, Cal-Adapt defines an extreme heat event as

a period of five or more consecutive extreme heat days. Cal-Adapt defines an extreme heat day in a given region as a day in April through October where the maximum temperature exceeds the 98th historical percentile of maximum temperatures for that region based on daily temperature data from 1961 to 1990. The 98th historical percentile of maximum temperatures varies by locality and inland areas tend to be at a greater risk of extreme heat events when compared to areas near the coast.

There was a major heat wave in California from mid- to late July 2006, with 10 days of record-breaking temperatures. Across the state, at least 140 extreme heat-related deaths were reported, and researchers estimate that the heat wave resulted in over 16,166 more emergency department visits than average and 1,182 more hospitalizations than average (Contra Costa Health Services, 2015).

Increasing numbers of extreme heat days are projected in the coming decades. The California's Changing Climate 2018 report points out that increasing high heat days from climate change have a number of impacts on communities, including direct heat-related mortalities and worsening of chronic health conditions. The Cal-Adapt tool identifies that average annual temperature in Contra Costa County would increase from approximately 71.4 °F during the period for 1961 to 1990, to 76.5 °F for the period from 2070 to 2099 (California Energy Commission, 2019). The Cal-Adapt tool also identifies that, for Pittsburg, while there were an average of four days per year of extreme heat days during the historical period from years 1961 to 1990, it is projected that there will be an average of 20 days of extreme heat days per year during the model projections for the period from years 2070 to 2099 (California Energy Commission, 2019).

PRECIPITATION

Precipitation change is a climate variable that is directly affected by changes in global atmospheric and oceanic temperatures. Projected changes in precipitation include annual trend changes as well as extreme precipitation events. An extreme weather event is an occurrence that is significantly different from typical weather at a specific location and time of year. Extreme precipitation events can lead to flooding, mudslides and other damaging events. In a changing climate the frequency and intensity of such events will likely change across California.

The Cal-Adapt tool identifies the estimated intensity and frequency of extreme precipitation events in Pittsburg. During the historical period from October 1961 through September 1990, the average level of precipitation during an extreme precipitation event (i.e. those precipitation events that are on average exceeded once every 20 years) was approximately 4.8 inches, whereas during the forecasted period from October 2070 through September 2099, precipitation levels during extreme precipitation events are expected to range from approximately 4.8 inches to 7.0 inches (dependent on the model selected).[1] Separately, the Cal-Adapt tool provides that the number of extreme precipitation events in a given year (defined as those events with 2-day rainfall totals above an extreme threshold of 1 inch) in Pittsburg would increase from approximately 10 during the historical period from 1961 to 1990, to 14 during the forecasted period from 2070 through 2099 (California Energy Commission, 2019).

WILDFIRES

Wildfire occurs as a result of conditions affected by complex interactions between primary variables (including precipitation, and temperature) and other factors (including changes in cover type). Wildfires are unplanned, natural occurring fires and may be caused by lightning, accidental human ignitions, arson, or escaped prescribed fires. Weather is one of the most

[1] Four models were selected by California's Climate Action Team Research Working Group as priority models for research contributing to California's Fourth Climate Change Assessment: a warm/dry simulation; a cooler/wetter simulation; an average simulation; and the model simulation that is most unlike the first three for the best coverage of different possibilities.

significant factors in determining the severity of wildfires; natural fire patterns are driven by conditions such as drought, temperature, precipitation, and wind, and also by changes to vegetation structure and fuel (i.e., biomass) availability. Wildfires pose a great threat to life and property, particularly when they move from forest or rangeland into developed areas.

Climate change will make forests more susceptible to extreme wildfires. By 2100, if greenhouse gas emissions continue to rise, one study found that the frequency of extreme wildfires burning over approximately 25,000 acres would increase by nearly 50 percent, and that average area burned statewide would increase by 77 percent by the end of the century. In the areas that have the highest fire risk, wildfire insurance is estimated to see costs rise by 18 percent by 2055 and the fraction of property insured would decrease.

In recent years, the area burned by wildfires has increased in parallel with increasing air temperatures. Wildfires have also been occurring at higher elevations in the Sierra Nevada mountains, a trend which is expected to continue under future climate change. Climate change will likely modify the vegetation in California, affecting the characteristics of fires on the land. Land use and development patterns also play an important role in future fire activity. Because of these complexities, projecting future wildfires is complicated, and results depend on the time period for the projection and what interacting factors are included in the analysis. Because wildfires are affected by multiple and sometimes complex drivers, projections of wildfire in future decades in California range from modest changes from historical conditions to relatively large increases in wildfire regimes.

Moreover, continued global warming will alter natural ecosystems and biological diversity within the state. For example, alpine and sub-alpine ecosystems are expected to decline by as much as 60% to 80% by the end of the century as a result of increasing temperatures. The productivity of the state's forests is also expected to decrease as a result of global warming.

The Cal-Adapt tool identifies that, based on increased precipitation forecasted for the City of Pittsburg due to climate change, dependent on the climate change scenario selected, the annual mean area burned is forecasted to be reduced from approximately 19.2 hectares for the 1961-1990 period to 12.4 to 12.6 hectares for the 2070-2099 period (California Energy Commission, 2019).

Flooding & Sea Level Rise

Riverine and local flooding is influenced by precipitation and local conditions, such as ground cover and soil conditions. Riverine flooding occurs when heavy rainfall causes rivers or creeks to overtop their banks and inundate surrounding areas during extreme weather events. Urban flooding commonly occurs when local stormwater infrastructure is overwhelmed during extreme precipitation events.

Global models indicate that California will see substantial sea level rise during this century, with the exact magnitude depending on such factors as, global emissions, rate at which oceans absorb heat, melting rates and movement of land-based ice sheets, and local coastal land subsidence or uplift. Sea level rise is virtually certain to increase beyond the 6 inches that much of California experienced in the past century, but there are important questions involving how fast and how extreme the rates of sea-level rise will be. The National Oceanic and Atmospheric Administration models predict that sea level rise will increase by 0.3 to 2.5 meters (12 to 98 inches) by 2100, depending on the future GHG emissions levels (National Oceanic and Atmospheric Administration, 2017). Resultant effects could include increased coastal flooding, saltwater intrusion, and disruption of wetlands. As the existing climate throughout California changes over time, mass migration of species, or failure of species to migrate in time to adapt to the perturbations in climate, could also result.

Statewide damages from rising sea levels could reach nearly $17.9 billion from inundation of residential and commercial buildings under 50 centimeters (~20 inches) of sea-level rise, which is close to the 95th percentile of potential sea-level rise by the middle of this century. A 100-year coastal flood, on top of this level of sea-level rise, would almost double the costs. Rising sea levels, more intense coastal storms, and warmer water temperatures will increasingly threaten the state's coastal regions. Rising sea levels would inundate coastal areas with saltwater, accelerate coastal erosion, threaten vital levees and inland water systems, and disrupt wetlands and natural habitats.

Building resilience to sea level rise in California requires approaches tailored to communities' needs, climate impacts, and many other factors. Options to protect communities and ecosystems include combinations of armoring, natural infrastructure, and hybrid approaches. Decision-makers need tools to evaluate the economic and environmental costs and benefits of alternative strategies with more complete information. The *California's Fourth Climate Change Assessment* (Fourth Assessment) contributed to this need by supporting the expansion of CoSMoS, which is a tool that can simulate sea-level rise in combination with storm events and other coastal dynamics.

Coastal protection strategies can include the restoration of tidal marshes, judiciously-placed coastal armoring, and beach renourishment for highly accessed urban locations (e.g., adding large volumes of sand, an expensive solution lasting only 1-2 years). However, by 2050, with increasing sea-level rise and coastal storms, localities may need to begin considering shoreline retreat strategies.

The restoration of marine plants and seaweeds in coastal environments is a tactic that could increase dissolved oxygen levels, at least for local areas. Ocean and coastal vegetation including marshes also sequester carbon, and quantifying the locations and contributions that marine plants can make to reducing carbon dioxide in local waters is needed. Other actions include reducing nutrient runoff from sewage disposal and excess agricultural fertilizer.

The Cal-Adapt tool identifies forecasted inundation of the San Francisco Bay Area, Sacramento – San Joaquin Delta (Delta), and the California Coast. The Cal-Adapt tool provides the ability to see the areas within Pittsburg that would be affected by flooding due to sea level rise under the following scenarios: 0.5 meters, 1.0 meters, and 1.41 meters of sea level rise. Figure 6.2-1 illustrates the effects of each of these three sea level rise scenarios. Under the 0.5-meter sea level rise scenario, parts of the northwestern portions of Pittsburg (i.e. in industrial and residential areas) would be flooded during a 100-year flood event. Under the 1.0-meter and 1.41-meter sea level rise scenarios, flooding would occur over a larger portion of this area. In particular, the tidal marshes and low-lying reclaimed land located in and near Pittsburg would be affected by increased flooding and sea level rise that is forecasted to occur due to climate change (San Francisco Estuary Institute & Aquatic Science Center, 2018). Areas within Pittsburg located further inland would not be affected by the 100-year flood event under these scenarios (State of California, 2018).

Separately, the *Bay Area Sea Level Rise Analysis and Mapping Project* mapped sea level rise scenarios for the area along the northern boundary of the mainland portion of the Planning Area, using the BCDC's Adapting to Rising Tides tool. Figure 6.2-2 illustrates the level and location of sea level rise inundation over four sea level rise scenarios, ranging from 12 inches to 96 inches of sea level rise. As shown, portions of the northwest Planning Area would be inundated to varying degrees under these scenarios, with the most extreme flooding occurring under the most extreme sea level rise and storm surge scenarios. These scenarios provide a range of sea level rise approximately consistent with the predictions for sea level rise by the National Oceanic and Atmospheric Administration, which predicts that that sea level rise will increase by 0.3 to 2.5 meters (12 to 98 inches) by 2100, depending on the future GHG emissions levels.

Water Resources

A vast network of man-made reservoirs and aqueducts capture and transport water throughout the state from northern California rivers and the Colorado River. The current distribution system relies on Sierra Nevada snowpack to supply water during the dry spring and summer months. Rising temperatures, potentially compounded by decreases in precipitation, could severely reduce spring snowpack, increasing the risk of summer water shortages.

The state's water supplies are also at risk from rising sea levels. An influx of saltwater would degrade California's estuaries, wetlands, and groundwater aquifers. Saltwater intrusion caused by rising sea levels is a major threat to the quality and reliability of water within the southern edge of the Delta, a major state fresh water supply.

Current management practices for water supply and flood management in California may need to be revised for a changing climate. This is in part because such practices were designed for historical climatic conditions, which are changing and will continue to change during the rest of this century and beyond. As one example, the reduction in the Sierra Nevada snowpack, which provides natural water storage, will have implications throughout California's water management system. Even under the wetter climate projections, the loss of snowpack would pose challenges to water managers, hamper hydropower generation, and nearly eliminate all skiing and other snow-related recreational activities.

The San Francisco Bay Area's water agencies rely on a diverse portfolio of local and imported sources. The reliability of these sources will vary dramatically in both the short and long term as the climate changes. Climate impacts – such as earlier melting of snowpack, increasing seawater intrusion into groundwater, increased rates of evapotranspiration, and levee failures or subsidence that contaminate Delta supplies – will affect both the quantity of water available and the quality of supplies (State of California, 2019).

Reliability concerns can be mitigated with more diverse water supply portfolios, additional water storage infrastructure above and belowground, and innovative groundwater management. Strategies for increasing supply reliability are being pursued by individual agencies and as part of a regional effort called the Bay Area Regional Reliability (BARR) partnership made up of several large water suppliers serving six counties. Alternatives under consideration by BARR and other Bay Area agencies include: expanding storage and conveyance infrastructure; increasing non-potable water recycling; implementing potable reuse and/or seawater desalination; promoting groundwater augmentation, banking, and conjunctive use; constructing interties between systems to enable additional water transfers; and harvesting stormwater. Reducing water demand can also increase reliability (State of California, 2019).

According to the Pittsburg Urban Water Management Plan (UWMP), Pittsburg's water use varies by more than 50% seasonally. For example, in 2015, the minimum monthly water use was 454 acre-feet (AF) February, increasing to 878 AF in August, suggesting that water demand in the City, in particular for landscape irrigation and industrial purposes, will increase as a result of more frequent, longer, and more extreme heat waves; increased air temperatures; increased atmospheric carbon dioxide levels; changes in precipitation, winds, humidity, atmospheric aerosol and ozone levels; and population growth. Pittsburg is part of the second largest industrial center in Contra Costa County, leading to high potable and recycled water demands for industrial processes and cooling. In addition, in response to the current drought, much of the City's water demands are hardened, for example, with water efficient home appliances and expansion of recycled water use for outdoor irrigation. This makes water demand less elastic, because there is less opportunity for further conservation in the future, and thus makes the City more vulnerable to climate change (RMC Water and Environment, 2016).

Pittsburg's wholesale water supplier, Contra Costa Water District (CCWD), is dependent on surface water supplies from the Sacramento-San Joaquin Delta to meet the majority of the City's demand. Water supply from the Delta is already unreliable, and changes in seasonal runoff patterns from climate change are likely to lead to reduced water supply reliability. Changes in precipitation and temperature in the Sierra Nevada Region affect the timing and quantity of tributary flows. This affects the availability of fresh surface water for the Region. Contributing factors include a reduced Sierra snowpack, earlier snowmelt, and extended drought periods punctuated by intense precipitation events.

Climate change could result in less storage in upstream Central Valley Project (CVP)/State Water Project (SWP) reservoirs, which in turn could reduce flows into the Delta during the summer and fall. The availability of high-quality freshwater in the Delta is heavily dependent on the operation of CVP/SWP reservoirs; therefore, surface water supply for the region could be affected by changes in snowpack and upstream reservoir operations. Finally, there is concern that the water supply intake at Mallard Slough could become threatened by climate change-related sea-level rise and would subsequently impact CCWD's ability to reliably deliver its supplies.

The City of Pittsburg, through its involvement with the East Contra Costa County (ECCC) Integrated Regional Water Management (IRWM) Region in water resources planning, recognizes the importance of considering climate change in water management. Management strategies include both climate change mitigation and adaptation. Mitigation involves actions to reduce greenhouse gas (GHG) emissions, while adaptation involves responding to the effects of climate change.

A potential adaptation strategy to increase water supply reliability is to develop infrastructure to interconnect the water supply systems of nearby water agencies, such as that operated by the East Bay Municipal Utility District, to reduce reliance on the Delta. Additionally, increasing recycled water usage would improve water supply reliability since recycled water would offset potable water supplies and is not affected by hydrologic conditions. This would provide additional dry-year reliability for irrigation customers and other industrial users that could utilize recycled water. Pittsburg's and the ECCC IRWM Region's IRWM planning considers climate change adaptation during identification of projects for inclusion in the IRWM Plan and during the project prioritization process.

Public Health

Heat waves, the natural disaster responsible for the most deaths in California over the last 30 years, are an example of the current and future risk climate change poses to people. The 2006 heat wave killed over 600 people, resulted in 16,000 emergency department visits, and led to nearly $5.4 billion in damages. The human cost of these events is already immense, but research suggests that mortality risk for those 65 or older could increase ten-fold by the 2090s because of climate change. Studies show that while air conditioning can reduce mortality and illness from heat, increased electrical demand for cooling due to hotter conditions could also drive up emissions. However, the state is rapidly moving to cleaner electricity generation. Greenhouse gas emissions from electricity generation in 2016 were about 37% lower than emissions in 1990 (State of California, 2018).

Nineteen heat-related events occurred in California from 1999 to 2009 that had significant impacts on human health, resulting in about 11,000 excess hospitalizations. However, the National Weather Service issued Heat Advisories for only six of the events. Heat-Health Events (HHEs), which better predict risk to populations vulnerable to heat, will worsen drastically throughout the state.

Higher temperatures are expected to increase the frequency, duration, and intensity of conditions conducive to air pollution formation. Climate change poses direct and indirect risks to public health, as people will experience earlier death and

worsening illnesses. Air quality could be further compromised by increases in wildfires, which emit fine particulate matter that can travel long distances depending on wind conditions.

In addition, under the higher warming scenario, there would be a substantial increase in the number of high heat days per year by 2100. For example, in Sacramento, there could be up to 100 more days per year with temperatures above 95°F in Sacramento by 2100. This is a large increase over historical patterns and approximately twice the increase projected if temperatures remain within or below the lower warming range. Rising temperatures will increase the risk of death from dehydration, heat stroke/exhaustion, heart attack, stroke, and respiratory distress caused by extreme heat.

In addition to the health impacts related to air and water quality, warmer temperatures and drought conditions can contribute to the spread of diseases by aiding development and spread of the vectors that transmit them. A vector-borne disease (VBD) is one caused by a virus, bacteria, or protozoan that spends part of its life cycle in a host species (e.g. mosquitoes, ticks, fleas, rodents), which subsequently spreads the disease to other animals and people.

Regional research assessments have previously concluded that climate change and variability are highly likely to influence current VBD spread, including both short-term outbreaks and shifts in long-term disease trends. For example, as temperatures rise, mosquito reproductive cycles are shortened, allowing more breeding cycles each season, and viral transmission rates to rise sharply. Mosquitoes are an increasing vector of concern, particularly those species that have been introduced from other countries because changes in temperature and precipitation conditions can allow exotic species to become established in places where they could not previously survive year-round. Contra Costa Health Services identifies several infectious diseases that may increase due to increase temperatures, including West Nile Virus, Coccidioides, and Vibrio (Contra Costa Health Services, 2015).

Climate change will affect California's diverse people and communities differently, depending on their location and existing vulnerabilities. While research shows that all Californians will likely endure more illness and be at greater risk of early death because of climate change, vulnerable populations that already experience the greatest adverse health impacts will be disproportionately affected.

Biological Resources

The Sacramento-San Joaquin Delta is listed as one of the top 10 habitats to save for endangered species in a warming world. The Delta provides habitat for hundreds of species of fish, birds, and other wildlife and enables the migration of Pacific salmon from spawning grounds in the upper reaches of cold-water rivers to the saline oceans and back again. Regional climate-sensitive populations include salmonid species, migratory bird species, and wetland species (RMC Water and Environment, 2016).

Projected climate changes are likely to result in a number of interrelated and cascading ecosystem impacts. At present, most projected impacts are primarily associated with increases in air and water temperatures and include increased stress on fisheries that are sensitive to a warming aquatic habitat. Warmer temperatures can compromise the health and resilience of aquatic and terrestrial species and make it more challenging for them to compete with nonnative species for survival. Competition for habitat and food will intensify with climate change. Further, changes in seasonal runoff patterns may place additional stress on native species by affecting, for example, adult and juvenile migrations (RMC Water and Environment, 2016).

Rising temperatures are likely to increase challenges for providing suitable habitat conditions for salmonid populations. Of specific concern within the Region are Chinook salmon and steelhead, which prefer temperatures of less than 64.4 to 68 degrees Fahrenheit (°F) in mountain streams, although these anadromous fish may tolerate higher temperatures for short periods. Increased water temperatures could reduce the habitat suitability of California rivers for these species. Additionally, warmer air and water temperatures could potentially improve habitat for invasive species that outcompete natives. Invasive species, including various nonnative fish and plant species, are an ongoing issue within the Region. Some invasive species, such as quagga mussels, may additionally impact maintenance of hydraulic structures. Further, climate change could decrease the effectiveness of measures currently used to control invasive species (RMC Water and Environment, 2016).

Warmer water temperatures also could spur the growth of algae, which could result in eutrophic conditions in lakes and reservoirs, declines in water quality and changes in species composition. Other warming-related impacts include northward shifts in the geographic range of various species, impacts on the arrival and departure of migratory species, amphibian population declines, and effects on pests and pathogens in ecosystems. Impacts on terrestrial ecosystems have also been observed, including changes in the timing and length of growing seasons, timing of species life cycles, primary production, and species distributions and diversity (RMC Water and Environment, 2016).

Agriculture

Increased GHG emissions are expected to cause widespread changes to the agriculture industry reducing the quantity and quality of agricultural products statewide. Although higher carbon dioxide levels can stimulate plant production and increase plant water-use efficiency, California's farmers will face greater water demand for crops and a less reliable water supply as temperatures rise.

Plant growth tends to be slow at low temperatures, increasing with rising temperatures up to a threshold. However, faster growth can result in less-than-optimal development for many crops, so rising temperatures are likely to worsen the quantity and quality of yield for a number of California's agricultural products. Products likely to be most affected include wine grapes, fruits and nuts, and milk.

Crop growth and development will be affected, as will the intensity and frequency of pest and disease outbreaks. Rising temperatures will likely aggravate ozone pollution, which makes plants more susceptible to disease and pests and interferes with plant growth.

In addition, continued climate change will likely shift the ranges of existing invasive plants and weeds and alter competition patterns with native plants. Range expansion is expected in many species while range contractions are less likely in rapidly evolving species with significant populations already established. Should range contractions occur, it is likely that new or different weed species will fill the emerging gaps. Continued global warming is also likely to alter the abundance and types of many pests, lengthen pests' breeding season, and increase pathogen growth rates.

Energy Consumption

Energy is California is consumed from a wide variety of sources. Fossil fuels (including gasoline and diesel fuel, natural gas, and energy used to generate electricity) are most widely used form of energy in the State. However, renewable source of energy (such as solar and wind) are growing in proportion to California's overall energy mix. A large driver of renewable sources of energy in California is the State's current Renewable Portfolio Standard (RPS), which requires the State to derive at least 33% of electricity generated from renewable resources by 2020, and 50 percent by 2030.

Overall, in 2015, California's per capita energy usage was ranked 49th in the nation (U.S. EIA, 2019), lower than any other state except Hawaii. Additionally, California's per capita rate of energy usage has remained relatively constant since the 1970's. Many State regulations since the 1970's, including new building energy efficiency standards, vehicle fleet efficiency measures, as well as growing public awareness, have helped to keep per capita energy usage in the State in check.

The consumption of nonrenewable energy (primarily gasoline and diesel fuel) associated with the operation of passenger, public transit, and commercial vehicles results in GHG emissions that ultimately result in global climate change. Other fuels such as natural gas, ethanol, and electricity (unless derived from solar, wind, nuclear, or other energy sources that do not produce carbon emissions) also result in GHG emissions and contribute to global climate change.

Electricity Consumption

California relies on a regional power system composed of a diverse mix of natural gas, renewable, hydroelectric, and nuclear generation resources. Approximately 71 percent of the electrical power needed to meet California's demand is produced in the state. Approximately 29 percent of its electricity demand is imported from the Pacific Northwest and the Southwest (California Energy Commission, 2019). In 2010, California's in-state generated electricity was derived from natural gas (53.4 percent), large hydroelectric resources (14.6 percent), coal (1.7 percent), nuclear sources (15.7 percent), and renewable resources that include geothermal, biomass, small hydroelectric resources, wind, and solar (14.6 percent) (California Energy Commission, 2019). The percentage of renewable resources as a proportion of California's overall energy portfolio is increasing over time, as directed the State's Renewable Portfolio Standard (RPS).

According to the California Energy Commission (CEC), total statewide electricity consumption increased from 166,979 gigawatt-hours (GWh) in 1980 to 274,985 GWh in 2010. Contra Costa County consumed approximately 9,778 GWh of electricity in 2017, the year for which the latest data is available (California Energy Commission, 2016).

Higher temperatures will increase annual electricity demand for homes, driven mainly by increased use of air conditioning. High demand is projected in inland regions, and more moderate increases are projected in cooler coastal areas. However, in California, the increased annual residential energy demand for electricity is expected to be offset by reduced use of natural gas for space heating. Increases in peak hourly demand during the hot months of the year could be more pronounced than changes in annual demand. This is a critical finding for California's electric system, because generating capacity must match peak electricity demand.

Oil

The primary energy source for the United States is oil, which is refined to produce fuels like gasoline, diesel, and jet fuel. Oil is a finite, nonrenewable energy source. World consumption of petroleum products has grown steadily in the last several decades. As of 2009, world consumption of oil had reached 96 million barrels per day. The United States, with approximately five percent of the world's population, accounts for approximately 19 percent of world oil consumption, or approximately 18.6 million barrels per day (Central Intelligence Agency, 2009). The transportation sector relies heavily on oil. In California, petroleum-based fuels currently provide approximately 96 percent of the state's transportation energy needs (California Energy Commission, 2018).

Natural Gas/Propane

Natural gas supplies are derived from underground sources and brought to the surface at gas wells. Once it is extracted, gas is purified and the odorant that allows gas leaks to be detected is added to the normally odorless gas. Natural gas suppliers,

such as PG&E, then send the gas into transmission pipelines, which are usually buried underground. Compressors propel the gas through the pipeline system, which delivers it to homes and businesses.

The state produces approximately 12 percent of its natural gas, while obtaining 22 percent from Canada and 65 percent from the Rockies and the Southwest (California Energy Commission, 2019). Total natural gas demand in California in 2012 was 2,313, billion cubic feet of natural gas (California Energy Commission, 2019). In 2017, Contra Costa County consumed approximately 1,118 million therms of natural gas (California Energy Commission, 2016).

INFRASTRUCTURE

California's Fourth Climate Change Assessment provides in-depth analyses that support proactive steps to protect California's energy, transportation, and water infrastructure systems and the communities they serve. These systems face increasing risks from climate change as temperatures warm, sea levels rise, and other climate impacts worsen. These systems are interconnected, and disruption in one part can impact other connected parts with both direct and indirect economic effects.

Energy resources can be considered from both supply and demand perspectives. Fourth Assessment studies found infrastructure that supplies energy along the coast – particularly docks, terminals, and refineries – will increasingly be exposed to coastal flooding. Meanwhile, electrical power lines, rails, and roads are primarily at risk from increasing wildfire. Costs and impacts of wildfire to electricity transmission and distribution systems are expected to grow as climate change impacts increase.

California's roads, railroads, pipelines, waterways, ports, and airports are critical for the movement of people and goods. They will be significantly affected by climate change. A growing threat to California's transportation system is wildfire, which can also have cascading effects like landslides and mudslides that occur after rain falls on newly burned areas.

Rising temperatures are also expected to increase road construction costs between 3 and 9%. Adapting roadway materials to withstand higher temperatures is needed to avoid potential costs of over $1 billion by 2070. One-hundred fifteen miles of railroad could be at risk of coastal flooding by 2040, with an additional 285 miles at risk by 2100. Infrastructure located along low-lying areas within Pittsburg are at the greatest risk of coastal flooding within the Planning Area. As shown in Figures 6.2-1 and 6.2-2, due to sea level rise over time, low-lying roadways are at particular risk during flooding events.

Refineries, pipelines, electrical power distribution (substations) and generation facilities are energy sector assets are also vulnerable to sea level rise. Energy infrastructure provides electricity and natural gas to homes and businesses, as well as fuel for multiple modes of transportation, both within the Planning Area, and beyond to other parts of the region, state, and nation. Energy sector assets are considered together because these systems share similar vulnerabilities, and their damage or disruption can have wide ranging consequences on day-to-day community function as well as emergency response capacity (Contra Costa County, 2017).

There is a total of 276 miles of pipeline in Contra Costa County. A total of 55 miles is within the current 100-year floodplain, 12 miles that carry natural gas and 43 miles that carry hazardous liquids. A total of 51 miles of pipeline is within the area potentially exposed to six feet of sea level rise. The majority of these exposed pipelines carry hazardous liquids. Given the shoreline location of many pipelines, many that are exposed to sea level rise are likely within the existing floodplain (Contra Costa County, 2017).

CCWD has water supply infrastructure that could be impacted by flooding and the effects of sea level rise. In Contra Costa County, CCWD has major assets in the existing 100-year flood zone, which could be exposed to more frequent or longer duration flooding due to sea level rise. For example, flooding may impact the Mallard Reservoir and the Shortcut Pipeline, both of which could be impacted by sea level rise. However, it is challenging to evaluate exposure of the water supply infrastructure below ground (e.g. water mains), since little is known about how sea level rise will impact groundwater levels at a particular location along the shoreline. Additional studies at the site-level and refined site or asset-specific scale analyses will be needed in order to understand risks that water supply assets face from flooding (Contra Costa County, 2017).

Existing Greenhouse Gas Emissions in Pittsburg

Community and Municipal Operations GHG Emissions Inventories

The City of Pittsburg, in collaboration with ICLEI – Local Governments for Sustainability, had previously developed community and municipal operations greenhouse gas inventories for baseline year 2005. In 2019, the City of Pittsburg, in collaboration with Rincon Consultants, developed an updated community and municipal operations baseline year 2005 greenhouse gas inventories, and prepared a community and municipal operations year 2016 greenhouse gas inventories. The 2005 inventories were updated to reflect methodologies and sectors that are consistent with the 2016 inventories and to remove the industrial sector, over which the community has no control or authority.

2005 Pittsburg Updated Community GHG Emissions

The 2005 updated community greenhouse gas inventory included the following activities that occurred within the Pittsburg city limits:

- Energy;
- Transportation;
- Off-road vehicles and equipment;
- Water and wastewater; and
- Waste.

The inventory utilizes data from the City of Pittsburg and Contra Costa Sanitary District (CCSD) for waste and water usage; PG&E for energy usage; MTC and the California Air Resources Board (CARB) for on-road transportation, CARB for off-road vehicles and equipment, the City of Pittsburg, CARB and port lessees for marine transit, Bay Area Rapid Transit (BART) for passenger rail transit, and CalRecycle and LandW Garbage Service for solid waste. Data analysis methodology for the inventory follows the standards of the U.S. Community Protocol for Accounting and Reporting of Greenhouse Gas Emissions, published by ICLEI USA. The report's appendices detail methodology by sector, including emissions factors and activity data.

As shown in Table 6.2-1, the baseline community-wide greenhouse gas inventory for 2005 totaled 404,067 MT of CO_2e. On-road transportation resulted in the largest share of greenhouse gas emissions in 2005, accounting for 46 percent of total emissions. Energy use accounted for approximately 38 percent of emissions and off-road transportation and equipment accounted for 9 percent of emissions. The remaining emissions were a result of solid waste, water consumption and wastewater treatment, rail and marine transit, which each accounted for approximately 7 percent of total emissions.

TABLE 6.2-1: CITY OF PITTSBURG UPDATED COMMUNITY GHG EMISSIONS - 2005

SECTOR	EMISSIONS (MT CO_2E/YEAR)	PERCENT OF TOTAL EMISSIONS
Energy		
Electricity use in residential and non-residential buildings	80,052	18.8 %
Natural gas use in residential and non-residential buildings	73,984	18.3%
Electricity transmission and distribution losses	--	1.0%
ON-ROAD TRANSPORTATION		
On-road transportation	184,310	45.6%
WASTE		
Decomposition of solid waste sent to landfills	20,101	5.0%
WATER AND WASTEWATER		
Electricity used to treat, transport, and pump water	4,708	1.2%
Wastewater collection and treatment	517	0.1%
OFF-ROAD VEHICLES AND EQUIPMENT		
Recreational vehicles, landscaping, construction, material handling and agricultural equipment	37,089	9.2%
RAIL TRANSPORT		
BART passenger rail	1,170	0.3%
MARINE TRANSPORT		
Port transport and goods movement	2,136	0.5%
Total	**404,067**	**100%**

[1]OFF-ROAD VEHICLES AND EQUIPMENT ENCOMPASS THOSE INCLUDED IN CARB'S ORION DATABASE. IN ADDITION TO THE ABOVE, THIS IS ALSO COMPOSED OF COMMERCIAL AND RECREATION MARINE VESSELS, STREET SWEEPING VEHICLES, PUMPS, GENERATORS, AIR COMPRESSORS, HYDROPOWER UNITS, AND WATERCRAFT.

MT CO_2E/YEAR = METRIC TONS OF CARBON DIOXIDE EQUIVALENTS PER YEAR

SOURCE: CITY OF PITTSBURG GREENHOUSE GAS INVENTORIES UPDATED 2005 AND 2016

2016 Pittsburg Community GHG Emissions

The 2016 community greenhouse gases inventory addresses the same sectors as the 2005 inventory. The 2016 inventory utilizes data from the City of Pittsburg and CCSD for waste and water usage; PG&E for energy usage; MTC and CARB for on-road transportation, CARB for off-road vehicles and equipment, the City of Pittsburg and port lessees for marine transit, BART for passenger rail transit, and the City of Pittsburg and CalRecycle for solid waste. Data analysis methodology for the GHG inventory follows the standards of the U.S. Community Protocol for Accounting and Reporting of Greenhouse Gas Emissions.

As shown in Table 6.2-2, the baseline community greenhouse gas inventory for 2016 totaled 428,563 MT of CO_2e. Energy resulted in the largest share of greenhouse gas emissions in 2016, accounting for 48 percent of total emissions. On-road transportation accounted for approximately 36 percent of emissions and off-road vehicles and equipment accounted for 11 percent of emissions. The remaining emissions were a result of solid waste, water treatment, conveyance and wastewater processing, rail and marine transit, which each accounted for approximately 5.5 percent of total emissions.

TABLE 6.2-2: CITY OF PITTSBURG UPDATED COMMUNITY GHG EMISSIONS - 2016

SECTOR	EMISSIONS (MT CO_2E/YEAR)	PERCENT OF TOTAL EMISSIONS
ENERGY		
Electricity use in residential and non-residential buildings	30,442	7.1%
Natural gas use in residential and non-residential buildings	173,020	40.4%
Electricity transmission and distribution losses	2,636	0.6%
ON-ROAD TRANSPORTATION		
On-road transportation	152,535	35.6%
WASTE		
Decomposition of solid waste sent to landfills	20,269	4.8%
WATER AND WASTEWATER		
Electricity used to treat, transport, and pump water	1,917	0.4%
Wastewater collection and treatment	526	0.1%
OFF-ROAD VEHICLES AND EQUIPMENT		
Recreational vehicles, landscaping, construction, material handling and agricultural equipment	46,240	10.8%
RAIL TRANSPORT		
BART passenger rail	163	<0.1%
MARINE TRANSPORT		
Port transport and goods movement	814	0.2%
Total	**428,563**	**100%**

[1]OFF-ROAD VEHICLES AND EQUIPMENT ENCOMPASS THOSE INCLUDED IN CARB'S ORION DATABASE. IN ADDITION TO THE ABOVE, THIS IS ALSO COMPOSED OF COMMERCIAL AND RECREATION MARINE VESSELS, STREET SWEEPING VEHICLES, PUMPS, GENERATORS, AIR COMPRESSORS, HYDROPOWER UNITS, AND WATERCRAFT.

MT CO_2E/YEAR = METRIC TONS OF CARBON DIOXIDE EQUIVALENTS PER YEAR

SOURCE: CITY OF PITTSBURG GREENHOUSE GAS INVENTORIES UPDATED 2005 AND 2016

2005 Pittsburg Municipal Operations GHG Emissions

The municipal operations greenhouse gas inventory included the following four sources:

- Transportation (composed of employee commutes and the vehicle fleet);
- Building and facility energy usage;
- Municipal Water Supply and Wastewater; and
- Solid Waste

Data analysis methodology follows the Local Government Operations Protocol V 1.1 (LGOP) published by the CARB, California Climate Action Registry, The Climate Registry, and ICLEI USA. The LGOP further categorizes sectors by the following sub-sectors for local government operations: 1) buildings and other facilities, 2) streetlights and traffic signals, 3) water delivery facilities, 4) port facilities, 5) airport facilities, 6) vehicle fleet, 7) transit fleet, 8) power generation facilities, 9) solid waste facilities, 10) wastewater facilities, and 11) all processes and fugitive emissions. The City of Pittsburg does not have operational control of an airport, port, power generation facility, or solid waste facility. Local government operations are discussed only in terms of sectors and sub-sectors the City has operational control over. As shown in Table 6.2-3, the baseline municipal operations greenhouse gas emissions inventory for 2005 totaled 5,681 MT of CO_2e.

TABLE 6.2-3: CITY OF PITTSBURG UPDATED MUNICIPAL OPERATIONS GHG EMISSIONS - 2005

SECTOR	EMISSIONS (MT CO_2E/YEAR)	PERCENT OF TOTAL EMISSIONS
ENERGY		
Building and Facility electricity and natural gas	1,377	24%
Streetlights and traffic signals	538	9%
TRANSPORTATION		
Employee Commute	887	16%
Vehicle and Transit Fleet	1,207	21%
WASTE		
Methane generated from decomposition of solid waste sent to landfills	206	4
WATER AND WASTEWATER		
Electricity used to treat, transport, and pump water and wastewater to City facilities	1,462	26%
Wastewater collection and processing	5	<1%
Total	**5,681**	**100%**

[1]OFF-ROAD VEHICLES AND EQUIPMENT ENCOMPASS THOSE INCLUDED IN CARB'S ORION DATABASE. IN ADDITION TO THE ABOVE, THIS IS ALSO COMPOSED OF COMMERCIAL AND RECREATION MARINE VESSELS, STREET SWEEPING VEHICLES, PUMPS, GENERATORS, AIR COMPRESSORS, HYDROPOWER UNITS, AND WATERCRAFT.

MT CO_2E/YEAR = METRIC TONS OF CARBON DIOXIDE EQUIVALENTS PER YEAR

SOURCE: CITY OF PITTSBURG GREENHOUSE GAS INVENTORIES UPDATED 2005 AND 2016

2016 Pittsburg Municipal Operations GHG Emissions

As for the 2005 inventory update, data analysis methodology for the 2016 inventory follows the LGOP. The LGOP categorizes sectors by the following sub-sectors for local government operations: 1) buildings and other facilities, 2) streetlights and traffic signals, 3) water delivery facilities, 4) port facilities, 5) airport facilities, 6) vehicle fleet, 7) transit fleet, 8) power generation facilities, 9) solid waste facilities, 10) wastewater facilities, and 11) all processes and fugitive emissions. Local government operations are discussed only in terms of sectors and sub-sectors over which the City has operational control. Appendix A details methodology by sector, including emissions factors and activity data. As shown in Table 6.2-4, the municipal operations greenhouse gas emissions inventory for 2016 totaled 3,520 MT of CO_2e.

TABLE 6.2-4: CITY OF PITTSBURG MUNICIPAL OPERATIONS GHG EMISSIONS - 2016

SECTOR	EMISSIONS (MT CO_2E/YEAR)	PERCENT OF TOTAL EMISSIONS
ENERGY		
Building and Facility electricity and natural gas	647	19%
Marina	94	3%
Streetlights and traffic lights	104	3%
TRANSPORTATION		
Employee Commute	339	10%
Vehicle and Transit Fleet	1,390	39%
WASTE		
Methane generated from decomposition of solid waste sent to landfills	339	11%
WATER AND WASTEWATER		
Wastewater collections and treatment	6	<1%
Electricity used to treat, transport, and pump water and wastewater to City facilities	547	16%
Total	**3,520**	**100%**

[1]*Off-road vehicles and equipment encompass those included in CARB's Orion database. In addition to the above, this is also composed of commercial and recreation marine vessels, street sweeping vehicles, pumps, generators, air compressors, hydropower units, and watercraft.*
MT CO_2E/Year = metric tons of carbon dioxide equivalents per year
Source: City of Pittsburg Greenhouse Gas Inventories Updated 2005 and 2016

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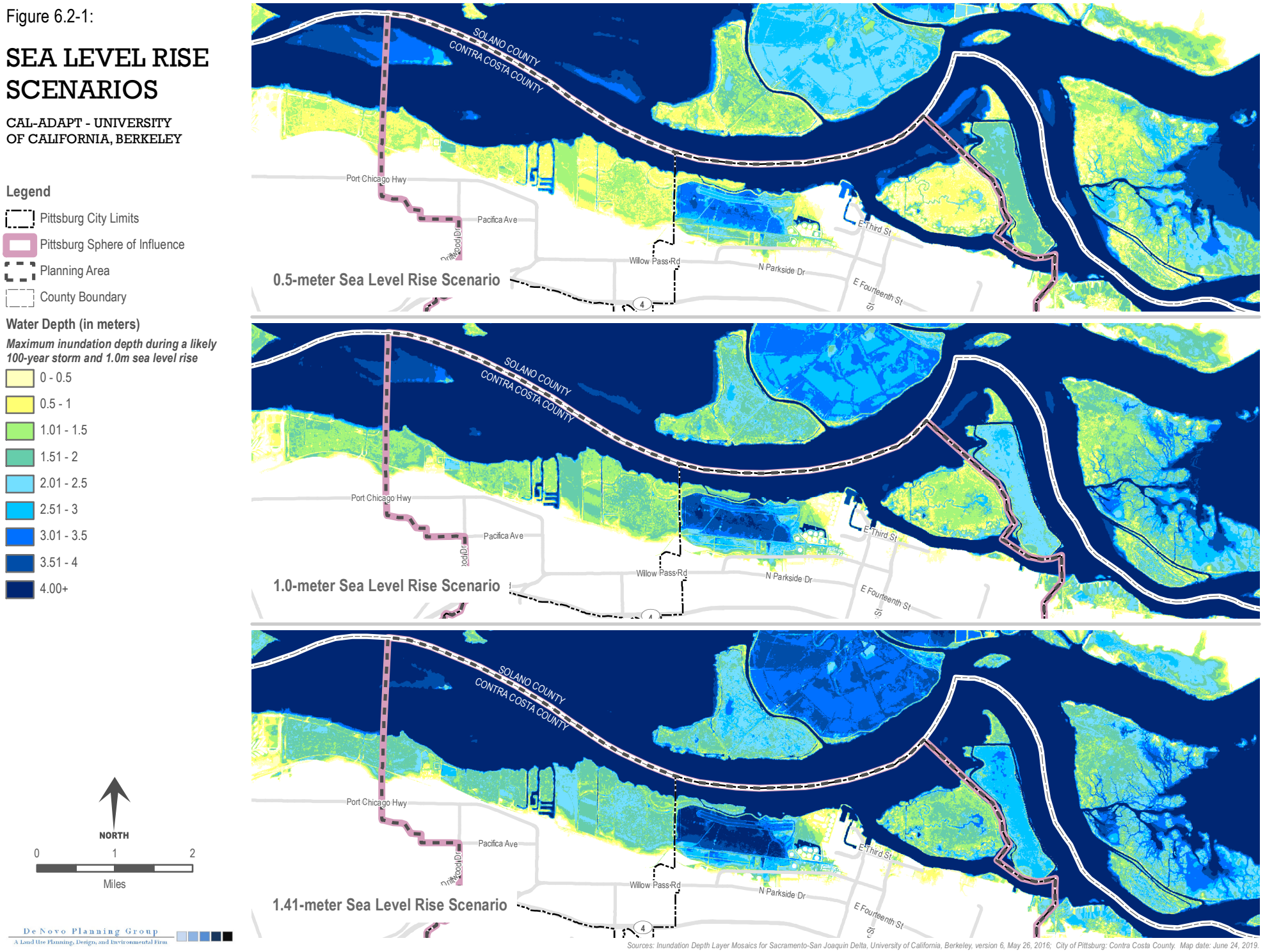
Figure 6.2-1:

SEA LEVEL RISE SCENARIOS

CAL-ADAPT - UNIVERSITY OF CALIFORNIA, BERKELEY



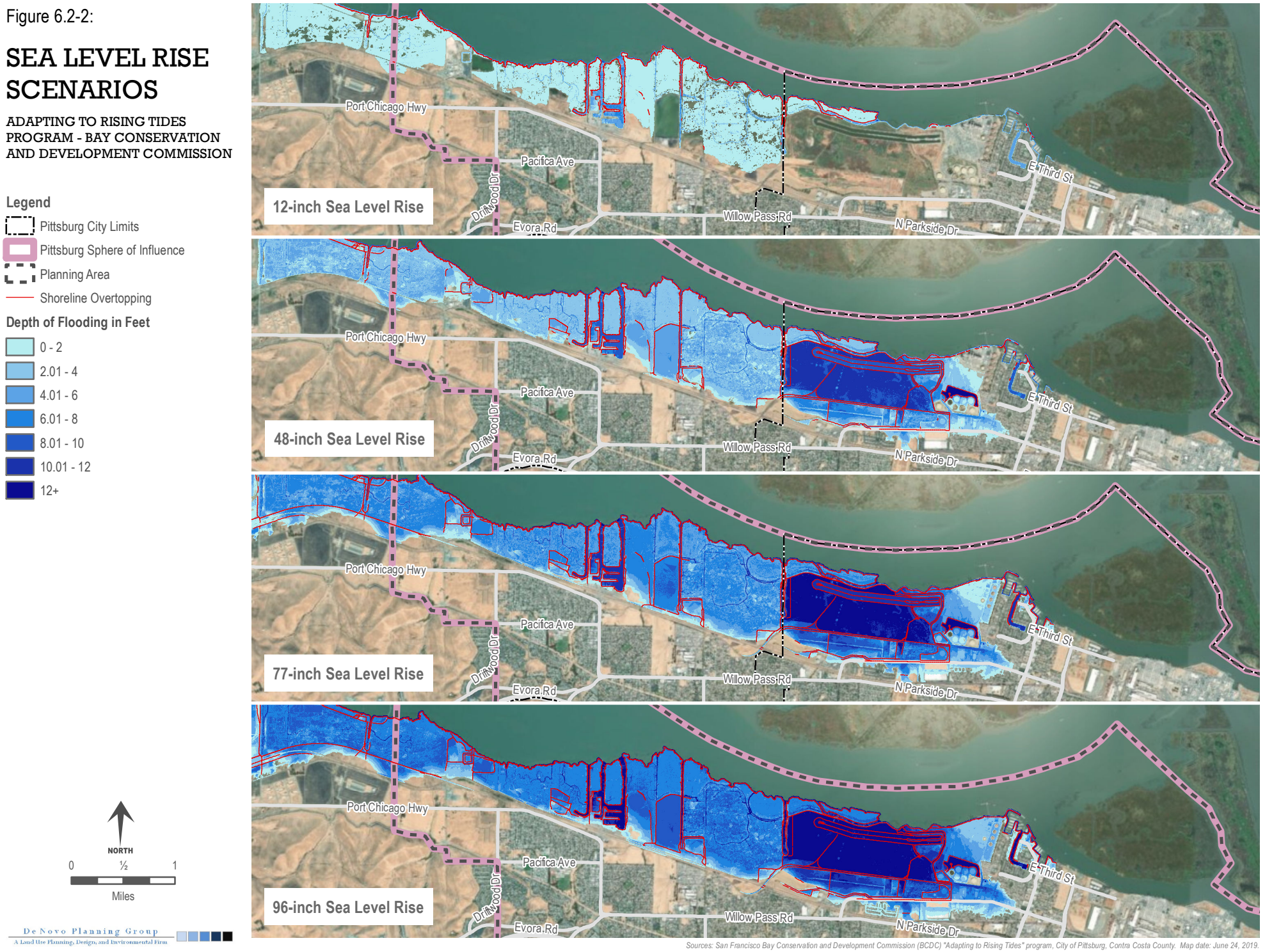
De Novo Planning Group
A Land Use Planning, Design, and Environmental Firm

Sources: Inundation Depth Layer Mosaics for Sacramento-San Joaquin Delta, University of California, Berkeley, version 6, May 26, 2016; City of Pittsburg; Contra Costa County. Map date: June 24, 2019.

Figure 6.2-2:

SEA LEVEL RISE SCENARIOS

ADAPTING TO RISING TIDES PROGRAM - BAY CONSERVATION AND DEVELOPMENT COMMISSION



De Novo Planning Group
A Land Use Planning, Design, and Environmental Firm

Sources: San Francisco Bay Conservation and Development Commission (BCDC) "Adapting to Rising Tides" program, City of Pittsburg, Contra Costa County. Map date: June 24, 2019.

CHAPTER 7

ENVIRONMENTAL JUSTICE

This chapter addresses existing conditions, laws, and policies associated with environmental justice that affect the City of Pittsburg and the General Plan Planning Area (Planning Area), and topics pertaining to the Planning Area's environmental quality and built environment. Because environmental justice relates to many of the General Plan's other topics, this section refers to other sections of the Existing Conditions Report where appropriate.

Topics:

7.1 BACKGROUND AND REGULATORY FRAMEWORK

Background

The negative effects of environmental degradation and pollution are well-documented and include severe impacts to human health and longevity, depending on the level of exposure. Within the United States, certain communities have historically been disproportionately affected by environmental threats and the negative health impacts of environmental degradation. These communities include, but are not limited to, low-income communities, communities of color, communities comprising members of tribal nations, and immigrant communities. Increased exposure to environmental pollutants, unsafe drinking water, and contaminated facilities/structures have contributed to poorer health outcomes for these communities. Structural inequalities that disadvantage certain individuals and groups, local and regional policies, zoning, code enforcement deficiencies, and lack of community engagement and advocacy are related to disproportionate environmental and social effects. The field of environmental justice is focused on addressing these disproportionate impacts and improving the wellness of all communities by bolstering community planning efforts, considering exposure to adverse environmental effects, increasing access to amenities and services, and promoting the fair treatment of all people regardless of their race, ethnicity, national origin, or income.

Regulatory Framework

State

Senate Bill 1000

In 2016, the Senate passed Senate Bill 1000 (SB 1000), also known as The Planning for Healthy Communities Act, to amend Section 65302 of the Government Code. SB 1000 requires local California jurisdictions to prepare and maintain an Environmental Justice element or environmental justice-related goals, policies, and implementation programs in their General Plan's other elements. SB 1000 outlines the approach to identifying disadvantaged communities (DACs), strategies to promote the protection of sensitive land uses within the state and simultaneously mandates that local jurisdictions address the needs of DACs. Through this bill, environmental justice is a mandated consideration in all local jurisdictions' land-use planning policies, regulations, and activities.

The California Environmental Justice Alliance created a strategic toolkit to identify legislative requirements and provide tools, best practices, and resources to support stakeholders in addressing environmental justice. Each General Plan must address the following topics:

- Pollution Exposure and Air Quality
- Public Facilities
- Food Access
- Safe and Sanitary Homes
- Physical Activity
- "Civil" or Community Engagement
- Improvements and Programs that address the needs of Disadvantaged Communities

Senate Bill 535

In 2012, the Legislature passed SB 535, adding Sections 39711, 39713, 39715, 39721, and 39723 to the Health and Safety Code. SB 535 directs 25% of the proceeds from the Greenhouse Gas Reduction Fund (established by the California Global Warming Solutions Act of 2006 AB 52's cap and trade program) to projects that provide a benefit to DACs.

Assembly Bill 1550

In 2016, the Legislature passed AB 1550, to amend Section 39713 of the Health and Safety Code. AB 1550 amended SB 535 to require all GGRF investments that benefit DACs to also be located within those communities. The law also requires that an additional 10% of the fund be dedicated to low-income households and communities, of which 5% is reserved for low-income households and communities living within a half-mile of a designated DAC.

Senate Bill 673

In 2015, the Senate passed SB 673, to add Sections 25200.21 and 25200.23 to the Health and Safety Code. SB 673 directs the Department of Toxic Substances Control (DTSC) to include criteria such as cumulative impact and neighborhood vulnerability when issuing or renewing hazardous waste facility permits. The law provides the DTSC with an opportunity to use tools such as CalEnviroScreen (CES), an Internet-based mapping tool described below that helps jurisdictions identify DACs, when making decisions on hazardous waste permitting.

Assembly Bill 523

In 2017, the Legislature passed AB 523, to amend Section 25711.5 of, and to add and repeal Section 25711.6 of, the Public Resources Code. AB 523 allocates at least 25% of the Electric Program Investment Charge (EPIC) funds administered by the California Energy Commission (CEC) to support technology demonstration and deployment projects located in and benefiting "disadvantaged communities," and dedicates at least 10% of the fund to activities located in and benefiting "low-income" communities as defined by AB 1550.

Senate Bill 43

In 2013, the Senate passed SB 43, to add and repeal Chapter 7.6 (commencing with Section 2831) of Part 2 of Division 1 of the Public Utilities Code. SB 43 establishes the Green Tariff Shared Renewables program, administered by the California Public Utilities Commission (CPUC), which enables utility customers to meet their energy generation needs through offsite generation of renewable energy projects. The program requires 100 MW of renewable energy projects to be sited in the top 20% of CES scores based on each investor-owned utility (IOU) service territory.

Assembly Bill 2722

In 2016, legislature passed AB 2722, to add Part 4 (commencing with Section 75240) to Division 44 of the Public Resources Code. AB 2722 requires the California Strategic Growth Council to award competitive grants to specified eligible entities for the development and implementation of neighborhood-level transformative climate community plans that include greenhouse gas emissions reduction projects that provide local economic, environmental, and health benefits to DACs. AB 2722 created the Transformative Climate Communities (TCC) program administered through the California Strategic Growth Council (SGC). The TCC is a GGRF-funded program that supports innovative, comprehensive, and community-led plans that reduce pollution and achieve multiple co-benefits at the neighborhood level.

California Department of Transportation's Active Transportation Program (ATP)

The California Department of Transportation (CalTrans) Active Transportation Program (ATP) aims to enhance public health and advance California's climate goals by increasing safety and mobility for non-motorized active transportation such as biking and walking. ATP projects in "disadvantaged communities" (defined as census tracts within the top 25% of CES scores along with several other options) are allocated 25% of program funds, while an additional 2% is set aside to fund active transportation planning in DACs.

The City of Pittsburg is currently receiving ATP funding to help develop the City's Active Transportation Plan, known as "Pittsburg Moves."

LOCAL

City Of Pittsburg General Plan

A variety of policies contained in the existing City of Pittsburg General Plan support DACs and environmental justice issues through city-wide improvements that provide equitable access to facilities and services, transportation network improvements, parks and recreation opportunities, and promoting air and water quality throughout the Planning Area.

Specific goals included within the General Plan that are most related to the topics of environmental justice and DACs include:

Growth Management Element

GOAL 3-G-9: Encourage the provision of new and improved pedestrian, bicycle and transit facilities to serve all users of new development projects.

Urban Design Element

GOAL 4-G-17: Encourage development of diverse and distinctive neighborhoods that build on the patterns of the natural landscape and provide a sense of connection with surrounding uses.

GOAL 4-G-18: Ensure that neighborhood streets provide safe and attractive connections to local schools, parks, commercial centers, and transit facilities for pedestrians and bicycles.

Transportation Element

GOAL 7-G-10: Study the feasibility of a comprehensive network of on- and off-road bike routes to encourage the use of bikes for commute, recreational and other trips.

Open Space, Youth and Recreation Element

GOAL 8-G-1: Develop a high-quality public park system for Pittsburg that provides varied recreational opportunities accessible to all City residents.

GOAL 8-G-5: Maximize public access to and recreational facilities along the City's waterfront areas.

GOAL 8-G-6: Improve linkages between the waterfront, Downtown core, and other recreational open spaces within the City.

GOAL 8-G-8: Provide a diversity of recreational and cultural opportunities, including facilities and programs targeted toward local youth and senior residents.

GOAL 8-G-9: Promote the arts as an integral component of Pittsburg's quality of life, economic vitality, and efforts to build a safe and healthy community.

Resource Conservation Element

GOAL 9-G-9: Work toward improving air quality and meeting all Federal and State ambient air quality standards by reducing the generation of air pollutants from stationary and mobile sources.

GOAL 9-G-10: Reduce the potential for human discomfort or illness due to local concentrations of toxic contaminants, odors and dust.

GOAL 9-G-11: Reduce the number of motor vehicle trips and emissions accounted to Pittsburg residents and encourage land use and transportation strategies that promote use of alternatives to the automobile for transportation, including bicycling, bus transit, and carpooling.

Housing Element

GOAL I: Foster development of a variety of housing types, densities, and prices to balance the City's housing stock and to meet Pittsburg's regional fair share housing needs for people of all income levels.

GOAL II: Promote the expansion of the city's affordable housing stock, including that which accommodates special needs households.

GOAL IV: Improve and preserve the existing affordable housing stock where feasible and appropriate.

7.2 DISADVANTAGED COMMUNITIES

The term 'disadvantaged community' is a broad designation that includes any community disproportionally affected by environmental, health, and other burdens or low income areas disproportionally affected by environmental pollution and other hazards. In relation to environmental justice, DACs are typically those communities that disproportionately face the burdens of environmental hazards. Government Code Section 65302, as amended by SB 1000, defines a DAC as follows:

> *"…an area identified by the California Environmental Protection Agency (CalEPA) pursuant to Section 39711 of the Health and Safety Code or an area that is a low-income area that is disproportionately affected by environmental pollution and other hazards that can lead to negative health effects, exposure, or environmental degradation."*

The CES 3.0 tool identifies communities that are disproportionately affected by environmental hazards. The CES 3.0 map is a science-based tool developed by the Office of Environmental Health Hazards Assessment on behalf of CalEPA that uses existing environmental, health, and socioeconomic data to rank all census tracts in California with a CES score. CalEPA designates the tracts with a CES score in the top 25 percentile as DACs. Figure 7.1-1 identifies the CES score for each census tract in and around the Planning Area by color gradient, and indicates which tracts located in the Planning Area are a DAC based on CES score by hatch.

Low income communities disproportionately affected by environmental concerns can be identified using the California Air Resources Board (CARB) Priority Populations Mapping Tool, which identifies low-income communities located within ½ mile of a CalEPA-identified disadvantaged community. Figure 7.1-1 identifies qualifying census tracts within the Planning Area by a stipple pattern.

As shown on the figure, significant portions of the Planning Area are designated DACs. In total, some portion of or all of 12 of the Planning Area's 20 census tracts are designated DACs. They include tracts 3050, 3090, 3100, 3110, 3120, 3131.01, 3131.02, 3132.06, 3141.02, 3141.03, 3141.04, 3142.

7.3 HEALTH AND SOCIOECONOMIC CHARACTERISTICS

To understand the existing health and socioeconomic conditions of each DAC, Table 7-2.1 lists the percentiles for sensitive population and socioeconomic factor indicators by DAC. The sensitive population indicators reflect the communities' health and the socioeconomic factor indicators describe educational attainment, income level, employment, and housing conditions and burden. In combination with the environmental/pollution data included in Table 7-3.1: Pollution Burden by Pollution

Indicator in the DACs, the data forms the basis of the CES scores. For each indicator, scores of 75% or higher represent a high burden on the population. Based upon the indicators, all of the tracts are substantially burdened by the sensitive population indicators and/or the socioeconomic factor indicators. In particular, two of the DAC tracts, 3090 and 3141.04, are burdened by eight of the nine indicators.

TABLE 7.2-1: POPULATION CHARACTERISTICS BY SENSITIVE POPULATION AND SOCIOECONOMIC FACTOR INDICATORS IN THE DACS

INDICATOR (%)	DISADVANTAGED COMMUNITY CENSUS TRACTS											
	3050	3090	3100	3110	3120	3131.01	3131.02	3132.06	3141.02	3141.03	3141.04	3142
SENSITIVE POPULATION INDICATORS												
Asthma	99.61	98.83	98.83	98.83	98.83	98.83	98.47	98.83	98.83	98.83	98.83	98.83
Low Birth Weight	76.94	60.50	69.28	88.21	78.06	81.49	92.75	65.54	31.95	36.42	38.33	80.53
Cardiovascular Disease	95.72	97.03	97.03	97.03	97.03	97.03	95.45	97.03	97.03	97.03	97.03	97.03
SOCIOECONOMIC FACTOR INDICATORS												
Education	66.19	27.18	78.12	68.03	75.47	70.49	62.29	75.62	67.34	77.28	81.30	88.94
Linguistic Isolation	56.85	13.12	82.44	49.33	68.07	72.67	51.70	77.08	71.76	74.66	76.87	85.63
Poverty	74.32	37.95	75.81	72.68	85.25	75.42	31.98	71.88	65.13	84.41	74.63	70.94
Unemployment	93.43	80.71	70.57	94.97	88.68	47.67	82.35	68.79	91.37	97.26	94.29	62.53
Housing Burden	78.76	79.40	81.19	82.18	62.43	74.38	39.54	67.68	72.81	77.86	86.52	77.60
Total Population Characteristics Score	94.87	75.09	95.59	96.32	96.01	93.03	86.53	92.40	86.74	92.58	93.09	96.68

High Burden: 75.0 – 100.0% | Medium Burden: 25.0 – 74.9% | Low Burden: 0.0 – 24.9%

SOURCE: CALIFORNIA OFFICE OF ENVIRONMENTAL HEALTH HAZARD ASSESSMENT, CALENVIROSCREEN 3.0, 2019.

HEALTH INDICATORS

Contra Costa Health Services prepared the Health Indicators and Environmental Factors Related to Obesity for Antioch, Bay Point, and Pittsburg report (Indicators Report) in 2013 to provide data about health indicators and environmental factors that influence obesity and other health conditions in select communities. The Indicators Report focused on the Antioch, Bay Point, and Pittsburg communities due to the high rates of chronic diseases and related health disparities in these communities compared to Contra Costa as a whole. The Indicators Report reviewed data related to population and household demographic characteristics, language, education, health insurance, mortality rates, obesity and rates of morbidity, crime and safety, food and nutrition environment, physical activity and the built environment, housing, and social connectivity. While the Indicators Report does not provide data at the census tract level and thus does not directly inform conditions of specific DACs, the information does identify potential indicators or characteristics that may affect DACs at a greater level or rate. The findings of the report that highlight health and environmental indicators specific to Pittsburg that may be of greater concern to or disproportionately affect Pittsburg's DACs include:

- Pittsburg has multiple census tracts where 60% or more of the population speak a non-English language at home. Citywide, 46.8% of the population does not speak English at home.

- 19.4% of Pittsburg residents that are 25 years or older have less than a high school education, compared to 10.2% Countywide.
- Pittsburg's rates of families and elderly living below 200% of the poverty level and rates of households participating in food stamp programs are significantly higher than Countywide rates.
- 19% of Pittsburg residents do not have health insurance coverage, compared to 12% Countywide.
- Pittsburg's death rates from cancer, heart disease, stroke, and diabetes are significantly higher than Contra Costa County overall.
- A review of body mass index estimates indicates that 19% of children in the Pittsburg Unified School District are overweight and 27% are considered obese, compared with 17% overweight and 17% obese Countywide. The Indicators Report notes that adults and children who are overweight or obese have higher rates of mortality and morbidity from chronic diseases, disabilities, and depression.
- Pittsburg has a higher ratio of fast food restaurants and convenience stores to supermarkets, produce stores, and farmer markets than the County.
- The rate of violent crimes was lower in Pittsburg than in Antioch and Bay Point. This is an important indicator of community safety. Individuals residing in communities that are and/or are perceived to be less safe are often less willing to spend time outside, reducing recreation opportunities.
- A greater proportion of Pittsburg's households (52.1%) spend more than 30% of their income on housing than in the County as a whole (46.6%).
- Foreclosure rates are higher in Pittsburg (9.3%) than in Contra Costa County (5.7%).

7.4 ENVIRONMENTAL JUSTICE TOPICS IN PITTSBURG

Based Government Code Section 65302, as amended by SB 1000, the General Plan's Environmental Justice Element or integrated environmental justice policies must seek to reduce the unique or compounded health risks in the City's DACs by addressing the following topics, at a minimum: pollution exposure, including air quality, public facilities, food access, safe and sanitary homes, and physical activity, and by providing a policy framework to encourage civil engagement. The existing conditions for these topics within the City of Pittsburg and larger Planning Area is summarized below.

Pollution Exposure and Air Quality

The various forms and sources of air and water pollution and hazardous waste often disproportionately affect DACs. This is typically due to the existence and relative concentration of pollution-emitting sources within close proximity to the communities. Disproportionate exposure to pollutants is linked to variety of negative health impacts, including but not limited to, asthma, cardiovascular diseases, cancer, and other potentially fatal conditions.

Based on CES data, Table 7.3-1 lists the percentile of pollution burden for the twelve CES pollution indicators by DAC census tract. Scores of 75% or higher represent a high pollution burden. Based upon this metric, DAC tract 3120 has the most high-ranking indicators and the highest total score. Two of the remaining DAC tracts, 3090 and 3141.03, have five indicators with a high burden and two DAC tracts, 3100 and 3110, have four indicators with a high burden. Impaired water bodies, groundwater hazards, hazardous waste, cleanup sites, and traffic density are the most common indicators affecting the Planning Area's DACs.

TABLE 7.3-1: POLLUTION BURDEN BY POLLUTION INDICATORS IN THE DACS

INDICATOR (%)	DISADVANTAGED COMMUNITY CENSUS TRACTS											
	3050	3090	3100	3110	3120	3131.01	3131.02	3132.06	3141.02	3141.03	3141.04	3142
Air Quality: Ozone	25.87	22.34	22.34	22.34	22.34	22.34	25.87	22.34	22.34	22.34	22.34	22.34
Air Quality: PM2.5	17.81	17.81	17.81	17.81	17.81	17.81	17.81	17.81	17.81	17.81	17.81	17.81
Air Quality: Diesel Particulate Matter	49.77	42.20	42.53	57.57	61.05	61.17	60.88	60.07	21.54	14.79	21.53	15.89
Pesticide Use	-	-	-	-	-	-	-	-	-	-	-	-
Toxic Releases from Facilities	60.10	66.86	59.09	57.15	61.16	56.71	57.01	57.89	62.82	83.05	72.76	71.81
Traffic Density	53.40	12.21	14.14	76.89	75.08	56.40	58.47	80.39	83.53	42.64	85.35	14.74
Drinking Water Contaminants	6.34	8.83	8.83	8.83	8.83	8.83	8.94	8.83	34.33	26.36	26.51	26.54
Cleanup Sites	71.11	98.98	96.32	75.90	88.58	42.70	74.02	33.77	45.99	84.39	22.93	80.17
Groundwater Hazards	91.26	95.96	95.58	43.98	86.83	84.67	85.95	50.78	87.97	75.32	50.78	72.89
Hazardous Waste	93.09	99.87	97.53	86.52	96.11	74.75	73.20	28.04	25.76	86.52	86.69	8.56
Impaired Water Bodies	94.41	98.63	91.47	91.47	91.47	41.15	41.15	41.15	80.63	80.63	80.63	80.63
Solid Waste Sites	9.08	93.19	70.12	32.80	83.68	39.33	50.44	-	22.64	-	22.64	-
Total Pollution Burden Score	**56.63**	**68.84**	**60.66**	**58.52**	**80.21**	**45.15**	**54.30**	**28.60**	**46.56**	**49.12**	**47.47**	**25.04**

High Burden: 75.0 – 100.0%

Medium Burden: 25.0 – 74.9%

Low Burden: 0.0 – 24.9%

SOURCE: CALIFORNIA OFFICE OF ENVIRONMENTAL HEALTH HAZARD ASSESSMENT, CALENVIROSCREEN 3.0, 2019.

HAZARDOUS MATERIALS AND TOXICS

As described in Section 4: Hazards, Safety, and Noise and listed in Table 7.3-2, the Planning Area includes 28 hazardous waste sites that are currently under evaluation or in the midst of cleanup. All of these sites are located within or in close proximity to one or more of the DACs. Specifically, the sites are generally clustered within the city's northcentral area, predominately occupying locations within DAC tracts 3090 (15 sites) and 3100 (7 sites) and affecting residents living in these and the adjoining tracts.

TABLE 7.3-2: HAZARDOUS MATERIALS AND TOXICS SITES WITHIN OR ADJACENT TO A DAC

NAME	PROJECT TYPE/ACTIVITY	ADDRESS	DAC CENSUS TRACT
ENVIROSTOR SITES[1]			
1 Leslie Drive	Voluntary Cleanup	1 Leslie Drive	3100
Burlington Northern Santa Fe Railway	Voluntary Cleanup	Adjoining USS POSCO Steel Facility	3100
Delta Auto Wreckers	State Response	6 Industry Road	3090
PG&E Shell Pond/Carbon Black Area and Power Plant	Corrective Action	696 West 10th Street	3090
USS POSCO Industries	Corrective Action	900 Loveridge Road	3090
CORTESE LIST SITE[2]			
Dela Auto Wreckers	Undergoing Review of Workplans	6 Industry Road	3090

Name	Project Type/Activity	Address	DAC Census Tract
GeoTracker Sites[3]			
California Theater	Eligible for Case Closure	351 Railroad Avenue	3090
Redding Petroleum	Remediation	1001 Railroad Avenue	3100
Beacon	Site Assessment	3702 Railroad Avenue	3132.04
Superior Car Wash	Site Assessment	3590 Railroad Avenue	3132.04
USA Gasoline Station No. 127	Verification Monitoring	2971 Railroad Avenue	3131.01
LUST Cleanup Sites[4]			
Chevron Historic Pipeline - Kirker Creek	Assessment & Interim Remedial Action	Pittsburg/Antioch Highway and Loveridge Road	3090
Chevron Pipeline - Carpino East	Assessment & Interim Remedial Action	Carpino East and Columbia Street	3100
Great American Cleaners	Assessment & Interim Remedial Action	1317-1399 Buchanan Road	3131.01
Diablo Services	Eligible for Closure	595 East Third Street	3090
GWF Power Systems Inc.	Inactive	707-799 3rd Street E	3090
Manville Sales Corp	Inactive	420 East 3rd Street	3090
Mexico Auto Wreckers	Inactive	610 10th Street W	3090
Salt River Construction	Inactive	E 3rd Street	3090
Dow Chemical Co. Pittsburg Facility	Remediation	901 Loveridge Road	3090
Highlands Ranch Phase II	Remediation	2360 Buchanan Road	3131.03
Chevron Historic Pipeline-Parkside at Dory	Site Assessment	Parkside Drive at Dory Road	3100
Chevron Historical Pipelines – Parkside at Dory	Site Assessment	Parkside Drive at Dory Road	3100
Fort Knox Self Storage Pittsburg	Site Assessment	3809 Shopping Heights Lane	3131.01
KNA California	Site Assessment	1401 Loveridge Road	3090
Molino Enterprises, Inc.	Site Assessment	1215 Willow Pass Road	3100
Former Crown Cork and Seal Company, Inc	Verification Monitoring	1300 Loveridge Road	3090
Mirant Delta Pittsburg Power Plant (Formerly Southern Energy; Formerly PG&E)	Verification Monitoring	696 West 10th Street	3090

1: Source: California Department of Toxic Substances Control, Envirostor Database, 2019.
2: Source: calepa.ca.gov/sitecleanup/corteselist/, 2019.
3: Source: California Water Resources Control Board Geotracker Database, 2019.
4: Source: California Water Resources Control Board Geotracker Database, 2019.

Public Facilities

Access and availability of public facilities is an aspect of the built-environment that may disproportionately limit the opportunities of DACs. If DACs have unequal access to public facilities, or if a City does not provide adequate facilities for public use, DACs may be limited in their ability to access necessary key resources. Limited access to resources as a result of inadequate public facilities can lead to reduced lifespan, poorer health outcomes, and diminished mental well-being. The adequate planning of parks and transportation infrastructure can ensure that all communities within a City have equal access to resources.

This section summarizes the adequacy of public facilities as they pertain to the DACs.

Public Facility Locations

Figures 7.3-1 through 7.3-3 show the locations of the public facilities within the Planning Area and with relationship to the DACs. The content portrayed on each map is as follows:

- Figure 7.3-1: Public Improvements Map – shows the location of water facilities; solid waste, liquid waste, recycling, and composting facilities; streets and roads; and public utilities.

- Figure 7.3-2: Public Services Map – shows the location of transit stations and routes, hospitals, and emergency services and public safety facilities.
- Figure 7.3-3: Community Facilities Map – shows the location of city and county government buildings; parks; daycare centers; and libraries, museums, and cultural facilities.

Distribution and Access

Public Improvements

Four of the Planning Area's six public improvement sites are located in DACs. All four sites are located in the Planning Area's northeastern quadrant, an area encompassed by two DAC tracts: 3050 and 3090. The sites include two power generation facilities and two waste/recycling operations. The sites are not located within residential areas, but could affect/limit future residential development in the vicinity.

The existing street network provides good access to, and in some instances through, the DACs. The Planning Area's bus service extends along many of the area's major streets, serving many areas within the DACs and providing riders with access to the Planning Area's Bay Area Rapid Transit (BART) stations. Four DACs appear to lack sufficient transit service. This includes the employment areas within DAC tracts 3050 and 3090 and the residential neighborhoods located within the interior of the southern half of DAC tracts 3131.01 and 3131.02. These areas, and particularly the residential areas, feature suburban street patterns that depart from the city's historic grid pattern. The resulting lack of connectivity will make the future provision of bus service difficult.

Public Services

The Planning Area includes four fire stations, the City of Pittsburg Police Station, and a health center. Three of the four fire stations are located within DACs tracts, 3110, 3131.02, and 3141.03, and appeared to be distributed in a manner that will continue providing sufficient service through the DACs. Similarly, the police station is located within a DAC, 3110, and is centrally located within the city, maximizing police coverage in the DACs' developed areas. The westernmost and least developed DACs tracts, 3142, 3141.03, and 3141.04, are somewhat more removed from the station. The Pittsburg Health Center is also located in a DAC tract, 3131.02. Given the health center's location within the Planning Area's southeastern quadrant, it is less accessible for residents of DACs within the western half of the Planning Area.

Community Facilities

Nineteen of the Planning Area's 21 community facilities, including three city government buildings, four county government buildings, three community centers, five day care centers, and six cultural buildings are located within DACs. The facilities are generally concentrated within DAC tracts 3090 and 3100, along Railroad Avenue and the adjoining residential neighborhoods, including DAC tracts 3110, 3120, 3131.01, and 3132.06. Only one of the DAC tracts that includes a residential neighborhood, 3142.02, lacks a community facility that provides child care or medical/wellness services; serves as a youth, senior, or community center; operates as a museum or library. Of the remaining DAC tracts that do include a residential neighborhood, only two include multiple facilities, 3090 and 3110. This condition may create access issues for residents who do not have access to a vehicle; however, all of the community facilities are located along a transit route.

Food Access

Food access encompasses the following three interrelated topics:

- Nutritionally adequate, culturally appropriate, and affordable food;
- Income sufficient to purchase healthy food; and

- Proximity and ability to travel to a food source that offers affordable, nutritionally adequate, and culturally appropriate food.

Ensuring adequate food access is challenging in many communities. Many communities, and especially low-income areas, lack retailers with a sufficient selection of healthy foods. Consequently, many residents lack access to nutritional foods, known as "food insecurity", resulting in public health challenges and poor health outcomes. Affected populations cope with food insecurity by consuming nutrient-poor, but calorie-rich foods. This may result in malnutrition; obesity; cognitive, behavioral, and mental health problems in children; and physical and mental health problems and birth complications among pregnant women. Children and communities of color are often disproportionally affected by food insecurity.

Food Insecurity and Cost

No existing conditions data for food insecurity and cost exists at the City level. As the best possible alternative, these topics were evaluated on the County level, using the United States Department of Agriculture (USDA) 2017 American Community Survey, Feeding America.

- 113,940 people, or 10.1% of the population in Contra Costa County experienced food insecurity in 2017. This is below the statewide rate of 11.0% and countrywide rate 12.5%, and marks a 1.0% decline from the previous year. Of Contra Costa County's affected population, 39,250 were children, marking a child food insecurity rate of 15.0% This rate is below the statewide rate of 18.1% and the countrywide rate of 17.0%.
- The average cost of a home-cooked meal in Contra Costa County is $3.61. This is higher than the statewide average of $3.20 and the countrywide average of $3.02.
- Of the food insecure population within Contra Costa County, 63% of individuals and 54% of children were from households with incomes below the Federal poverty threshold for nutrition assistance programs, potentially qualifying those individuals for food assistance from the federal government[1]. In part, this can help defray the relatively high cost of purchasing food in Contra Costa County. Individuals who qualify for federal nutrition assistance programs can utilize assistance at any store that accepts Special Supplemental Nutrition Program for Women, Infants, and Children (WIC) and Supplemental Nutrition Assistance Program (SNAP) purchases.

Access to Food Retailers

Figure 7.3-4 illustrates the Planning Area's supermarket and grocery store locations and DAC census tracts that qualify as food deserts. The map categorizes supermarkets as larger food retailers that serve the community, grocery stores as the range of smaller food retailers that serve individual neighborhoods or cater to specific groups, and food deserts as low-income tracts where a substantial number or share of residents has low access to a supermarket that sells affordable and nutritious food. The map illustrates the following existing conditions:

- Four supermarkets and 13 grocery stores exist within the Planning Area. With the exception of one supermarket, the stores are located within the DAC tracts that form Pittsburg's central area and population center – DAC tracts 3100, 3110, 3200, 3131.01, 3131.02, and 3132.06.
- Three of the DAC tracts qualify as food deserts. DAC tracts 3090, 3100, and 3141.02; 3090 and 3141.02 lack any retail options for affordable and nutritious food. While DAC tract 3100 includes several grocery stores, it does not include, nor is it near, a supermarket.

[1] Gundersen, C., et al. (2017). Map the Meal Gap 2016: Food insecurity and child food insecurity estimates at the county level. Feeding America. Accessable at: http://www.feedingamerica.org/research/map-the-meal-gap/2016/overall/CA_AllCounties_CDs_MMG_2016.pdf

- In addition to the DAC tracts that qualify as food deserts within city limits, several additional outlying DAC tracts lack grocery stores and/or supermarkets – DAC tracts 3050, 3141.03, and 3142.
- The lack of proximate grocery stores has the greatest affect in locations where residences do not own vehicles or have sufficient access to transit. Table 7.3-3 lists the number of and percent of households without vehicles within the city and the DAC tracts. For most of the DACs, a significantly higher percentage of households in these areas do not own vehicles. The Planning Area's grocery stores and supermarkets are located along major streets and transit routes, helping to mitigate DAC residents' potential lack of access to the stores where the DAC is well-served by transit. However, access to the stores appears to be poor in the outlying DAC tracts that lack stores and have limited transit access, including DAC tracts 3050, 3141.03, 3141.04, and 3142.

TABLE 7.3-3: CAR OWNERSHIP

CITY/DAC CENSUS TRACT	# OF HOUSEHOLDS	# OF HOUSEHOLDS WITHOUT VEHICLES	% OF HOUSEHOLDS WITHOUT VEHICLES
CITYWIDE			
City of Pittsburg	21,069	1,325	6.29%
DAC CENSUS TRACT			
3050	2,269	238	10.49%
3090	1,296	33	2.55%
3100	1,720	121	7.03%
3110	1,495	134	8.96%
3120	768	140	18.23%
3131.01	2,588	486	18.78%
3131.02	1,506	67	4.45%
3132.06	1,617	46	2.84%
3141.02	1,673	76	4.54%
3141.03	1,746	133	7.62%
3141.04	2,575	260	10.10%
3142	1,722	56	3.25%

SOURCE: UNITED STATES CENSUS BUREAU, AMERICAN FACT FINDER, 2017 ESTIMATES.

In addition to the proximity of grocery and food sources within an area, the types of food sources available are important for determining adequacy of food access. The USDA Food Research Atlas data shows that there were approximately 196 grocery stores in Contra Costa County as of 2014, and approximately 491 SNAP-authorized food retailers. In addition, the same data set shows that the County had 644 fast food restaurants as of 2014.

HOUSING CONDITIONS

The condition of the housing stock in a DAC may have negative impacts on the well-being of its residents. These health impacts stem from issues such as poor indoor air quality, toxic building materials, exposure to climate variation such as excess heat or cold, improper ventilation, and structural insecurity. Unsafe housing conditions can be a result of the age of the dwelling structure, which increases the likelihood of incorporation of dangerous materials like lead and asbestos that have significant negative health impacts.[2] DACs often have a larger amount of older units within their housing stock and therefore, residents of these communities are more likely to be exposed to the harmful health impacts that are associated with older housing.

[2] SB 1000 Toolkit

Other factors that can contribute to unsafe housing conditions include; improper regulation and overcrowding. Ensuring the safety and sanitation of housing stock within a community ensures that there are proper living conditions for all residents, including those living in DACs.

This section summarizes the existing housing conditions and cost of housing throughout the city. While the conditions apply on a citywide level, they can reasonably be extrapolated to understand housing conditions in the Planning Area DACs.

Housing Stock Conditions

To assess existing housing conditions within Pittsburg, the City performed a citywide "windshield survey" in 2008 as part of the 2009 Housing Element Update. The survey focused on areas containing a concentration of 50% or more of housing built before 1970. Units constructed before 1970 are generally likely to have a higher concentration of units in need of rehabilitation or replacement. According to HCD, housing age can serve as an indicator of the maximum potential housing rehabilitation need within a city. Unless well maintained, older housing stock can pose health, safety and welfare problems for occupants. Even with normal maintenance, dwellings over 40 years of age can deteriorate, necessitating significant rehabilitation. The data captured from the windshield survey was extrapolated to estimate the condition of city's total housing stock and rehabilitation need.

The survey focused on five elements: foundation; roofing and chimney; electrical; windows; and siding, stucco, and other exterior surfaces; and overall site drainage and external conditions. The information collected from the survey and the data extrapolated to represent the entire city is summarized in Table 7.3-4.

Table 7.3-4: 2008 Housing Stock Conditions Survey

Housing Condition	Single Family		Multiple Family				Mobile Homes		Total	
			2-4 Units		5+ Unites					
	Number	%	Number	%	Number	%	Number	%	Number	%
Citywide Results										
Pittsburg	15,567	75%	1,320	6%	3,250	16%	681	3%	20,818	100%
Applied Survey Results										
Sound	13,718	75%	887	67%	3,158	97%	681	100%	18,444	89%
Minor Rehabilitation Needed	1,032	7%	221	17%	-	0%	-	0%	1,253	6%
Moderate Rehabilitation Needed	817	5%	212	16%	92	3%	-	0%	1,121	5%
Substantial Rehabilitation Needed	-	0%	-	0%	-	0%	-	0%	-	0%
Dilapidated	-	0%	-	0%	-	0%	-	0%	-	0%

Source: City of Pittsburg Housing Element, 2015.

Based on data extrapolated from the windshield survey, the majority of the City's housing stock, 18,444 units and approximately 89% of the total stock, was determined to be in sound condition. The remaining stock was deemed in need of minor or moderate rehabilitation, with the possibility that some of these units, upon further, internal evaluation, may require substantial rehabilitation or be deemed dilapidated.

Of the areas surveyed, there were three blocks of housing stock where 26% or more of the units were determined to require minor or moderate rehabilitation. They included DAC tracts 3100, 3132.02, and 3141.02.

Overcrowding

Overcrowding within a housing unit is a primary cause of unsafe housing conditions. The World Health Organization notes that overcrowding is a potential health risk as it contributes to the transmission of disease by creating unsanitary conditions.[3] A housing unit is considered overcrowded if there is more than one person per room and severely overcrowded if there are more than 1.5 persons per room. Table 7.3-5, based upon data obtained from the U.S. Census 2017 American Community Survey, depicts the city's overcrowding conditions.

Table 7.3-5: Overcrowding by Tenure

City/ DAC Census Tract	Persons Per Room						Total Units	Overcrowding Condition	
	1.0 or Less		1.1 to 1.5		1.51 or More				
	#	%	#	%	#	%		#	%
Citywide									
City of Pittsburg	19,456	92.3%	1,286	6.1%	327	1.6%	21,069	1,613	7.7%
DAC Census Tract									
3050	2,016	88.9%	230	10.1%	23	1.0%	2,269	253	11.2%
3090	1,205	93.0%	51	3.9%	40	3.1%	1,296	91	7.0%
3100	1,367	79.5%	271	15.8%	82	4.8%	1,720	353	20.5%
3110	1,344	89.9%	75	5.0%	76	5.1%	1,495	151	10.1%
3120	745	97.0%	15	2.0%	8	1.0%	768	23	3.0%
3131.01	2,440	94.3%	148	5.7%	-	0.0%	2,588	148	5.7%
3131.02	1,494	99.2%	4	0.3%	8	0.5%	1,506	12	0.8%
3132.06	1,467	90.7%	63	3.9%	87	5.4%	1,617	150	9.3%
3141.02	1,438	86.0%	228	13.6%	7	0.4%	1,673	235	14.0%
3141.03	1,495	85.6%	195	11.2%	56	3.2%	1,746	251	14.4%
3141.04	2,263	87.9%	312	12.1%	-	0.0%	2,575	312	12.1%
3142	1,399	81.2%	225	13.1%	98	5.7%	1,722	323	18.8%

Source: United States Census Bureau, American Fact Finder, 2017 Estimates.

According to the American Community Survey's overcrowding data, eight of the DAC census tracts experienced overcrowding at a higher rate than at the citywide rate of 7.7%. This includes two DAC tracts where the rate more than doubled the citywide rate: 3100 at 20.5% and 3142 at 18.8%.

Housing Affordability

As what is typically the most expensive component of a household's budget, housing cost (rent or mortgage, utilities, homeowner or renter insurance, and property taxes for homeowners only) is a preeminent factor in determining if the household is "cost burdened" or negatively impacted by its expenses. This consideration takes on even greater importance in

[3] World Health Organization (WHO). Accessed on September 5, 2018. Water Sanitation and Hygiene. What are the health risks related to overcrowding?". Available at: http://www.who.int/water_sanitation_health/emergencies/qa/emergencies_qa9/en/

California, a place where housing costs far exceed the national average, and the San Francisco Bay Area, one of the most expensive regions for housing in the state.

Traditionally, housing affordability has been assessed by the "maximum rent standard." According to the standard, households that spend more than 30% of income on housing costs may be cost burdened. Taken from the 2015 Housing Element, Table 7.3-6 describes the cost burden for the city's low- to moderate-income residents.

TABLE 7.3-6: HOUSING AFFORDABILITY

INCOME LEVEL	OWNER COST BURDEN	RENTER COST BURDEN	TOTAL COST-BURDENED HOUSEHOLDS	% OF ALL HOUSEHOLDS
Extremely Low (30% or less AMI)	1,220	2,795	4,294	23%
Very Low (30-50% AMI)	1,505	950	2,169	12%
Low (50-80% AMI)	1,865	145	1,625	9%
Moderate (80-120% AMI)	1,345	-	1,345	7%
Total	**5,543**	**3,890**	**9,433**	**50%**

SOURCE: CITY OF PITTSBURG HOUSING ELEMENT, 2015.

According to maximum rent standard measure, 50% of the city's low- to moderate-income households are cost burdened by housing expenses. Of the qualifying households, those that are deemed extremely low- and very low-income are disproportionately affected by housing cost burden.

PHYSICAL ACTIVITY

Residents of DACs are often more likely to experience negative health outcomes. Increased physical activity levels are associated with a decreased risk for numerous health conditions and chronic illnesses. The built environment in DACs can often be limited by land use planning and lack of investment, leaving less opportunities for formal and informal physical activity. Increasing the opportunity for physical activity within a community can work to positively impact the physical health of residents living in DACs.

This section summarizes the use of active transportation modes and the state and distribution of pedestrian and bicycle facilities and facilities conducive to physical activity in the DACs.

ACTIVE TRANSPORTATION USE

Active transportation is any form of transportation that is non-motorized. The use of active transportation during a daily commute increases physical activity levels, yielding a number of positive health benefits, including mortality risk reduction, disease prevention, cardiorespiratory fitness, and metabolic health. DACs often have disproportionately poorer health outcomes. Increasing opportunities for active transportation within a City can improve the overall health outcomes of DACs.

Data from the 2019 California Department of Finance (DOF) Population and Housing Estimate Report and 2012-2016 American Community Survey (ACS) were utilized to illustrate journey to work (JTW) statistics for the city. Table 7.3-7 provides an overview of Pittsburg's JTW mode split data compared to county and statewide statistics.

TABLE 7.3-7: COMMUTING TRANSPORTATION MODES

POPULATION	CITY OF PITTSBURG		CONTRA COSTA COUNTY		STATE OF CALIFORNIA	
Total[1]	72,541		1,155,879		39,927,315	
Employed[2]	30,744		520,162		17,589,758	
MODE SPLIT	NUMBER	%	NUMBER	%	NUMBER	%
ACTIVE TRANSPORTATION MODES						
Walked	493	1.6%	8,800	1.7%	470,101	2.7%
Bicycled	18	<0.1%	2,577	0.5%	186,321	1.1%
Total - Active Transportation Modes	511	1.7%	11,377	2.2%	656,422	3.7%
POWERED TRANSPORTATION MODES						
Drove Alone	20,611	67.0%	353,988	68.1%	12,950,487	73.6%
Carpooled	5,190	16.9%	61,025	11.7%	1,830,958	10.4%
Public Transit	3,049	9.9%	53,698	10.3%	909,679	5.2%
Taxicab, Motorcycle, or Other Means	523	1.7%	7,483	1.4%	264,165	1.5%
Total - Powered Transportation Modes	29,373	95.5%	476,194	91.5%	15,955,289	90.7%
Worked at Home	860	2.8%	32,591	6.3%	978,047	5.6%

[1]*POPULATION DATA OBTAINED FROM 2017 CALIFORNIA DEPARTMENT OF FINANCE POPULATION AND HOUSING ESTIMATE REPORT.*
[2]*EMPLOYMENT AND MODAL CHOICE DATA OBTAINED FROM 2013-2017 AMERICAN COMMUNITY SURVEY 5-YEAR ESTIMATES.*

The ACS reports that the majority of workers living in Pittsburg, 67%, drove to work alone, whereas other powered transportation modes accounted for approximately 20% of commute trips. This data also indicates that most commuters in Pittsburg do not use active transportation as a means of getting to work; only 1.6% of commuters reported walking to work and less than 0.1% rode a bike to work. By comparison, 83.9% of all trips made by the city's employed residents involve the use of an automobile by either driving alone or carpooling. Utilizing active transportation is an effective way of engaging in physical exercise and can be a factor in improving community health outcomes in DACs. More details on active transportation use and bicycle facilities can be found in Chapters 2.0: Transportation and 3.0: Public Facilities.

PEDESTRIAN AND BICYCLE FACILITIES

As of this writing, the City is in the process of preparing an Active Transportation Plan (Pittsburg Moves) addressing the provision of complete streets and safe routes to school. Based upon Section 2's analysis of the pedestrian and bike facilities' existing conditions, the condition of the facilities in the DACs are as follows:

Pedestrian Facilities

- Sidewalk gaps exist along several major streets, including 14th Street, Buchanan Road, Leland Road, Parkside Drive, and Willow Pass Road. The gaps could impede pedestrian mobility in and around DAC tracts 3050, 3090, 3100, 3110, 3131.01, and 3131.02.
- A majority of the city's key intersections, including most of the intersections in the Downtown/Core area, lack controlled crosswalks. The lack of signalized intersections could further impede pedestrian mobility in and around tracts DAC tracts 3050, 3090, 3100, 3110, 3200, 3131.01, and 3131.02.

Bike Facilities

- The city has 43 miles of facilities - 66% are bike lanes, 30% are shared-use paths, and 4% are bike routes. The facilities provide cyclists at least some access, primarily along major streets, to and through all of the DAC tracts.
- The bike network contains gaps, making connections across the city difficult. The gaps also impede connectivity along routes that extend through DAC tracts 3050, 3100, 3110, 3132.06, 3141.02, and 3142.

- Approximately 18% of the city's roads and paths are "high-stress" bicycle facilities. High stress facilities refer to streets with high automobile traffic volumes and/or speeds and/or bicycle facilities that are not separated from automobile traffic. These are generally major roadways that provide cross-town routes, such as Railroad Avenue, Leland Road, North Parkside Drive, East 14th Street, and Willow Pass Road/10th Street. The high-stress network extends through all of the DAC tracts.
- The remaining 82% of roads and paths are low-stress facilities. Most of the roads are residential streets that accommodate lower traffic volumes and speeds, making for a more comfortable walking or biking experience. The low stress network also extends to and through all of the DAC tracts, partially eliminating the need to use the high stress network for shorter, local trips.
- The Delta de Anza Regional Trail is key facility that generally provides a low-stress environment, except at the trail's numerous roadway crossings. The regional trail extends east-west through DAC tracts 3131.01, 3131.02, 3132.06, 3141.04, and 3142.

Pedestrian and Bike Safety

- Based upon statistics collected between 2012-2016, the city's high injury corridors include stretches of Leland Road, Railroad Avenue, Harbor Street, Parkside Drive, Willow Pass Road, 3rd Street, 10th Street, Stoneman Avenue, Buchanan Road, and Loveridge Road, and a number of the intersecting streets. Most of the accidents including pedestrians and/or bicyclists occurred on Leland Road and Railroad Avenue. The high injury corridors extend through portions of most of the DACs and have the most significant impact on pedestrian mobility in the central, most densely populated DACs, including DAC tracts 3090, 3100, 3110, 3200, 3131.01, 3131.02, and 3132.06.

Facilities Conducive to Physical Activity

As described in Section 3, the Planning Area is home to 31 parks and recreation facilities. They comprise 26 parks located within Pittsburg city limits, including 11 community parks, 11 neighborhood parks, 3 linear parks, 1 special facility, and 5 parks located within unincorporated Contra Costa County. Table 7.3-8 lists the parks and their size and amenities, including facilities for physical activity, and indicates whether the parks are in a DAC. The parks' locations and buffer distances of 0.25 and 0.5 miles, illustrating the reasonable walking distance to the facilities, are illustrated on Figure 7.3-5.

Most of the Planning Area's parks and recreation facilities are in a DAC. These facilities are concentrated in DAC tracts 3090 and 3100, the location of Pittsburg's oldest development and many of its more urban, walkable areas. Two of the DAC tracts that include a residential neighborhood do not include a park or recreation space: 3120 and 3131.02. Based upon walking distances, two residential areas within DACs lack access to parks. They include the northeastern quadrant of 3131.02 and the southern half of tract 3132.06.

Table 7.3-8: Planning Area Park Facilities

Park	Acres	Active Amenities	Other Amenities	DAC
PARKS LOCATED WITHIN THE CITY OF PITTSBURG[1]				
Community Parks				
Buchanan Park	16	Play Equipment/Tot Lot, Horseshoe Pits, Bocce Ball Courts, Swimming Pool	Restrooms, BBQ Grills, Picnic Tables	3131.01
John Buckley Square	1	Play Equipment/Tot Lot, Bocce Ball Courts	Restrooms	3090
Central Harbor Park	1.5	-	Restrooms	3090

Park	Acres	Active Amenities	Other Amenities	DAC
Central Park	8	Play Equipment/Tot Lot, Baseball/Softball Fields, Soccer Fields, Basketball Courts, Horseshoe Pits	Restrooms, BBQ Grills, Picnic Tables	3090
City Park	28	Play Equipment/Tot Lot, Baseball/Softball Fields, Soccer Fields, Basketball Courts, Horseshoe Pits, Bocce Ball Courts	Restrooms, BBQ Grills, Picnic Tables	3110
Ray Giacomelli Park	2	Play Equipment/Tot Lot, Soccer Fields	Restrooms, BBQ Grills, Picnic Tables	-
Highlands Ranch Park	10	Play Equipment/Tot Lot, Baseball/Softball Fields, Soccer Fields, Basketball Courts, Tennis Courts, Volleyball Courts	Restrooms, BBQ Grills, Picnic Tables	-
John Henry Johnson Park	8	Play Equipment/Tot Lot, Soccer Fields, Basketball Courts, Horseshoe Pits	Restrooms, BBQ Grills, Picnic Tables	-
Mariner Park	3.6	Play Equipment/Tot Lot, Baseball/Softball Fields, Soccer Fields	Restrooms, BBQ Grills, Picnic Tables	3090
Riverview Park	4	Play Equipment/Tot Lot	Restrooms, BBQ Grills, Picnic Tables	3090
Stoneman Trailhead	190	Play Equipment/Tot Lot, Horseshoe Pits, Hiking Trails	Restrooms, BBQ Grills, Picnic Tables	-
Neighborhood Parks				
Americana Park	2	Play Equipment/Tot Lot	BBQ Grills, Picnic Tables	3141.02
California Seasons Park	2.5	Play Equipment/Tot Lot, Basketball Courts	BBQ Grills, Picnic Tables	3141.02
De Anza Park	3.5	Play Equipment/Tot Lot, Basketball Courts	Picnic Tables	3141.02
Heritage Park Plaza	0.1	-	Picnic Tables	3090
Highlands Park	4.5	Play Equipment/Tot Lot, Basketball Courts	BBQ Grills, Picnic Tables	-
Hillsdale Park	3.5	Play Equipment/Tot Lot, Bocce Ball Courts	BBQ Grills, Picnic Tables	-
Larry Laster Park	3	Play Equipment/Tot Lot	BBQ Grills, Picnic Tables	-
Marina Walk Park	1.7	Play Equipment/Tot Lot, Basketball Courts	BBQ Grills, Picnic Tables	3090
Oak Hills Park	5	Play Equipment/Tot Lot, Basketball Courts, Tennis Courts	BBQ Grills, Picnic Tables	-
Woodland Hills Park	-	Play Equipment/Tot Lot, Basketball Courts, Tennis Courts	Picnic Tables	-
Village Park at New York Landing	2	-	Picnic Tables	3090
Linear Parks				
8th Street Greenbelt	4.7	Play Equipment/Tot Lot	BBQ Grills, Picnic Tables	3090
Columbia Linear Park	4.4	-	-	3090
Santa Fe Linear Park	2.6	-	BBQ Grills, Picnic Tables	3100
Special Facility				
Small World Park	8	Play Equipment/Tot Lot, Horseshoe Pits	Restrooms, BBQ Grills, Picnic Tables	3131.01
Parks and Recreation Facilities Located in Contra Costa County				
Anuta Park[2]	-	Playgrounds	BBQ Grills, Picnic Pavilion and Tables	3141.04

Park	Acres	Active Amenities	Other Amenities	DAC
Baypoint Regional Shoreline[3]	-	Hiking Trails, Fishing	Restrooms, Picnic Tables	3141.04
Black Diamond Mines Regional Preserve[4]	-	Camping, Hiking Trails, Mine Tour	Restrooms, Picnic Tables	-
Diablo Rod & Gun Club[5]	-	Target Shooting Facilities, Fishing	-	-
Lynbrook Park[2]	-	Playgrounds, Basketball Court	-	3141.03

[1]*City of Pittsburg Parks and Recreation Department Website. Available at: http://www.ci.pittsburg.ca.us/index.aspx?page=440.*
[2]*Ambrose Recreation and Park District Website. Available at: http://www.ambroserec.org/parks-facilities.*
[2] *East Bay Regional Parks District: Bay Point Regional Shoreline. Available at: https://www.ebparks.org/parks/bay_point/default.htm.*
[4]*East Bay Regional Parks District: Black Diamond Mines Regional Preserve. Available at: https://www.ebparks.org/parks/black_diamond/default.htm.*
[2]*Diablo Gun & Rod Club Website. Available at: https://diablorodandgun.com/.*

Civic Engagement

An important aspect of planning for environmental justice is the development of effective policies and programs that enable all residents to participate in local decision making. DACs can often be excluded from decision-making when officials and policies do not focus on involving these communities in a strategic manner. SB 1000 emphasizes that community engagement must be promoted in a local jurisdiction through the development of objectives and policies that seek to specifically involve residents of DACs. By engaging DACs in decision-making processes, policy-makers can effectively meet the needs of these community members. DACs often have culturally-specific needs, distinct from those of the general population, that must be made a priority within local policy to ensure community success. The US EPA Environmental Justice Policy requires the "… meaningful involvement of all people regardless of race, color, national origin, or income with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies." The establishment of appropriate opportunities for those who are low-income, minorities, and linguistically isolated to engage in local decision making will help ensure that environmental justice issues are identified and resolved. In addition, community programs that address the needs of DACs are critical to ensuring environmental justice is achieved for these communities within a city.

This section summarizes the levels of civic engagement, based upon voter registration and turnout, and demographics that may influence civic engagement in Pittsburg's DACs.

Levels of Civic Engagement

The primary means of measuring a community's level of civic engagement is the assessment of voter participation. This includes the percentage of voting age residents registered to vote and the percentage of registered voters who cast ballots. A summary of both metrics for Pittsburg and Contra Costa County is as follows:

Voter Registration

15 days prior to the 2018 general election, there were 621,309 registered voters in Contra Costa County, including 32,659 registered votes residing in Pittsburg. According to the ACS 2013-2017 five-year estimate, the most recent range for which data is available, 743,847 people of voting age resided in the county, including 47,457 people of voting age in the city. This equates to voter registration rates of approximately 69% in Pittsburg and 71% across the county.

Voter Participation

According to the Contra Costa County Recorder's Office, for the 2018 general election there were 619,963 registered votes in Contra Costa County, including 32,622 registered voters residing in Pittsburg. 423,348 votes were cast across the county, including 18,513 votes in the city's precincts. This equates to voter turnout rates of 56.8% in Pittsburg and 68.3% across

Contra Costa County. By comparison, for the 2016 general election, the most recent presidential election, the voter turnout rate for the city was 71.4% and for the county was 77.9%. This is consistent with increased voter turnout during presidential election years.

Based upon the most recent voting metrics, the city's residents are somewhat less engaged than county residents as a whole. Given the relatively lower levels of civic engagement in DACs, it is reasonable to extrapolate that that the Planning Area's DACs experienced similar, if not lower voter involvement than the citywide rates.

Demographics That May Influence Civic Engagement

Certain demographic categories can help predict a community's likely level of civic engagement. This section assesses three demographic categories: resident age, language spoken at home, and educational attainment. The assessments are based upon tables that compare the demographic categories at the county, city, and DAC tract levels.

Resident Age

Age distribution can help predict the likelihood of a community participating in civic activities and identify constraints associated with engaging different members of the community. A disproportionately high percentage of residents under the age of 18 suggests the significant presence of families. Parents of minors are generally busy raising their children, making them less likely to participate in civic activities. Encouraging the use of virtual outreach tools, such as social media and online surveying, and outreach approaches at other community events, such as farmers markets, fairs, and sporting events, can help increase participation among this group. Conversely, a disproportionately high percentage of seniors, a group that generally has fewer commitments and less time constraints, suggests that the community may participate in conventional civic activities, at a higher rate. Because seniors are less familiar with technology than their younger counterparts, the group is less likely to utilize virtual outreach tools.

As reflected by Table 7.3-9, Pittsburg's residents are somewhat younger than the county as a whole. This is largely reflected within the DAC tracts. In the instance of several DAC tracts, the percentage of the population of residents under 18 years old is significantly higher than at the citywide and county levels. The city's tracts that do not qualify as a DAC tracts reveal the opposite circumstance, housing a significantly higher percentage of seniors than as the citywide and county levels.

Table 7.3-9: Resident Age

Location	Total Population	Age					
		Under 18 years		18 to 64 year		65 years and over	
		Number	%	Number	%	Number	%
Contra Costa County	1,123,678	261,503	23.3%	698,404	62.1%	163,771	14.6%
City of Pittsburg	69,449	17,061	24.6%	44,397	63.9%	7,991	11.5%
DAC Census Tracts							
3050	3,199	1,680	26.5%	911	63.9%	608	9.6%
3090	3,571	781	21.9%	2,255	63.1%	535	15.0%
3100	6,482	1,998	30.8%	4,044	62.4%	440	6.8%
3110	5,444	1,687	31.0%	3,232	59.4%	525	9.6%
3120	2,212	553	25.0%	1,308	59.2%	351	15.8%
3131.01	7,104	1,680	23.6%	4,185	59.0%	1,239	17.4%
3131.02	4,115	721	17.5%	2,796	68.0%	598	14.5%
3132.06	6,167	1,534	24.9%	3,986	64.6%	647	10.5%

Location	Total Population	Age					
		Under 18 years		18 to 64 year		65 years and over	
		Number	%	Number	%	Number	%
3141.02	5,739	1,430	24.9%	3593	62.6%	716	12.5%
3141.03	6,309	1,855	29.4%	4,143	65.7%	311	4.9%
3141.04	8,445	2,756	32.6%	5,047	59.8%	642	7.6%
3142	6,790	1,904	28.0%	4,364	64.3%	522	7.7%

Source: United States Census Bureau, American Fact Finder, 2017 Estimates.

Language Access

Language is a critical signifier of a population's likely participation in civic activities. Non-native English speakers, and especially those individuals with limited English fluency, are less likely to participate in civic activities. Translation services are critical to reaching and actively communicating with these individuals. In addition, the metric of households who speak languages other than English can help identify the cultural diversity of a community. Civic activities, and the venues where they take place, can be tailored to accommodate the cultural preferences of individual racial, ethnic, and religious groups.

As identified by Table 7.3-10, Pittsburg and most of the DAC census tracts are home to a significantly higher percentage of households where the residents speak languages other than English and/or have limited fluency in English. Of the other household languages spoken, Spanish and various Asian and Pacific Islander languages are most common in Pittsburg.

Table 7.3-10: Languages Spoken at Home

Location	Population 5 years and over	English Only Household	Other Language Spoken at Home	Languages Spoken Other Than English				Household with Limited English Fluency
				Spanish	Other Indo-European	Asian and Pacific Islander	Other	
		Number	Number	Number	Number	Number	Number	Number
		%	%	%	%	%	%	%
Contra Costa Co.	1,058	690,049	368,056	190,059	62,119	103,823	12,055	149,624
		65.2%	34.8%	18.0%	5.9%	9.8%	1.1%	14.1%
City of Pittsburg	64,569	32,789	31,780	20,683	2,708	7,369	1,020	14,248
		50.8%	49.2%	32.0%	4.2%	11.4%	1.6%	22.1%
DAC Census Tracts								
3050	5,764	3,738	2,026	1,864	93	69	-	1,052
		64.9%	35.1%	32.3%	1.6%	1.2%	0.0%	18.3%
3090	3,349	2,360	989	660	40	270	19	388
		70.5%	29.5%	19.7%	1.2%	8.1%	0.6%	11.6%
3100	5,849	2,382	3,467	2,801	159	382	125	1,854
		40.7%	59.3%	47.9%	2.7%	6.5%	2.1%	31.7%
3110	4,933	2,825	2,108	1,162	100	801	45	813
		57.3%	42.7%	23.6%	2.0%	16.2%	0.9%	16.5%
3120	2,091	1,087	1,004	789	60	129	26	547
		52.0%	48%	37.7%	2.9%	6.2%	1.2%	26.2%
3131.01	6,564	3,495	3,069	2,106	159	591	213	1,514
		53.2%	46.8%	32.1%	2.4%	9.0%	3.2%	23.1%
3131.02	3,942	2,622	1,320	1,015	81	189	35	602
		66.5%	33.5%	25.7%	2.1%	4.8%	0.9%	15.3%

Location	Population 5 years and over	English Only Household	Other Language Spoken at Home	Languages Spoken Other Than English				Household with Limited English Fluency
				Spanish	Other Indo-European	Asian and Pacific Islander	Other	
		Number	Number	Number	Number	Number	Number	Number
		%	%	%	%	%	%	%
3132.06	5,742	2,165	1,730	2,949	334	177	117	1,847
		37.7%	48.4%	51.4%	5.8%	3.1%	2.0%	32.2%
3141.02	5,343	1,713	3,630	2,951	139	512	28	1,816
		32.1%	67.9%	55.2%	2.6%	9.6%	0.5%	34.0%
3141.03	5,899	2,437	3,462	2,835	140	402	85	1,744
		41.3%	58.7%	48.1%	2.4%	6.8%	1.4%	29.6%
3141.04	7,820	3,509	4,311	3,882	50	379	-	2,186
		44.9%	55.1%	49.6%	0.6%	4.8%	0.0%	27.7%
3142	6,289	1,640	4,649	4,372	59	210	8	2,627
		26.1%	73.9%	69.5%	0.9%	3.3%	0.1%	41.8%

Source: United States Census Bureau, American Fact Finder, 2017 Estimates.

Educational Attainment

Educational attainment is a strong signifier of a population's likely participation in civic activities. Higher educational attainment generally correlates with increased civic participation. This is reflective of individuals with less educational attainment experiencing underemployment circumstances, such as working for less than a living wage and/or on a part-time basis. This may require individuals to seek out additional employment, reducing the time that they can commit to civic activities. In addition, individuals with lower educational attainment generally make less money. Those individuals who cannot afford to own or otherwise have limited access to an automobile, may be unable to attend civic events. This may also be reflective of individuals with less educational attainment lacking the sufficient literacy level and/or a formal education in civics and government to feel comfortable participating in civic matters.

Based upon Table 7.3-11, Pittsburg's residents and the DAC census tracts' populations educational attainment levels are lower than on the countywide level. On average, a significantly higher percentage of residents completed high school or graduated from high school or attained some post-secondary education, but did not complete college. Of the DAC residents, those that did not complete high school or only obtain a high school degree are of greatest concern.

Table 7.3-11: Educational Attainment

Location	Total Population (25-64 years)	Less Than a High School Graduate		High School Graduate (or Equivalent)		Some College or Associate's Degree		Bachelor's Degree or Higher	
		Number	#	Number	#	Number	#	Number	#
Contra Costa Co.	603,361	65,348	10.8%	105,071	17.4%	184,913	30.6%	248,029	41.1%
City of Pittsburg	37,123	7,083	19.1%	9,396	25.3%	13,294	35.8%	7,350	19.8%
DAC Census Tracts									
3050	3,451	601	17.4%	1,277	37.0%	1,215	35.2%	358	10.4%
3090	1,928	126	6.5%	654	33.9%	755	39.2%	393	20.4%
3100	3,236	1,081	33.4%	740	22.9%	1,067	33.0%	348	10.8%

Location	Total Population (25-64 years)	Less Than a High School Graduate		High School Graduate (or Equivalent)		Some College or Associate's Degree		Bachelor's Degree or Higher	
		Number	#	Number	#	Number	#	Number	#
3110	2,544	367	14.4%	758	29.8%	1,032	40.6%	387	15.2%
3120	1,040	256	24.6%	264	25.4%	345	33.2%	175	16.8%
3131.01	3,590	878	24.5%	1,044	29.1%	1,155	32.2%	513	14.3%
3131.02	2,261	377	16.7%	621	27.5%	912	40.3%	351	15.5%
3132.06	3,285	988	30.1%	951	28.9%	1,034	31.5%	312	9.5%
3141.02	2,889	615	21.3%	970	33.6%	961	33.3%	343	11.9%
3141.03	3,196	893	27.9%	788	24.7%	1,047	32.8%	468	14.6%
3141.04	4,041	1,250	30.9%	1,171	29.0%	1,283	31.7%	337	8.3%
3142	3,536	1,486	42.0%	1,041	29.4%	790	22.3%	219	6.2%

Source: United States Census Bureau, American Fact Finder, 2017 Estimates.

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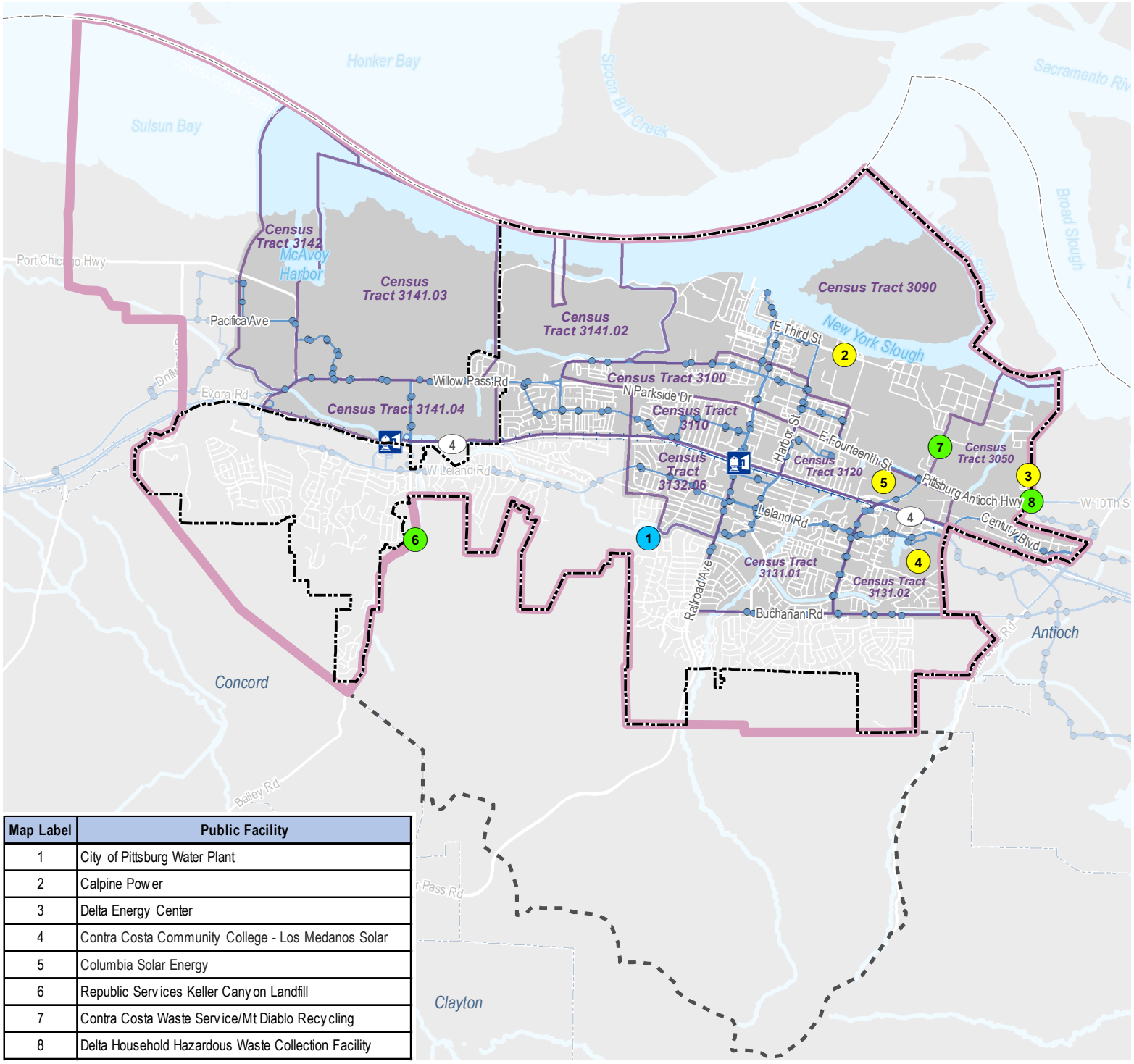
Figure 7.3-1:

PUBLIC IMPROVEMENTS

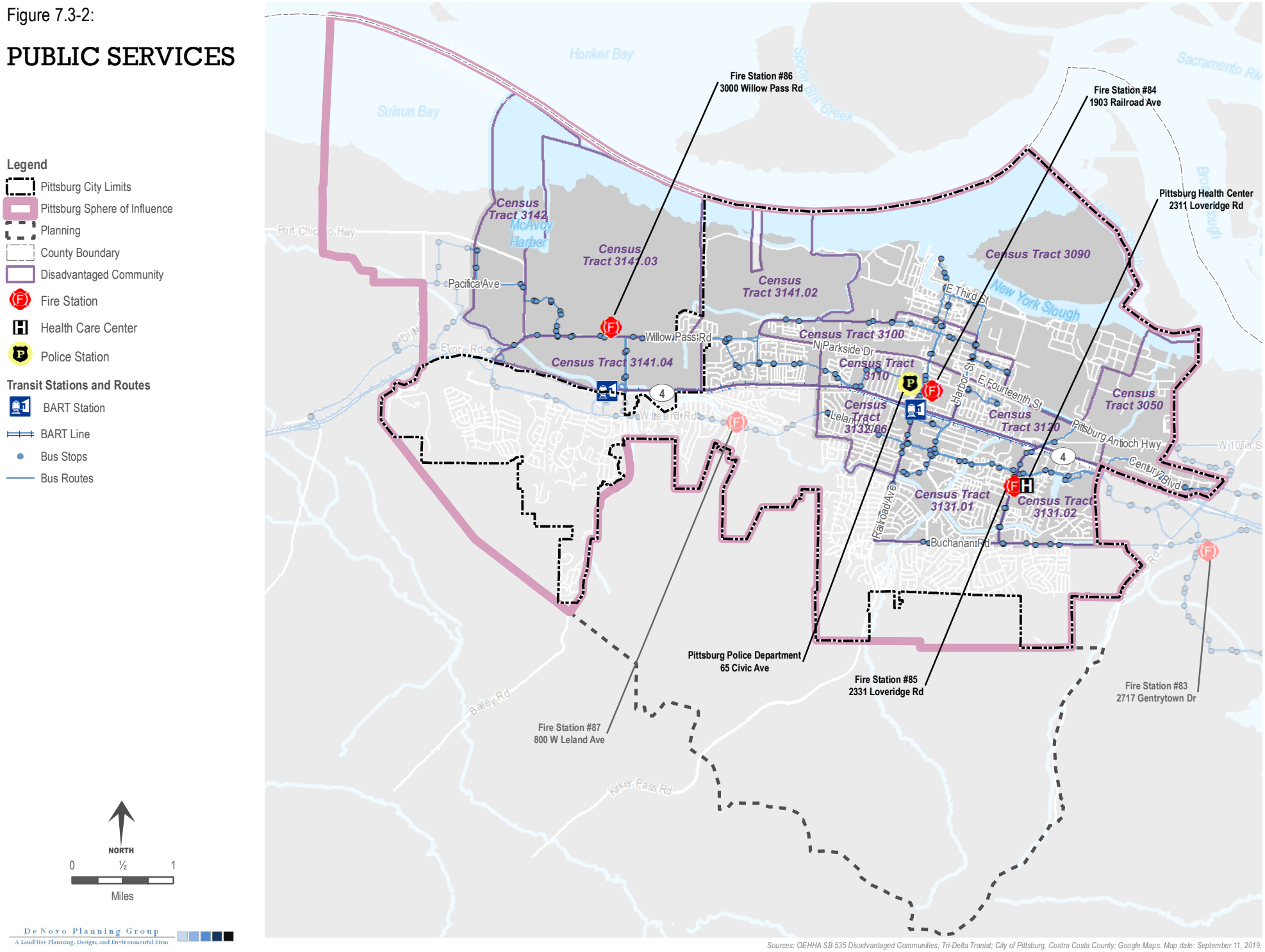


Map Label	Public Facility
1	City of Pittsburg Water Plant
2	Calpine Power
3	Delta Energy Center
4	Contra Costa Community College - Los Medanos Solar
5	Columbia Solar Energy
6	Republic Services Keller Canyon Landfill
7	Contra Costa Waste Service/Mt Diablo Recycling
8	Delta Household Hazardous Waste Collection Facility

Sources: OEHHA SB 535 Disadvantaged Communities; Tri-Delta Transit; City of Pittsburg, Contra Costa County; Google Maps. Map date: October 29, 2019.

Figure 7.3-2:

PUBLIC SERVICES

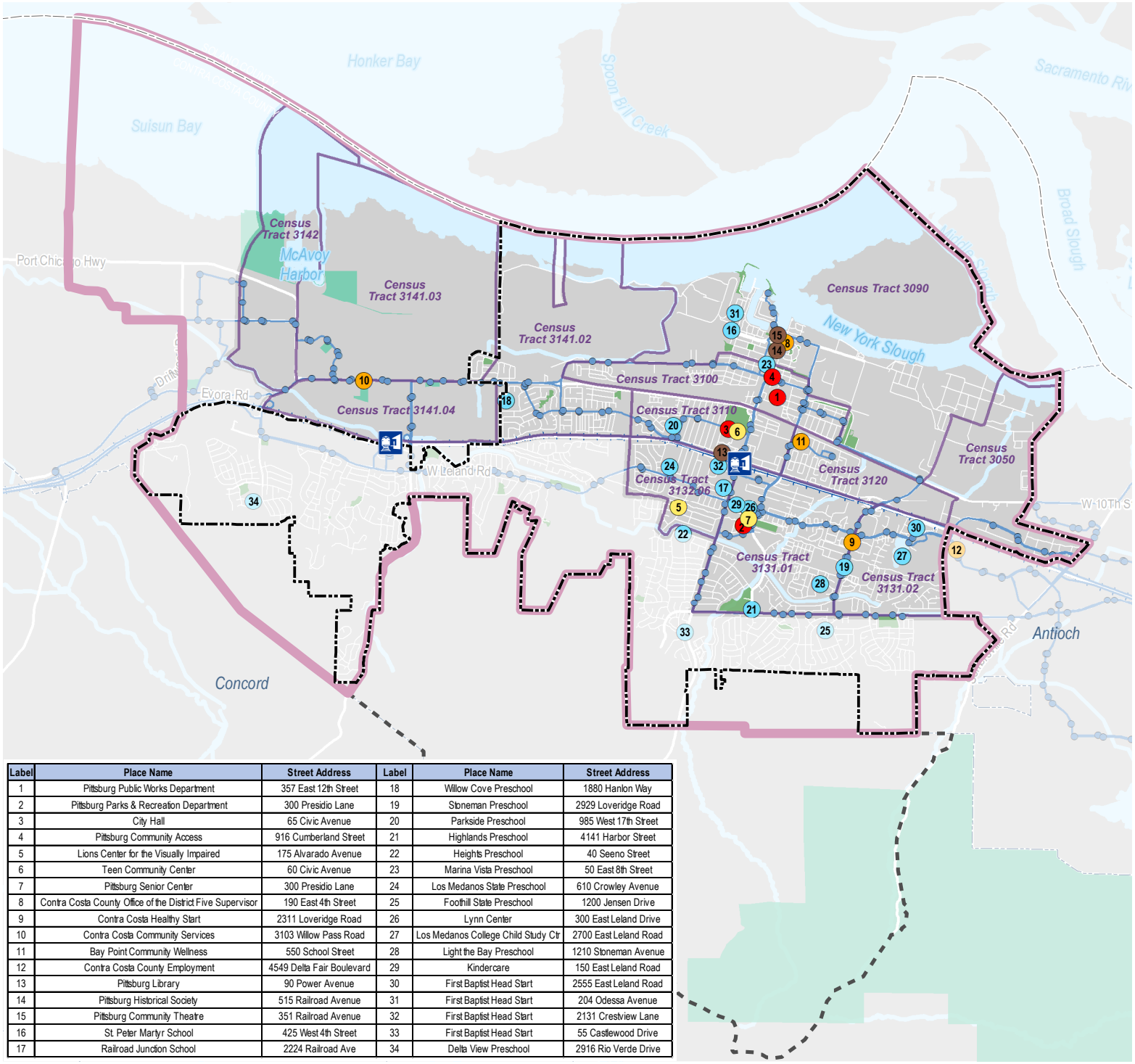


Sources: OEHHA SB 535 Disadvantaged Communities; Tri-Delta Transit; City of Pittsburg, Contra Costa County; Google Maps. Map date: September 11, 2019.

De Novo Planning Group
A Land Use Planning, Design, and Environmental Firm

Figure 7.3-3:

COMMUNITY FACILITIES



Label	Place Name	Street Address	Label	Place Name	Street Address
1	Pittsburg Public Works Department	357 East 12th Street	18	Willow Cove Preschool	1880 Hanlon Way
2	Pittsburg Parks & Recreation Department	300 Presidio Lane	19	Stoneman Preschool	2929 Loveridge Road
3	City Hall	65 Civic Avenue	20	Parkside Preschool	985 West 17th Street
4	Pittsburg Community Access	916 Cumberland Street	21	Highlands Preschool	4141 Harbor Street
5	Lions Center for the Visually Impaired	175 Alvarado Avenue	22	Heights Preschool	40 Seeno Street
6	Teen Community Center	60 Civic Avenue	23	Marina Vista Preschool	50 East 8th Street
7	Pittsburg Senior Center	300 Presidio Lane	24	Los Medanos State Preschool	610 Crowley Avenue
8	Contra Costa County Office of the District Five Supervisor	190 East 4th Street	25	Foothill State Preschool	1200 Jensen Drive
9	Contra Costa Healthy Start	2311 Loveridge Road	26	Lynn Center	300 East Leland Drive
10	Contra Costa Community Services	3103 Willow Pass Road	27	Los Medanos College Child Study Ctr	2700 East Leland Road
11	Bay Point Community Wellness	550 School Street	28	Light the Bay Preschool	1210 Stoneman Avenue
12	Contra Costa County Employment	4549 Delta Fair Boulevard	29	Kindercare	150 East Leland Road
13	Pittsburg Library	90 Power Avenue	30	First Baptist Head Start	2555 East Leland Road
14	Pittsburg Historical Society	515 Railroad Avenue	31	First Baptist Head Start	204 Odessa Avenue
15	Pittsburg Community Theatre	351 Railroad Avenue	32	First Baptist Head Start	2131 Crestview Lane
16	St. Peter Martyr School	425 West 4th Street	33	First Baptist Head Start	55 Castlewood Drive
17	Railroad Junction School	2224 Railroad Ave	34	Delta View Preschool	2916 Rio Verde Drive

Sources: OEHHA SB 535 Disadvantaged Communities; Tri-Delta Tranist; California Department of Social Services; City of Pittsburg, Contra Costa County; Google Maps. Map date: October 29, 2019.

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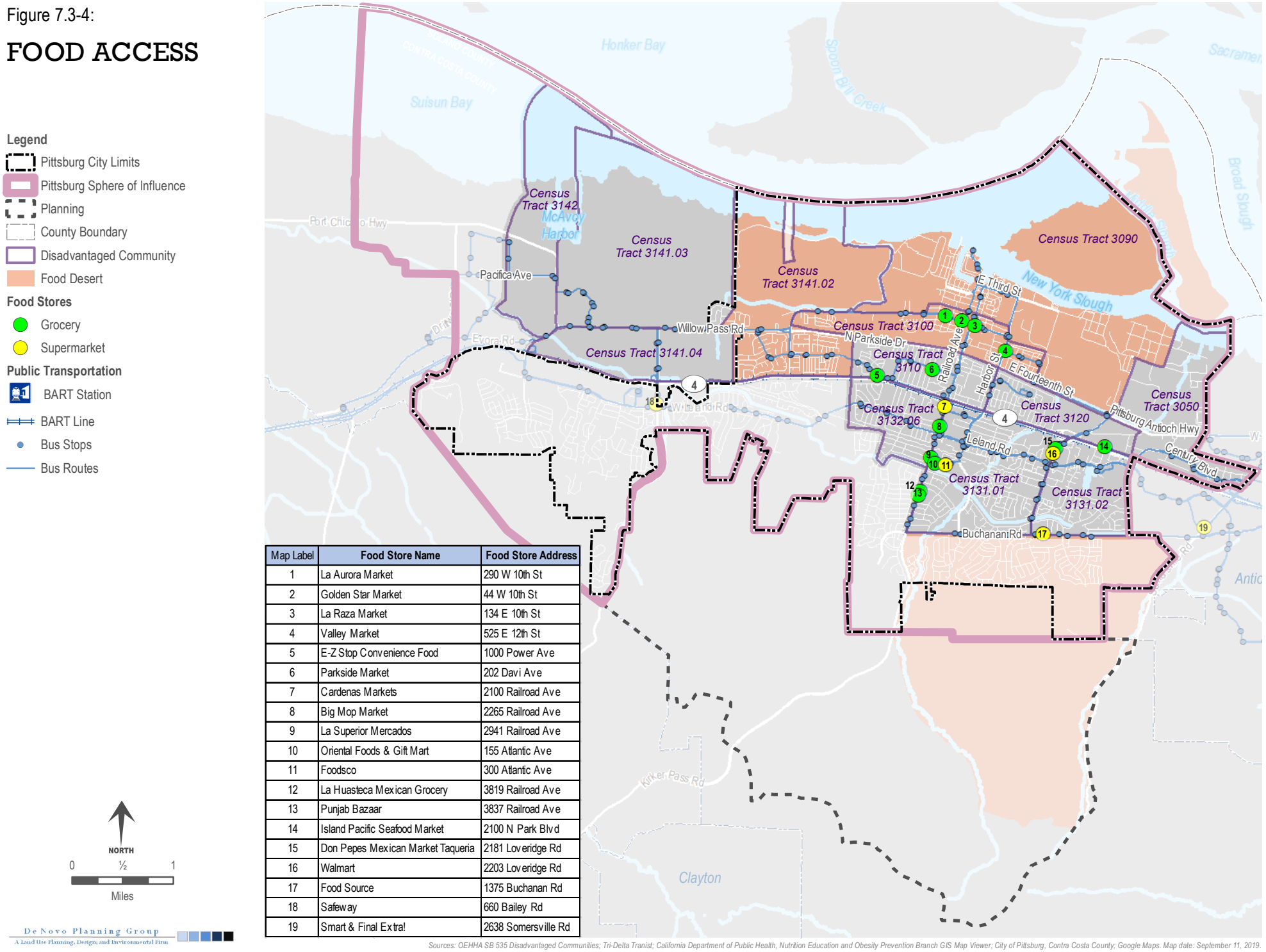
Figure 7.3-4:

FOOD ACCESS

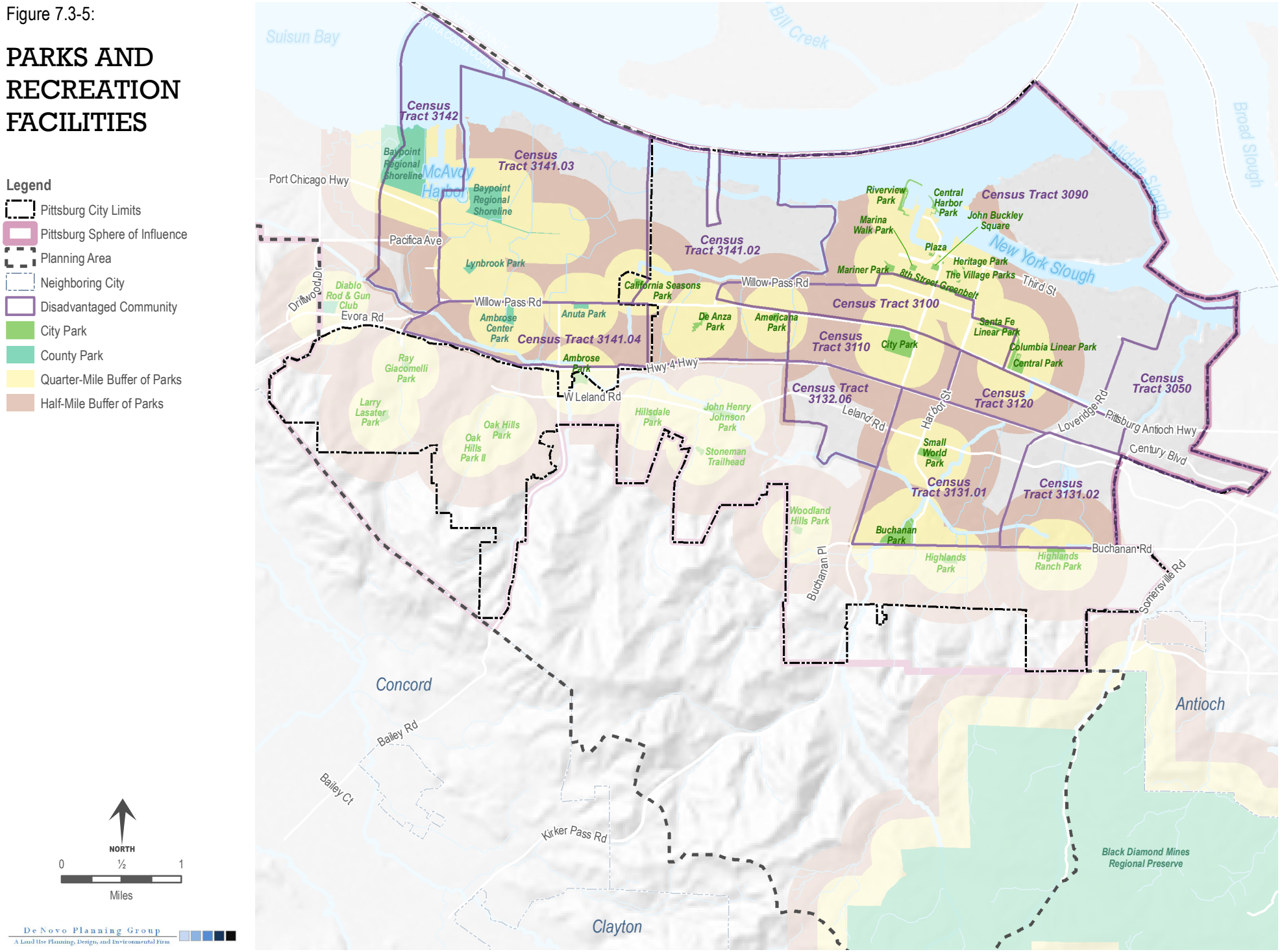


Map Label	Food Store Name	Food Store Address
1	La Aurora Market	290 W 10th St
2	Golden Star Market	44 W 10th St
3	La Raza Market	134 E 10th St
4	Valley Market	525 E 12th St
5	E-Z Stop Convenience Food	1000 Power Ave
6	Parkside Market	202 Davi Ave
7	Cardenas Markets	2100 Railroad Ave
8	Big Mop Market	2265 Railroad Ave
9	La Superior Mercados	2941 Railroad Ave
10	Oriental Foods & Gift Mart	155 Atlantic Ave
11	Foodsco	300 Atlantic Ave
12	La Huasteca Mexican Grocery	3819 Railroad Ave
13	Punjab Bazaar	3837 Railroad Ave
14	Island Pacific Seafood Market	2100 N Park Blvd
15	Don Pepes Mexican Market Taqueria	2181 Loveridge Rd
16	Walmart	2203 Loveridge Rd
17	Food Source	1375 Buchanan Rd
18	Safeway	660 Bailey Rd
19	Smart & Final Extra!	2638 Somersville Rd

Sources: OEHHA SB 535 Disadvantaged Communities; Tri-Delta Tranist; California Department of Public Health, Nutrition Education and Obesity Prevention Branch GIS Map Viewer; City of Pittsburg, Contra Costa County; Google Maps. Map date: September 11, 2019.

Figure 7.3-5:

PARKS AND RECREATION FACILITIES



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Sources: City of Pittsburg; Contra Costa County; Google Maps. Map date: June 21, 2019.

ENVISION Pittsburg

APPENDIX A – NOISE DATA

SAXELBY ACOUSTICS
Acoustics • Noise • Vibration

Appendix A: Traffic Noise Modeling Inputs and Results

Appendix A

FHWA-RD-77-108 Highway Traffic Noise Prediction Model

Data Input Sheet

Project #: 190203
Description: Pittsburg GPU - Existing Traffic
Ldn/CNEL: Ldn
Hard/Soft: Soft

Segment	Roadway	Segment	ADT	Day %	Eve %	Night %	% Med. Trucks	% Hvy. Trucks	Speed	Distance	Offset (dB)	Contours (ft.) - No Offset 60 dBA	65 dBA	70 dBA	Level, dBA
1	Buchanan Road	East of Loveridge	18,170	80	0	20	0.5%	0.5%	35	60	-5	149	69	32	60.9
2	Evora Road	West of San Marco	13,180	80	0	20	0.5%	0.5%	45	60	-5	186	86	40	62.4
3	Harbor Street	North of Buchanan	14,990	80	0	20	0.5%	0.5%	35	50	0	131	61	28	66.3
4	Kirker Pass Road	South of Buchanan	19,400	80	0	20	0.5%	0.5%	55	75	0	346	161	75	70.0
5	N. Parkside	West of Railroad	8,140	80	0	20	0.5%	0.5%	40	50	0	110	51	24	65.1
6	Railroad Avenue	North of Buchanan	15,130	80	0	20	0.5%	0.5%	30	50	0	106	49	23	64.9
7	SR-4	West of Bailey	157,000	80	0	20	2.0%	3.0%	65	340	-5	2186	1015	471	67.1
8	SR-4	Bailey to Railroad	148,000	80	0	20	2.0%	3.0%	65	120	-10	2101	975	453	68.7
9	SR-4	Railroad to Somersville	134,000	80	0	20	2.0%	3.0%	65	120	-10	1967	913	424	68.2
10	SR-4	East of Somersville	126,000	80	0	20	2.0%	3.0%	65	130	-5	1888	876	407	72.4
11	Willow Pass Road	West of Bailey	6,860	80	0	20	0.5%	0.5%	35	50	0	78	36	17	62.9
12	Willow Pass Road	East of Bailey	6,980	80	0	20	0.5%	0.5%	30	50	-5	63	29	14	56.5
13	W. 10th Street	West of Herb White	9,370	80	0	20	0.5%	0.5%	35	50	0	96	44	21	64.2

SAXELBY ACOUSTICS
Acoustics · Noise · Vibration

SAXELBY ACOUSTICS
Acoustics • Noise • Vibration

Appendix B: Continuous and Short-Term Ambient Noise Measurement Results

Appendix B1: Continuous Noise Monitoring Results

Site: LT-1

Project: City of Pittsburg General Plan Update

Meter: LDL 820-1

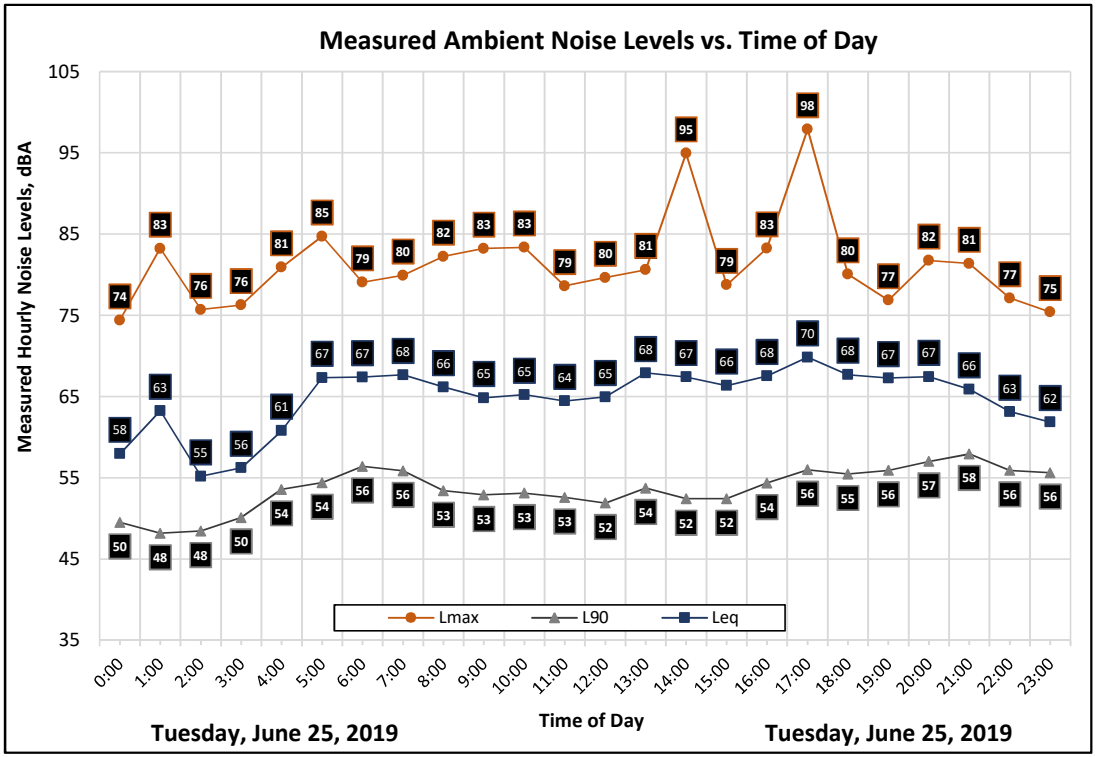
Location: N. Parkside Dr. at Americana Park

Calibrator: B&K 4230

Coordinates: 38.0259622°, -121.9085844°

Date	Time	Measured Level, dBA			
		L_{eq}	L_{max}	L_{50}	L_{90}
Tuesday, June 25, 2019	0:00	58	74	52	50
Tuesday, June 25, 2019	1:00	63	83	51	48
Tuesday, June 25, 2019	2:00	55	76	51	48
Tuesday, June 25, 2019	3:00	56	76	52	50
Tuesday, June 25, 2019	4:00	61	81	56	54
Tuesday, June 25, 2019	5:00	67	85	62	54
Tuesday, June 25, 2019	6:00	67	79	65	56
Tuesday, June 25, 2019	7:00	68	80	66	56
Tuesday, June 25, 2019	8:00	66	82	62	53
Tuesday, June 25, 2019	9:00	65	83	59	53
Tuesday, June 25, 2019	10:00	65	83	59	53
Tuesday, June 25, 2019	11:00	64	79	59	53
Tuesday, June 25, 2019	12:00	65	80	60	52
Tuesday, June 25, 2019	13:00	68	81	65	54
Tuesday, June 25, 2019	14:00	67	95	63	52
Tuesday, June 25, 2019	15:00	66	79	63	52
Tuesday, June 25, 2019	16:00	68	83	64	54
Tuesday, June 25, 2019	17:00	70	98	66	56
Tuesday, June 25, 2019	18:00	68	80	66	55
Tuesday, June 25, 2019	19:00	67	77	65	56
Tuesday, June 25, 2019	20:00	67	82	63	57
Tuesday, June 25, 2019	21:00	66	81	63	58
Tuesday, June 25, 2019	22:00	63	77	59	56
Tuesday, June 25, 2019	23:00	62	75	58	56

Statistics	Leq	Lmax	L50	L90
Day Average	67	83	63	54
Night Average	63	79	56	52
Day Low	64	77	59	52
Day High	70	98	66	58
Night Low	55	74	51	48
Night High	67	85	65	56
Ldn	70	Day %		79
CNEL	71	Night %		21



Appendix B2: Continuous Noise Monitoring Results

Site: LT-2

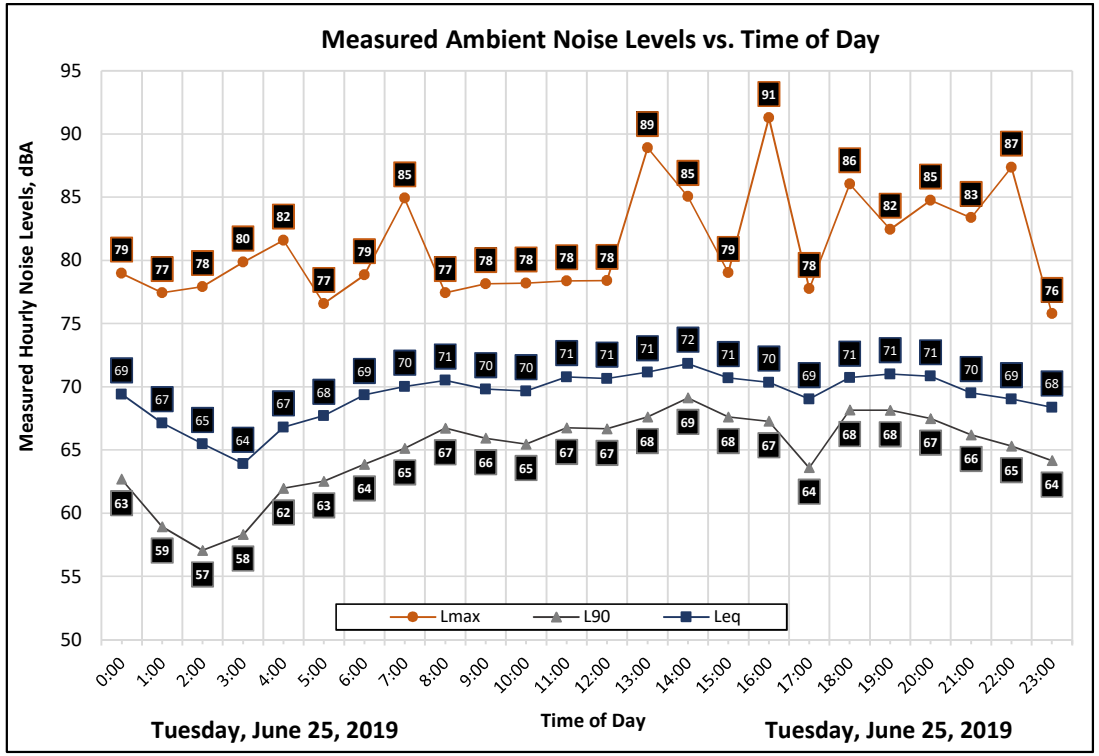
Project: City of Pittsburg General Plan Update **Meter:** LDL 812-2

Location: CA-4/BART at Amrbose Park **Calibrator:** B&K 4230

Coordinates: 38.0182485°, -121.9372823°

Date	Time	Measured Level, dBA			
		L_{eq}	L_{max}	L_{50}	L_{90}
Tuesday, June 25, 2019	0:00	69	79	69	63
Tuesday, June 25, 2019	1:00	67	77	66	59
Tuesday, June 25, 2019	2:00	65	78	63	57
Tuesday, June 25, 2019	3:00	64	80	62	58
Tuesday, June 25, 2019	4:00	67	82	65	62
Tuesday, June 25, 2019	5:00	68	77	67	63
Tuesday, June 25, 2019	6:00	69	79	68	64
Tuesday, June 25, 2019	7:00	70	85	69	65
Tuesday, June 25, 2019	8:00	71	77	70	67
Tuesday, June 25, 2019	9:00	70	78	69	66
Tuesday, June 25, 2019	10:00	70	78	69	65
Tuesday, June 25, 2019	11:00	71	78	70	67
Tuesday, June 25, 2019	12:00	71	78	70	67
Tuesday, June 25, 2019	13:00	71	89	71	68
Tuesday, June 25, 2019	14:00	72	85	71	69
Tuesday, June 25, 2019	15:00	71	79	70	68
Tuesday, June 25, 2019	16:00	70	91	70	67
Tuesday, June 25, 2019	17:00	69	78	69	64
Tuesday, June 25, 2019	18:00	71	86	70	68
Tuesday, June 25, 2019	19:00	71	82	71	68
Tuesday, June 25, 2019	20:00	71	85	70	67
Tuesday, June 25, 2019	21:00	70	83	69	66
Tuesday, June 25, 2019	22:00	69	87	68	65
Tuesday, June 25, 2019	23:00	68	76	68	64

Statistics	Leq	Lmax	L50	L90
Day Average	70	82	70	67
Night Average	68	79	66	62
Day Low	69	77	69	64
Day High	72	91	71	69
Night Low	64	76	62	57
Night High	69	87	69	65
Ldn	75	Day %		76
CNEL	75	Night %		24

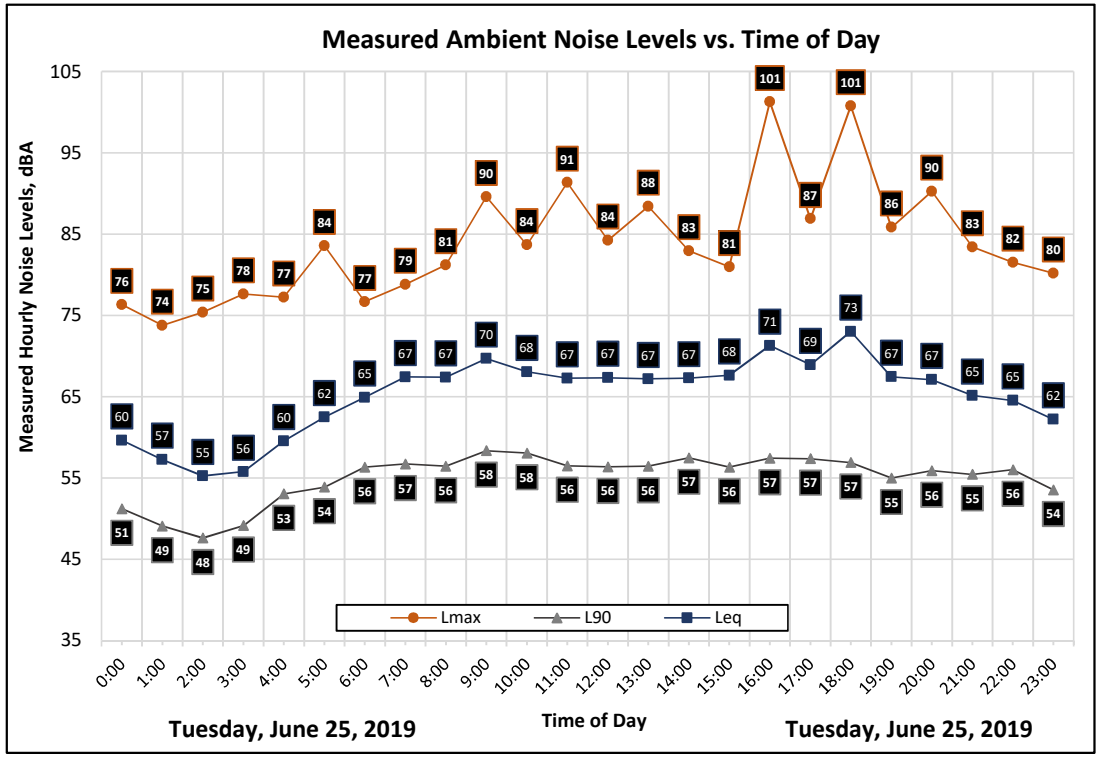


Appendix B3: Continuous Noise Monitoring Results

Site: LT-3
Project: City of Pittsburg General Plan Update
Location: East Leland Rd. at Los Medanos College
Coordinates: 38.0080675°, -121.8639300°
Meter: LDL 812-1
Calibrator: B&K 4230

Date	Time	Measured Level, dBA			
		L_{eq}	L_{max}	L_{50}	L_{90}
Tuesday, June 25, 2019	0:00	60	76	55	51
Tuesday, June 25, 2019	1:00	57	74	52	49
Tuesday, June 25, 2019	2:00	55	75	51	48
Tuesday, June 25, 2019	3:00	56	78	52	49
Tuesday, June 25, 2019	4:00	60	77	56	53
Tuesday, June 25, 2019	5:00	62	84	58	54
Tuesday, June 25, 2019	6:00	65	77	62	56
Tuesday, June 25, 2019	7:00	67	79	64	57
Tuesday, June 25, 2019	8:00	67	81	64	56
Tuesday, June 25, 2019	9:00	70	90	66	58
Tuesday, June 25, 2019	10:00	68	84	65	58
Tuesday, June 25, 2019	11:00	67	91	63	56
Tuesday, June 25, 2019	12:00	67	84	64	56
Tuesday, June 25, 2019	13:00	67	88	64	56
Tuesday, June 25, 2019	14:00	67	83	65	57
Tuesday, June 25, 2019	15:00	68	81	65	56
Tuesday, June 25, 2019	16:00	71	101	65	57
Tuesday, June 25, 2019	17:00	69	87	66	57
Tuesday, June 25, 2019	18:00	73	101	65	57
Tuesday, June 25, 2019	19:00	67	86	63	55
Tuesday, June 25, 2019	20:00	67	90	62	56
Tuesday, June 25, 2019	21:00	65	83	62	55
Tuesday, June 25, 2019	22:00	65	82	61	56
Tuesday, June 25, 2019	23:00	62	80	58	54

Statistics	Leq	Lmax	L50	L90
Day Average	69	87	64	57
Night Average	61	78	56	52
Day Low	65	79	62	55
Day High	73	101	66	58
Night Low	55	74	51	48
Night High	65	84	62	56
Ldn	70	Day %		90
CNEL	70	Night %		10

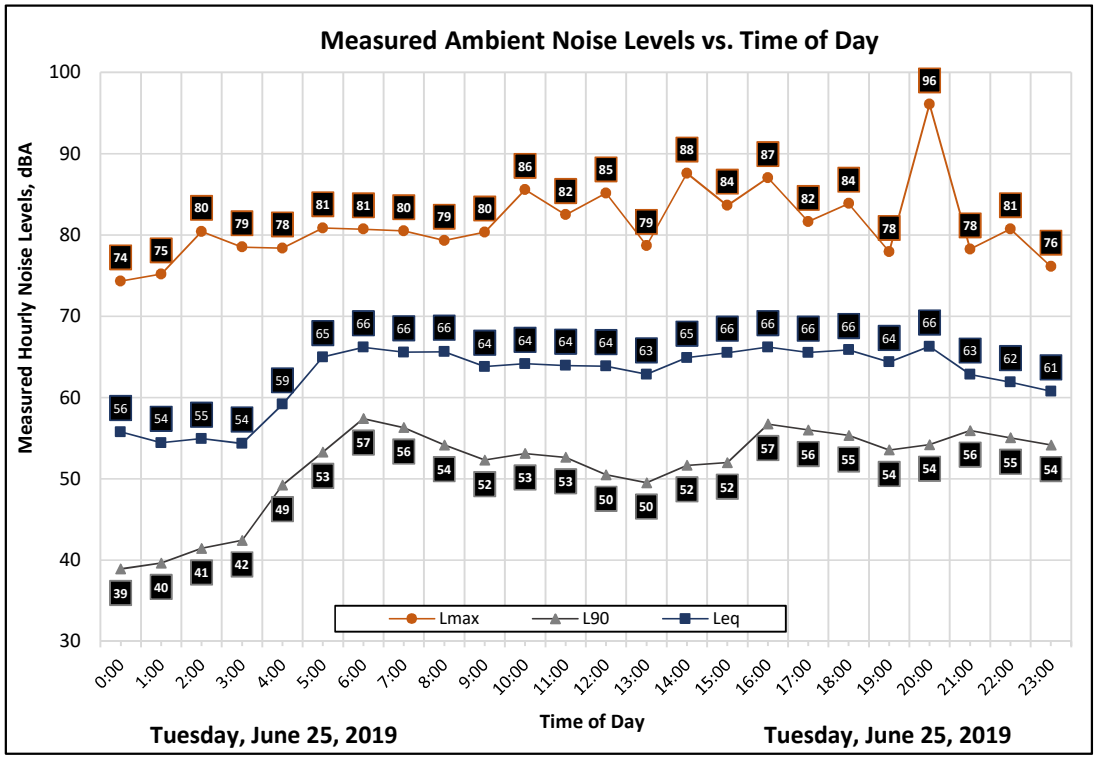


Appendix B4: Continuous Noise Monitoring Results

Site: LT-4
Project: City of Pittsburg General Plan Update
Location: Kirker Pass Rd. at Castlewood Dr.
Coordinates: 37.9953322°, -121.8970643°
Meter: LDL 812-2
Calibrator: B&K 4230

Date	Time	Measured Level, dBA			
		L_{eq}	L_{max}	L_{50}	L_{90}
Tuesday, June 25, 2019	0:00	56	74	45	39
Tuesday, June 25, 2019	1:00	54	75	45	40
Tuesday, June 25, 2019	2:00	55	80	45	41
Tuesday, June 25, 2019	3:00	54	79	47	42
Tuesday, June 25, 2019	4:00	59	78	54	49
Tuesday, June 25, 2019	5:00	65	81	62	53
Tuesday, June 25, 2019	6:00	66	81	65	57
Tuesday, June 25, 2019	7:00	66	80	64	56
Tuesday, June 25, 2019	8:00	66	79	64	54
Tuesday, June 25, 2019	9:00	64	80	61	52
Tuesday, June 25, 2019	10:00	64	86	60	53
Tuesday, June 25, 2019	11:00	64	82	60	53
Tuesday, June 25, 2019	12:00	64	85	60	50
Tuesday, June 25, 2019	13:00	63	79	60	50
Tuesday, June 25, 2019	14:00	65	88	62	52
Tuesday, June 25, 2019	15:00	66	84	63	52
Tuesday, June 25, 2019	16:00	66	87	64	57
Tuesday, June 25, 2019	17:00	66	82	64	56
Tuesday, June 25, 2019	18:00	66	84	64	55
Tuesday, June 25, 2019	19:00	64	78	62	54
Tuesday, June 25, 2019	20:00	66	96	61	54
Tuesday, June 25, 2019	21:00	63	78	60	56
Tuesday, June 25, 2019	22:00	62	81	60	55
Tuesday, June 25, 2019	23:00	61	76	58	54

Statistics	Leq	Lmax	L50	L90
Day Average	65	83	62	54
Night Average	61	78	54	48
Day Low	63	78	60	50
Day High	66	96	64	57
Night Low	54	74	45	39
Night High	66	81	65	57
Ldn	68	Day %		79
CNEL	69	Night %		21



Appendix B5 : Short Term Noise Monitoring Results

Site: ST-1
Project: Pittsburg General Plan Update
Location: Larry Lasater Park
Coordinates: 38.0127554°, -121.9688892°

Meter: LDL 831-1
Calibrator: B&K 4230

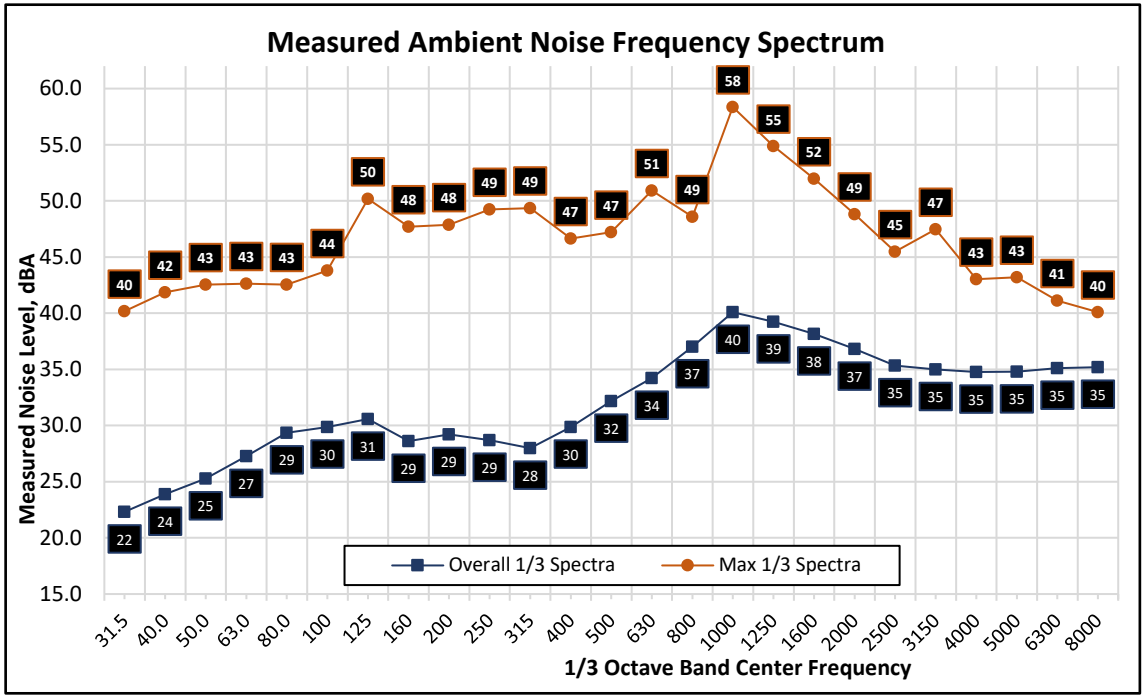
Start: 2019-06-24 16:29:52
Stop: 2019-06-24 16:39:52
SLM: Model 831
Serial: 1800

Measurement Results, dBA

Duration:	0:10
L_{eq}:	47
L_{max}:	60
L_{min}:	38
L_{50}:	45
L_{90}:	43

Notes

Primary noise source is traffic on Rancho Bernado Dr. and Santa Teresa Dr. Secondary noise source is activity from neighboring schools.



Appendix B6 : Short Term Noise Monitoring Results

Site: ST-2
Project: Pittsburg General Plan Update
Location: Lynbrook Park
Coordinates: 38.031067°, -121.955070°

Meter: LDL 831-1
Calibrator: B&K 4230

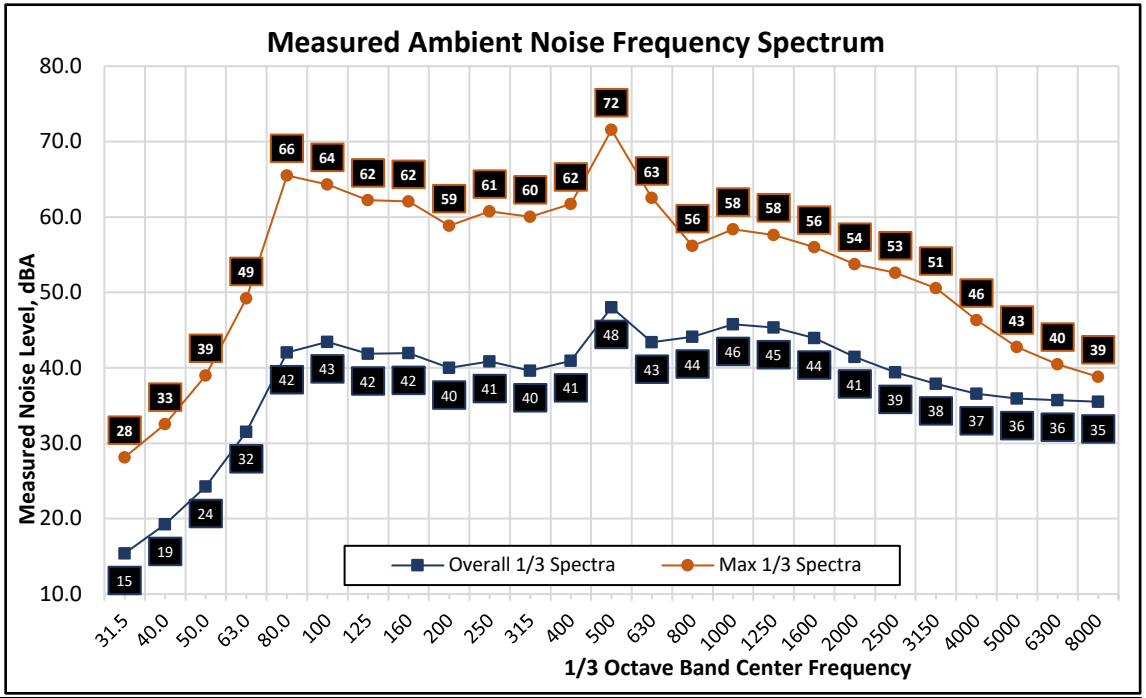
Start: 2019-06-24 16:50:25
Stop: 2019-06-24 17:00:25
SLM: Model 831
Serial: 1800

Measurement Results, dBA

Duration:	0:10
L_{eq}:	55
L_{max}:	74
L_{min}:	47
L_{50}:	50
L_{90}:	48

Notes

Primary noise source is traffic on Kevin Dr. Secondary noise source is activity from park-goers.



Appendix B7 : Short Term Noise Monitoring Results

Site: ST-3
Project: Pittsburg General Plan Update
Location: California Seasons Park
Coordinates: 38.0294526°, -121.9301923°

Meter: LDL 831-1
Calibrator: B&K 4230

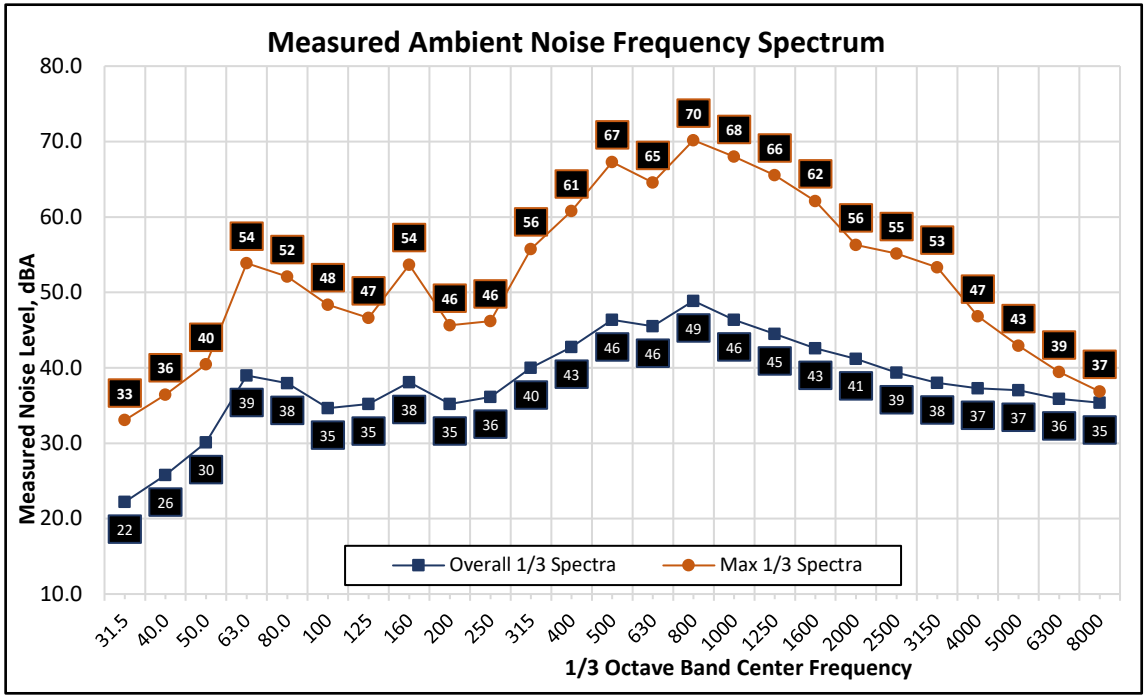
Start: 2019-06-26 09:47:46
Stop: 2019-06-26 09:57:46
SLM: Model 831
Serial: 1800

Measurement Results, dBA

Duration:	0:10
L_{eq}:	55
L_{max}:	74
L_{min}:	46
L_{50}:	50
L_{90}:	48

Notes

Primary noise source is train horn from adjacent railway. Secondary noise source is activity from traffic on Winter Way and park-goers.



Appendix B8 : Short Term Noise Monitoring Results

Site: ST-4
Project: Pittsburg General Plan Update
Location: Columbia Linear Park
Coordinates: 38.0240923°, -121.8734283°

Meter: LDL 831-1
Calibrator: B&K 4230

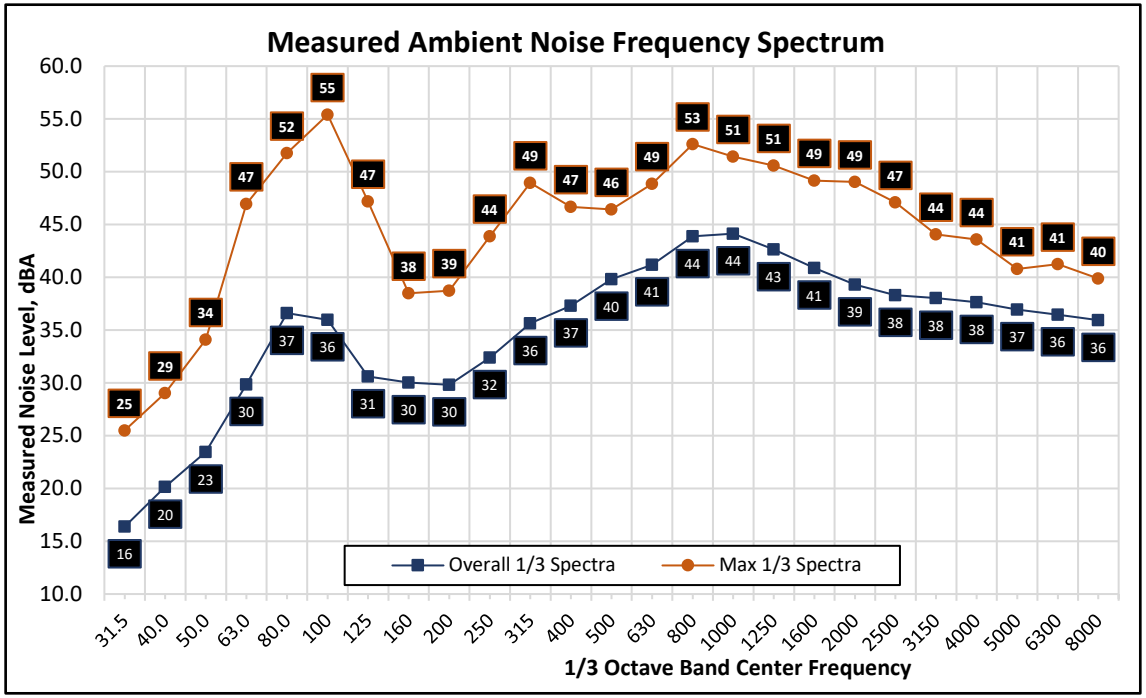
Start: 2019-06-24 11:37:17
Stop: 2019-06-24 11:47:17
SLM: Model 831
Serial: 1800

Measurement Results, dBA

Duration:	0:10
L_{eq}:	52
L_{max}:	58
L_{min}:	45
L_{50}:	50
L_{90}:	47

Notes

Primary noise source is traffic on Winter Way. Secondary noise source is traffic on Pittsburg Antioch Hwy.



Appendix B9 : Short Term Noise Monitoring Results

Site: ST-5
Project: Pittsburg General Plan Update
Location: Buchanan Park
Coordinates: 38.0006621°, -121.8880326°

Meter: LDL 831-1
Calibrator: B&K 4230

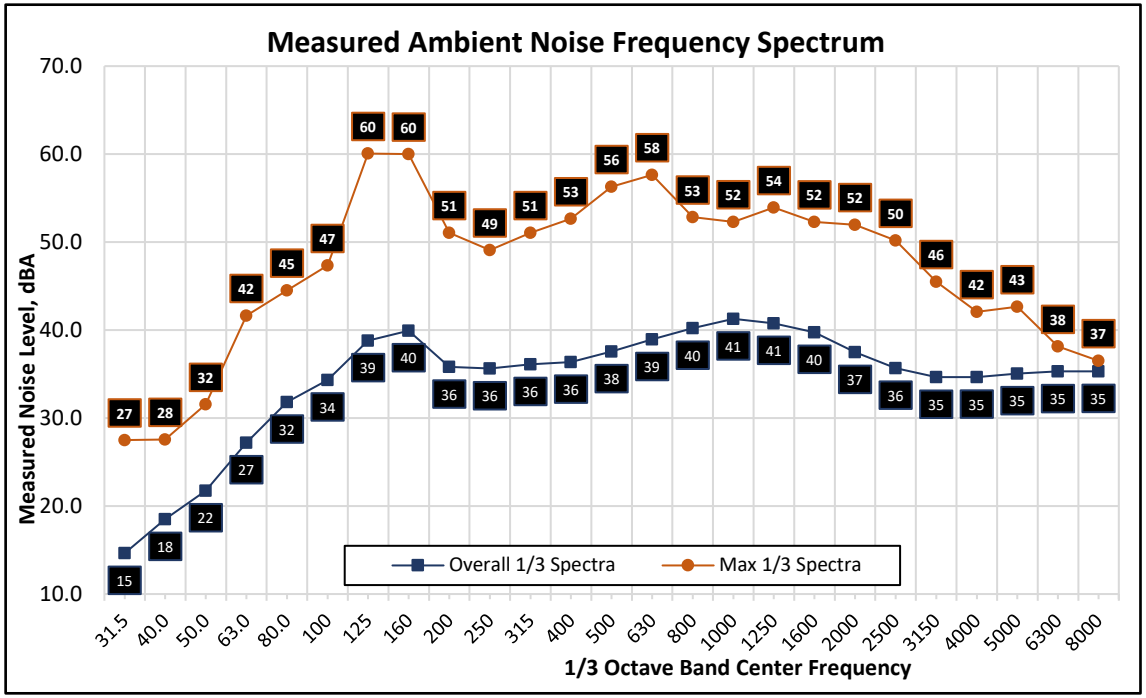
Start: 2019-06-28 08:08:26
Stop: 2019-06-28 08:18:26
SLM: Model 831
Serial: 1800

Measurement Results, dBA

Duration:	0:10
L_{eq}:	50
L_{max}:	65
L_{min}:	42
L_{50}:	48
L_{90}:	45

Notes

Primary noise source is traffic on Yosemite Drive and Harbor Street. Secondary sources include park-goers and wildlife.



Appendix B10 : Short Term Noise Monitoring Results

Site: ST-6
Project: Pittsburg General Plan Update
Location: Highlands Ranch Park
Coordinates: 37.9966982°, -121.8659252°

Meter: LDL 831-1
Calibrator: B&K 4230

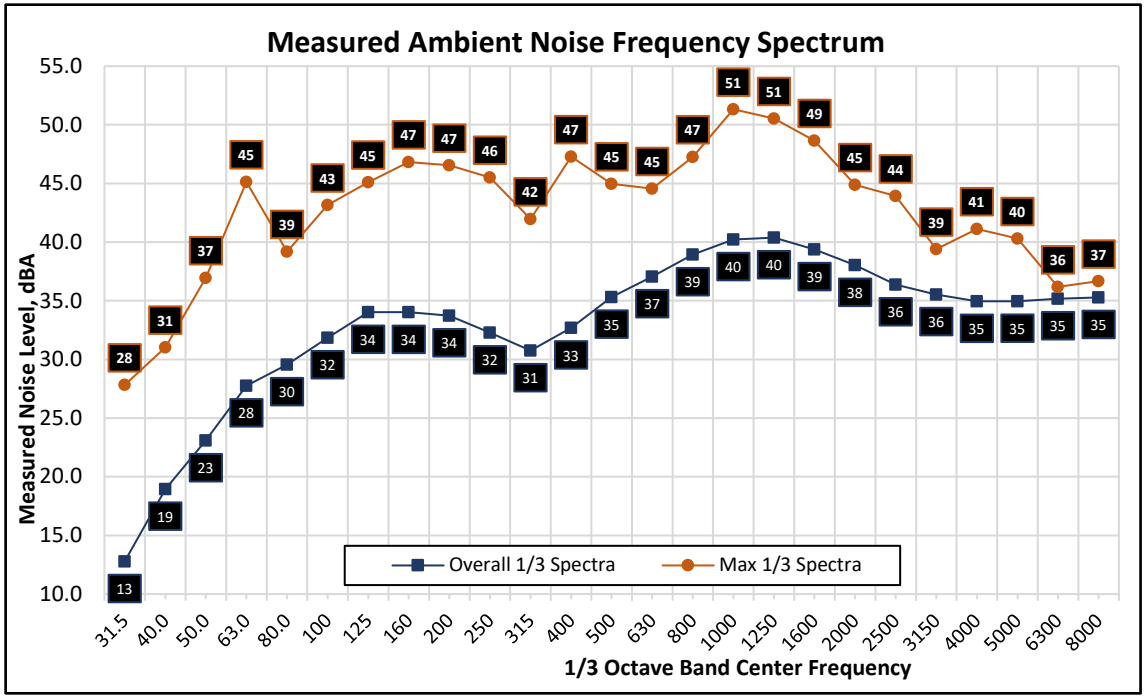
Start: 2019-06-28 08:31:55
Stop: 2019-06-28 08:41:55
SLM: Model 831
Serial: 1800

Measurement Results, dBA

Duration:	0:10
L_{eq}:	48
L_{max}:	57
L_{min}:	42
L_{50}:	48
L_{90}:	46

Notes

Primary source of noise is traffic on Rangewood Drive. Secondary sources include park-goers and traffic on Buchanan Road.



Appendix B11 : Short Term Noise Monitoring Results

Site: ST-7
Project: Pittsburg General Plan Update
Location: Markley Creek Park
Coordinates: 37.9899832°, -121.8545057°

Meter: LDL 831-1
Calibrator: B&K 4230

Start: 2019-06-24 13:05:49
Stop: 2019-06-24 13:15:49
SLM: Model 831
Serial: 1800

Measurement Results, dBA

Duration:	0:10
L_{eq}:	45
L_{max}:	52
L_{min}:	41
L_{50}:	44
L_{90}:	43

Notes

Primary source of noise is traffic on Summit Way. Secondary noise source is construction in adjacent vacant field north of park boundary.