

## **INTRODUCTION TO THE ADAPTING TO RISING TIDES EXISTING CONDITIONS AND STRESSORS REPORT**

The Adapting to Rising Tides (ART) project evaluated the current condition of shoreline and community assets, and the stressors affecting them, because understanding existing conditions and stressors can inform an understanding of individual asset resilience (or lack thereof) to projected climate impacts, including sea level rise and storm events. Stressors can also provide information on current and future trends and how those trends may affect resilience. The existing conditions and stressors were analyzed and summarized for each asset category included in the ART project assessment. This analysis served as a foundation for the ART vulnerability and risk assessment, which examined asset exposure to five potential climate impacts, sensitivity of assets to these impacts, and the ability of assets to accommodate or adjust to these impacts with little financial or structural intervention.

The following Existing Conditions and Stressors report chapter includes:

- a definition of the asset category;
- a synthesis of information about current conditions and stressors; and
- discussion of these conditions through the lenses of sustainability organized by society and equity, environment, economy and governance.

The complete ART Existing Conditions and Stressors Report is available at the ART Portfolio website.

## HAZARDOUS MATERIAL SITES

### I. Definition

Hazardous wastes are substances that pose a risk to the health of humans and the environment. They can be liquid, solid, sludge, or gas; they may be the byproducts of industrial/manufacturing operations or discarded commercial products such as pesticides and cleaning solvents. Other examples of hazardous waste include used oil, solvents, cleaning compounds, byproducts of chemical processes, and paint. Hazardous waste may be stored or generated at facilities such as research laboratories, hospitals, manufacturing/industrial facilities, and automotive repair shops. The commonly used term “hazardous materials” is a general term and may include contaminated substances/waste, contaminated soil, USTs, and hazardous waste. This report focuses on the facilities where hazardous waste substances are located, as defined by the US EPA.



### II. Locations and Physical Features

Hazardous materials facilities are distributed more or less evenly throughout the study area. However, the majority of the large facilities are located in industrial and commercial areas (see Figure 1).

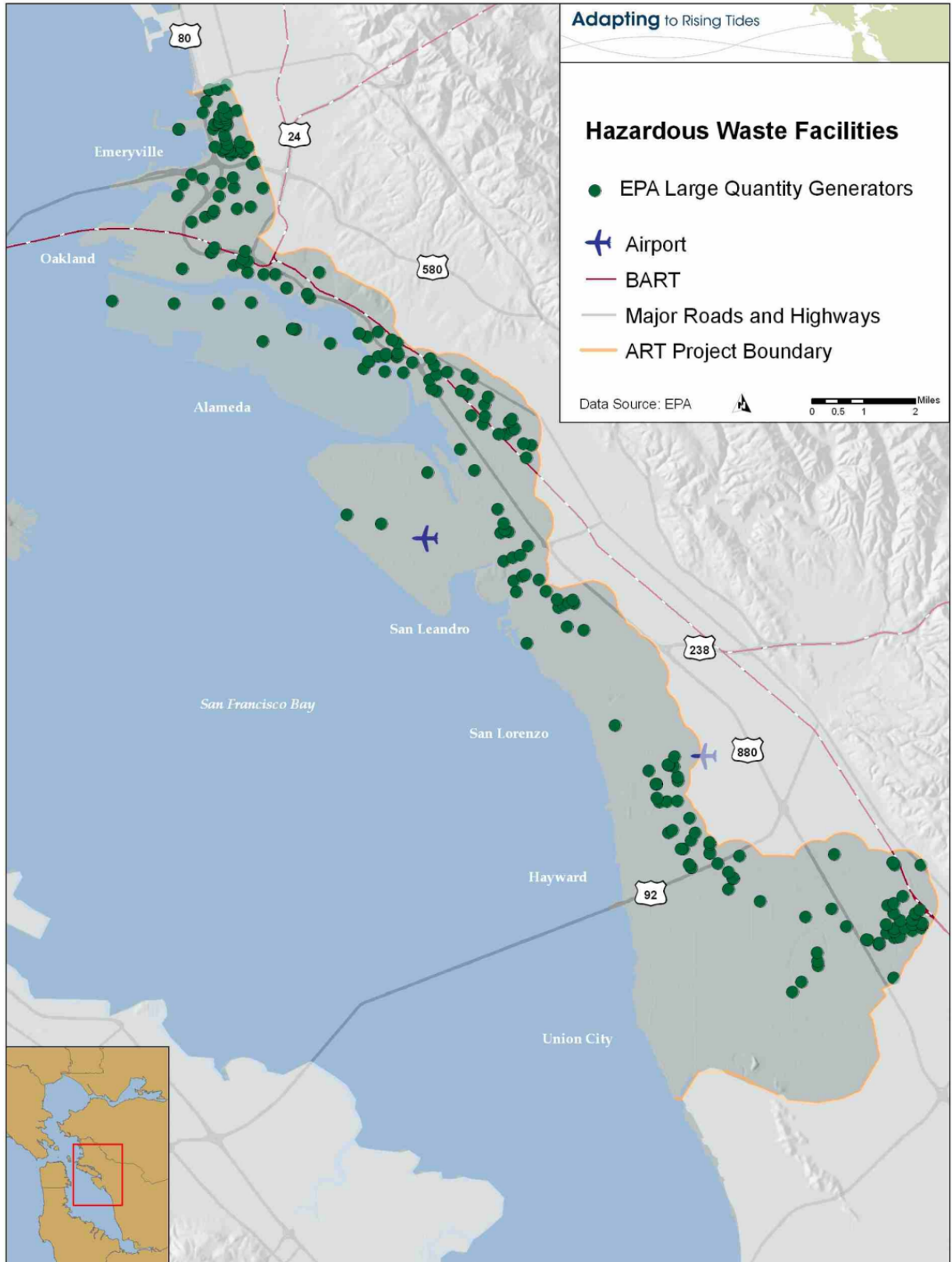
### III. Ownership

Preliminary data provided by project partners indicates that the vast majority of the facilities are privately owned.

### IV. Governance

At the federal, state, and local levels, there are regulations, policies, and programs that manage hazardous waste/hazardous materials and associated facilities. The US EPA maintains federal oversight over hazardous wastes through the Resource Conservation and Recovery Act (RCRA). At the state level, the Department of Toxic Substance Control (DTSC) and the State Water Resources Control Board are the US EPA’s partners for the management of hazardous waste. At the local level, the Alameda County Environmental Health Department, the Hayward City Fire Department, the Oakland City Department, the City of San Leandro, and the Union City Environmental Program are the Certified Unified Program Agencies (CUPAs) that are authorized to carry out several of the hazardous materials regulatory programs administered by state and local government agencies.

**Figure 1. Map of RCRA Large Quantity Generator (LQG) Hazardous Waste Facilities**



Federal

The US EPA’s RCRA provides guidelines for the federal waste management program. RCRA is implemented through Title 40, CFR Part 260, Subtitle C. It contains a mandate directing the US EPA to craft regulations to implement the law and allows for both EPA and state partners to enforce the regulations. RCRA applies to the generation, transportation, storage, treatment, and disposal of hazardous waste. It regulates the following types of facilities (US EPA, 2011):

- “Generators”—individuals or facilities whose processes or actions lead to the creation of hazardous waste. Large Quantity Generators (LQGs) generate 1,000 kilograms per month or more of hazardous waste, or more than 1 kilogram per month of acutely hazardous waste. Small Quantity Generators (SQG) generate more than 100 kilograms, but less than 1,000 kilograms, of hazardous waste per month. Conditionally Exempt SQGs( generate 100 kilograms or less per month of hazardous waste, or 1 kilogram or less per month of acutely hazardous waste.
- “Treatment”—facilities that change the physical, chemical, or biological characteristics of a waste to minimize its threat to the public and the environment. These facilities are referred to as treatment, storage, and disposal (TSD) sites.
- “Transporters”—facilities or entities that move waste from site to another via roadways, rail, water, or air.

According to the US EPA’s Envirofacts, the following RCRA facilities are located in the ART project area:

- 86 LQGs (example: Applied Biosystems, LLC, Davis Street Transfer Station).
- 12 SQGs (example: Pacific Motor Trucking Co., Port of Oakland Construction Dept.).
- 1 TSD facility.
- 81 Transporters (example: Abley Transportation Inc).



**Hazardous wastes are defined and regulated by the Resource Conservation and Recovery Act, known as RCRA.** Source: [www.fedcenter.gov/resources/facilitytour/hazardous/whatis/](http://www.fedcenter.gov/resources/facilitytour/hazardous/whatis/)



**Hazardous materials facilities may include research laboratories, hospitals, manufacturing/industrial facilities, and automotive repair shops.** Source: [www.wired.com/wiredscience/tag/sustainability/page/2/](http://www.wired.com/wiredscience/tag/sustainability/page/2/).

In regulatory terms, a RCRA hazardous waste can fall into one of two categories: “Listed” or “Characteristic.” The four RCRA lists are as follows (DTSC, 2010):

- The **F list** (non-specific-source wastes) contains material from common manufacturing and industrial processes.
- The **K list** (source-specific wastes) is for material from specific industries such as petroleum refining and pesticide manufacturing.
- The **P and U lists** (discarded commercial chemical products) contain information on material that will be used and then discarded.
- Finally, the **M list** (discarded mercury-containing wastes) lists wastes that contain mercury.

Waste substances may also be hazardous if they are toxic, reactive, ignitable, or corrosive (DTSC, 2010).

## State

DTSC and the State Water Resources Control Board are the US EPA’s partners for the management of hazardous waste. DTSC is tasked with both regulating existing hazardous materials facilities and cleaning up contaminated sites. CalEPA oversees the local CUPAs, but the other state agencies involved in the oversight of the CUPAs are Department of Toxic Substance Control, the California Emergency Management Agency (CalEMA), the Office of the State Fire Marshall, and the State Water Resources Control Board.

DTSC and the US EPA jointly require that certain RCRA generators—as well as facilities that treat, store, and dispose of hazardous materials—report their hazardous material activities through annual facility reports.

The regulations dealing with hazardous waste are found in the Health and Safety Code Section 25100 and Title 22 CCR. The state has a slightly broader definition of hazardous waste than the US EPA. For example, the state considers used oil to be a hazardous waste, while the US EPA does not.

Local CUPAs consolidate the administration, permits, inspections, and enforcement activities of the following six programs that are listed below. As mentioned above CUPAs, are the local agencies that are authorized to implement state hazardous materials programs and regulations for five different state agencies. The CUPA program elements are listed below:

- **Hazardous Materials Release Response Plan and Inventory.** This program requires businesses that handle hazardous materials above 55 gallons, 500 pounds, or 200 cubic feet of gas to develop a business plan which inventories their hazardous materials, create a map, develop an emergency response plan, and implement a training program for employees. CalEMA provides support for this program.
- **California Accidental Release Program (CalARP).** This program aims to prevent the release of substances that can cause harm to the public and the environment. CalARP requires the development of a Risk Management Plan (RMP). CalEMA provides support for this program.
- **Underground Storage Tank Program.** A UST is a tank and connected pipes, used to store hazardous substances, which is beneath the surface of the ground. The purpose of the UST Program is to protect the public and the environment from releases of petroleum and other hazardous substances from tanks. The four program elements are leak prevention, cleanup, enforcement, and tank tester licensing. The State Water Resources Control Board provides technical assistance and evaluation for the UST program.
- **Aboveground Petroleum Storage Act.** An aboveground storage tank is a tank that stores petroleum above ground. The act requires CUPA staff to inspect tanks with more than 55 gallons of petroleum at least every three years. In addition, the act requires the owner of any tank with over 1,320 gallons of petroleum to prepare and implement a Spill Prevention Plan consistent with federal regulations. The State Water Resources Control Board provides technical assistance and evaluation for the aboveground storage tank program.
- **Hazardous Waste Generator and Onsite Hazardous Waste Treatment Programs.** DTSC provides technical assistance and evaluation for the hazardous waste generator program.
- **California Fire Code: Hazardous Materials Management Plans/ Hazardous Materials Inventory Statements (HMMP/HMIS).** The Plans are similar to the Business Plans and to the extent possible they have been merged. The main goal of the statute and regulations is to increase communication, coordination, and consistency / consolidation. The Office of the State Fire Marshal provides support for this program.

## V. Existing Stressors

The initial emergency response to accidents at facilities is largely the responsibility of local fire departments and to some extent CalEMA. The limited capacity to respond in a flood with multiple impacts in different locations could be challenging for emergency responders, who need to respond to all incidents and to effectively prioritize facilities to visit/monitor.

A major seismic event could lead to a similar situation wherein emergency responders are overwhelmed by the multitude of impacts in an array of locations. In both flood and seismic events, emergency responders may be overwhelmed by other priorities beyond those associated with hazardous waste facilities.

Other stressors include the limited resources for the upgrades and improvements to hazardous waste facilities. Finally, the complexity of agencies with oversight of hazardous materials facilities could serve as a barrier to an efficient and prioritized response in the event of a hazard release.

## VI. Economy

As hazardous materials facilities often occur within existing businesses, they are a source of jobs and tax revenues, and are generally a byproduct of or essential components of economic activity. In addition, staff from local, state, and federal agencies are employed in the management and regulation of hazardous facilities. In the event of an accident at a facility, there could be immediate and long-term negative economic impacts due to loss of jobs or tax revenues, or the cost and liability associated with cleanup.

## VII. Equity

There tend to be more hazardous materials facilities in areas where industrial activities and manufacturing takes place. These sites tend to have a higher than average proportion of low-income residents in adjacent areas. Therefore, such residents are more likely to be affected by the ongoing operation of hazardous materials facilities and in the event of an accident.

## VIII. Governance

As noted above, the governance of hazardous materials is complex and is overseen by an array of agencies at the federal, state, and local levels. It is further complicated by the fact that each program has slightly different regulations and capacity/resources.

## IX. Environment

While the risk associated with hazardous waste is reduced through the array of local, state, and federal programs, hazardous waste still poses a potential threat to the public and the environment. In the event of an accident, there could be immediate and long-term impacts upon local communities, natural resources, and groundwater resources.

## References

Alameda County Hazardous Material/Waste Program (CUPA).

<http://www.acgov.org/aceh/hazard/>

California Department of Toxic Substance Control.

[http://www.dtsc.ca.gov/HazardousWaste/index.cfm#Treatment,\\_Storage\\_and\\_Disposal\\_Facility\\_Information](http://www.dtsc.ca.gov/HazardousWaste/index.cfm#Treatment,_Storage_and_Disposal_Facility_Information)

California Environmental Protection Agency. <http://www.calepa.ca.gov/cupa/default.htm>

California Emergency Management Agency.

<http://www.calema.ca.gov/HazardousMaterials/Pages/Hazardous-Materials.aspx>

Environmental Protection Agency. <http://www.epa.gov/waste/hazard/index.htm>

State of California Fire Marshall-CUPA. <http://osfm.fire.ca.gov/cupa/hhmp-hmis.php>