12. Hazards and Hazardous Materials

This chapter describes the regulatory framework and existing hazards, hazardous materials, and airport safety operations in Livermore. This chapter uses the term "Livermore" to cover the City of Livermore together with the immediately surrounding area within the Urban Growth Boundary (UGB) and Sphere of Influence (SOI). See the Introduction for more information on these boundaries.

12.1 REGULATORY FRAMEWORK

12.1.1 FEDERAL REGULATIONS

This section describes federal regulations related to hazards and hazardous materials in Livermore.

12.1.1.1 UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

The United States Environmental Protection Agency (USEPA) is the primary federal agency that regulates hazardous materials and waste. In general, the USEPA works to develop and enforce regulations that implement environmental laws enacted by Congress. The agency is responsible for researching and setting national standards for a variety of environmental programs, delegating the responsibility for issuing permits, and monitoring and enforcing compliance to states and Native American tribes. USEPA programs promote handling hazardous wastes safely, cleaning up contaminated land, and reducing waste volumes through such strategies as recycling. California falls under the jurisdiction of USEPA Region 9. Under the authority of the Resource Conservation and Recovery Act (RCRA) and in cooperation with State and tribal partners, the USEPA Region 9 Waste Management and Superfund Divisions manage programs for site environmental assessment and cleanup, hazardous and solid waste management, and underground storage tanks.

12.1.1.2 UNITED STATES DEPARTMENT OF TRANSPORTATION

The United States Department of Transportation (USDOT) has the regulatory responsibility for the safe transportation of hazardous materials between states and internationally. The USDOT regulations govern all means of transportation, except for those packages shipped by mail, which are covered by United States Postal Service regulations. The federal RCRA of 1976 (described in Section 12.1.1.4) imposes additional standards for the transport of hazardous wastes.

12.1.1.3 OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION

The Occupational Safety and Health Administration (OSHA) requires specific training for hazardous materials handlers, provision of information to employees who may be exposed to hazardous materials, and acquisition of material safety data sheets from materials manufacturers. The material safety data sheets describe the risks, as well as proper handling and procedures, related to specific hazardous

materials. Employee training must include response and remediation procedures for hazardous materials releases and exposures.

12.1.1.4 RESOURCE CONSERVATION AND RECOVERY ACT OF 1976, AS AMENDED BY THE HAZARDOUS AND SOLID WASTE AMENDMENTS OF 1984

Federal hazardous waste laws are generally promulgated under the RCRA, as amended by the Hazardous and Solid Waste Amendments of 1984. These laws provide for the "cradle to grave" regulation of hazardous wastes. Any business, institution, or other entity that generates hazardous waste is required to identify and track its hazardous waste from the point of generation until it is recycled, reused, or disposed. The Department of Toxic Substance Control (DTSC) is responsible for implementing the RCRA program as well as California's own hazardous waste laws, which are collectively known as the Hazardous Waste Control Law.

12.1.1.5 COMPREHENSIVE ENVIRONMENTAL RESPONSE, COMPENSATION, AND LIABILITY ACT AND THE SUPERFUND AMENDMENTS AND REAUTHORIZATION ACT OF 1986

Congress enacted the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), commonly known as "Superfund," on December 11, 1980. CERCLA established prohibitions and requirements concerning closed and abandoned hazardous waste sites; provided for liability of persons responsible for releases of hazardous waste at these sites; and established a trust fund to provide for cleanup when no responsible party could be identified. The Superfund Amendments and Reauthorization Act (SARA) amended the CERCLA on October 17, 1986. SARA stressed the importance of permanent remedies and innovative treatment technologies in cleaning up hazardous waste sites; required Superfund actions to consider the standards and requirements found in other State and federal environmental laws and regulations; provided new enforcement authorities and settlement tools; increased State involvement in every phase of the Superfund program; increased the focus on human health problems posed by hazardous waste sites; encouraged greater citizen participation in making decisions on how sites should be cleaned up; and increased the size of the trust fund to $8.5 billion.

12.1.1.6 EMERGENCY PLANNING COMMUNITY RIGHT-TO-KNOW ACT

The Emergency Planning Community Right-to-Know Act (EPCRA), also known as SARA Title III, was enacted in October 1986. This law requires State and local governments to plan for chemical emergencies. Reported information is then made publicly available so that interested parties may become informed about potentially dangerous chemicals in their community. EPCRA Sections 301 through 312 are administered by USEPA's Office of Emergency Management. USEPA's Office of Information Analysis and Access implements the EPCRA Section 313 program. In California, SARA Title III is implemented through California Accidental Release Prevention (CalARP) program.

12.1.1.7 HAZARDOUS MATERIALS TRANSPORTATION ACT

The USDOT regulates hazardous materials transportation under Title 49 of the Code of Federal Regulations. State agencies that have primary responsibility for enforcing federal and State regulations and responding to hazardous materials transportation emergencies are the California Highway Patrol (CHP) and the California Department of Transportation (Caltrans). The California State Fire Marshal's Office has oversight authority for hazardous materials liquid pipelines. The California Public Utilities Commission has oversight authority for natural gas pipelines in California. These agencies also govern permitting for hazardous materials transportation.

12.1.1.8 FEDERAL RESPONSE PLAN

The Federal Response Plan of 1999 is a signed agreement among 27 federal departments and agencies and other resource providers, including the American Red Cross, that: (1) provides the mechanism for coordinating delivery of federal assistance and resources to augment efforts of State and local governments overwhelmed by a major disaster or emergency; (2) supports implementation of the Robert T. Stafford Disaster Relief and Emergency Act, as well as individual agency statutory authorities; and (3) supplements other federal emergency operations plans developed to address specific hazards. The Federal Response Plan is implemented in anticipation of a significant event likely to result in a need for federal assistance or in response to an actual event requiring federal assistance under a Presidential declaration of a major disaster or emergency. The Federal Response Plan is part of the National Response Framework, which was most recently updated on March 22, 2008.

12.1.1.9 THE STAFFORD ACT

The Robert T. Stafford Disaster Relief and Emergency Assistance Act (Stafford Act) of 1988 authorizes federal government assistance for emergencies and disasters when state and local capabilities are exceeded. The Stafford Act forms the statutory authority for most federal disaster response activities, especially as they relate to the Federal Emergency Management Agency (FEMA) and FEMA programs.

12.1.1.10 THE DISASTER MANAGEMENT ACT

The Disaster Management Act (DMA) of 2000 shifts federal emphasis toward planning for disasters before they occur. The DMA requires state and local governments to develop hazard mitigation plans and update them every five years as a condition of federal disaster grant assistance. The DMA encourages cooperation among state and local authorities in pre-disaster planning through the preparation of local hazard mitigation plans. The DMA also promotes sustainability in hazard mitigation. To be sustainable, hazard mitigation needs to incorporate sound management of natural resources and address hazards and mitigation in the largest possible social and economic context. Funding under the Stafford Act requires a current hazard mitigation plan.

12.1.1.11 NATIONAL RESPONSE FRAMEWORK

The 2016 National Response Framework, published by the United States Department of Homeland Security, is a guide for the nation to respond to all types of disasters and emergencies. This framework describes specific authorities and best practices for managing incidents that range from serious local or

large-scale terrorist attacks or catastrophic natural disasters. In addition, the 2016 National Response Framework describes the principles, roles, and responsibilities, and coordinating structures for responding to an incident, and further describes how response efforts integrate with those of the other mission areas.

12.1.2 STATE REGULATIONS

This section describes state regulations related to hazards and hazardous materials in Livermore.

12.1.2.1 CALIFORNIA ENVIRONMENTAL PROTECTION AGENCY

One of the primary state agencies that regulate hazardous materials is the CalEPA. CalEPA is authorized by the USEPA to enforce and implement certain federal hazardous materials laws and regulations. The California DTSC, a department of the CalEPA, protects California and its residents from exposure to hazardous waste, primarily under the authority of the RCRA and the California Health and Safety Code.[1] The DTSC requirements include the need for written programs and response plans, such as Hazardous Materials Management Plans. The DTSC programs include dealing with aftermath clean-ups of improper hazardous waste management, evaluation of samples taken from sites, enforcement of regulations regarding use, storage, and disposal of hazardous materials, and encouragement of pollution prevention.

12.1.2.2 CALIFORNIA DIVISION OF OCCUPATIONAL SAFETY AND HEALTH

Like OSHA at the federal level, the California Division of Occupational Safety and Health (CalOSHA) is the responsible state-level agency for ensuring workplace safety. The CalOSHA assumes primary responsibility for the adoption and enforcement of standards regarding workplace safety and safety practices. If a work site is contaminated, a Site Safety Plan must be crafted and implemented to protect the safety of workers. Site Safety Plans establish policies, practices, and procedures to prevent the exposure of workers and members of the public to hazardous materials originating from the contaminated site or building.

12.1.2.3 CALIFORNIA OFFICE OF EMERGENCY SERVICES

The California Office of Emergency Services (Cal OES) was established as part of the Governor's Office on January 1, 2009. It was created pursuant to Assembly Bill 38, which merged the duties, powers, purposes, and responsibilities of the former Governor's Emergency Management Agency with those of the Governor's Office of Homeland Security. Cal OES is responsible for the coordination of overall State agency response to major disasters in support of local government. The agency is responsible for ensuring the State's readiness to respond to and recover from all hazards—natural, manmade, emergencies, and disasters—and for assisting local governments in their emergency preparedness, response, recovery, and hazard mitigation efforts.

[1] Hazardous Substance Account, Chapter 6.5 (Section 25100 et seq.) and the Hazardous Waste Control Law, Chapter 6.8 (Section 25300 et seq.) of the Health and Safety Code.

12.1.2.4 CALIFORNIA DEPARTMENT OF TRANSPORTATION AND CALIFORNIA HIGHWAY PATROL

Caltrans and the CHP are the two State agencies that have primary responsibility for enforcing federal and state regulations and responding to hazardous materials transportation emergencies. Caltrans manages more than 50,000 miles of California's highways and freeways, provides intercity rail services, permits more than 400 public-use airports and special-use hospital heliports, and works with local agencies. Caltrans is also the first responder for hazardous material spills and releases that occur on highways, freeways, and intercity rail lines.

The CHP enforces hazardous materials and hazardous waste labeling and packing regulations designed to prevent leakage and spills of materials in transit and to provide detailed information to cleanup crews in the event of an accident. Vehicle and equipment inspection, shipment preparation, container identification, and shipping documentation are all part of the responsibility of the CHP, which conducts regular inspections of licensed transporters to assure regulatory compliance. In addition, the State of California regulates the transportation of hazardous waste originating or passing through the state.

Common carriers are licensed by the CHP, pursuant to Section 32000 of the California Vehicle Code. This section requires licensing every motor (common) carrier who transports, for a fee, more than 500 pounds of hazardous materials at one time and every carrier, if not for hire, who carries more than 1,000 pounds of hazardous material of the type requiring placards. Common carriers conduct a large portion of the business in the delivery of hazardous materials.

12.1.2.5 CALIFORNIA BUILDING CODE

The State of California provided a minimum standard for building design through the California Building Code (CBC), which is found in Title 24, Part 2 of the California Code of Regulations. The CBC is updated every three years. It is generally adopted on a jurisdiction-by-jurisdiction basis and may be subject to further modification based on local conditions. Commercial and residential buildings are plan-checked by local city and county building officials for compliance with the typical fire safety requirements of the CBC, including the installation of sprinklers in all high-rise buildings; the establishment of fire resistance standards for fire doors and building materials; and the clearance of debris and vegetation near occupied structures in wildfire hazard areas. The City of Livermore regularly adopts each new CBC update under the Livermore Municipal Code (LMC) Chapter 15.02.

12.1.2.6 CALIFORNIA HEALTH AND SAFETY CODE

California Health and Safety Code Chapter 6.95 and California Code of Regulations Title 19, Section 2729 set out the minimum requirements for business emergency plans and chemical inventory reporting. These regulations require businesses to provide emergency response plans and procedures, training program information, and a hazardous material chemical inventory disclosing hazardous materials stored, used, or handled on-site. A business which uses hazardous materials or a mixture containing hazardous materials must establish and implement a management plan if the hazardous material is handled in certain quantities.

12.1.3 REGIONAL REGULATIONS

This section describes regional regulations related to hazards and hazardous materials in the SOI.

12.1.3.1 2018 TRI-VALLEY LOCAL HAZARD MITIGATION PLAN

The Tri-Valley Hazard Mitigation Plan (TVHMP) includes policies, programs, and projects to alleviate hazards and disasters within the cities of Dublin, Livermore, Pleasanton, and Dublin-San Ramon Services District (Tri-Valley region).[2] As part of the TVHMP, a hazard risk assessment was conducted for the region, including human-caused hazards. Hazard mitigation principles, goals, and objectives were developed as well as a mitigation action plan designed to reduce or eliminate losses resulting from natural and human-caused disasters. The federal Disaster Management Act requires a local hazard mitigation plan to be updated every five years. Update of the 2018 TVHMP is scheduled to begin in 2022 with completion anticipated by spring 2023.

12.1.3.2 2012 ALAMEDA COUNTY EMERGENCY OPERATIONS PLAN

The Alameda County Emergency Operation Plan includes policies and procedures that determines how Alameda County will prepare for, respond to, recover from, and mitigate for natural or human-created disasters. This plan includes emergency management organization and their subsequent activation thresholds. There are four overarching priorities permeated throughout the plan: save lives, protect health and safety, protect property, and preserve the environment.

12.1.4 LOCAL REGULATIONS

This section describes local regulations related to hazards and hazardous materials in Livermore.

12.1.4.1 LIVERMORE 2003-2025 GENERAL PLAN

The Livermore 2003-2025 General Plan contains goals, objectives, policies, and actions related to hazards and hazardous material in the Public Safety (PS) Element. Table 12-1 includes the goals from the Public Safety Element and summarizes the policy topics under each goal. As part of the General Plan Update, it is likely that some existing General Plan goals, policies, and actions could be amended, substantially changed, or new policies could be added.

[2] City of Livermore, Dublin, Pleasanton, and Dublin-San Ramon Services District, 2018. *Tri-Valley Local Hazard Mitigation Plan*, prepared by Tetra Tech. Dated September 2018.

TABLE 12-1 LIVERMORE 2003-2025 GENERAL PLAN GOALS RELEVANT TO HAZARDS

Goal No.	Description
PS-4	**Protect the community from the harmful effects of hazardous materials.** Polices and Actions under Goal PS-4 protect Livermore residents from the harmful effects of hazardous materials
PS-5	**Minimize risks associated with aircraft operations at the Livermore Municipal Airport**. Polices and actions under Goal PS-5 include minimizing risk associated with the operations of the Livermore Municipal Airport.
PS-6	**Prepare Livermore for emergencies**. Policies and Actions under Goal PS-6 include preparing and maintaining emergency procedures, drills, and supplies.
PS-7	**Through community partnerships, adopt and periodically update a local hazard mitigation plan consistent with the federal Disaster Management Act of 2000 to reduce the vulnerability to hazards in order to protect the health, safety, welfare, environment, and economy of Livermore and the Tri-Valley area**. Polices and Actions under Goal PS-7 include considering hazards in land use decisions; improving emergency communications; promoting community awareness of hazards; reducing community exposure to hazards; and increasing resilience to hazards.

Source: 2003-2025 Livermore General Plan

12.1.4.2 LIVERMORE MUNICIPAL CODE

In addition to the General Plan, the Livermore Municipal Code (LMC) regulates hazards and the use of hazardous materials in the city. The LMC identifies regulations and general provisions to reduce the impact hazards and hazardous materials have in the City Limits. The provisions related to Hazards, Hazardous Materials, and the Livermore Municipal Airport from the LMC Include:

- Chapter 11.04, Airport Improvements and Revenue Financing, includes provisions for the financing and implementation of capital improvements to the Livermore Municipal Airport.
- Chapter 11.08, Airport Rules and Regulations, set policies to manage the Livermore Municipal Airport.
- Chapter 16.04, Hazardous Materials Release and Response Plans, authorizes the City of Livermore to implement Chapter 6.95 of Division 20 of the California Health and Safety Code, related to hazardous materials release plans and inventory. It relinquishes the County from that task for the city to do so; the Livermore fire department is the designated administering agency to implement this chapter of the California Health and Safety Code.
- Chapter 16.06, Underground Storage Tanks and Hazardous Waste, authorizes the City of Livermore to assume enforcement responsibility related to the regulation of underground storage of hazardous materials. The Livermore Pleasanton Fire Department administers this program.

12.1.4.3 CITY OF LIVERMORE 2018 EMERGENCY OPERATIONS PLAN

The 2018 Livermore Emergency Operations Plan (EOP) establishes the City's emergency management approach to reduce vulnerabilities to both natural and human-made disasters. The EOP provides basic guidance related to disaster recovery from earthquakes and geological hazards, flooding and storms, wildland and urban fires, landslides, dam failure inundation, hazards materials and waste, agricultural emergency and drought, energy disruption, mass casualty transportation incident, severe weather, terrorist attack and cyberterrorism, public health emergency, civil unrest and riots, and pipeline hazards. The City of Livermore does have a disaster preparedness manager responsible for preparation of the emergency operations plan. Responsibility for preparation and response to a disaster is undertaken by a

multi-agency or inter-agency coordinated effort that consists of the Livermore Police Department, Livermore-Pleasanton Fire Department, and the Public Works Department with response departments from other local jurisdictions.

12.1.4.4 LIVERMORE MUNICIPAL AIRPORT LAND USE COMPATIBILITY PLAN

The 2012 Livermore Municipal Airport Land Use Compatibility Plan (ALUCP) ensures the compatibility between the airport and surrounding land uses. The Livermore Municipal Airport is entirely within the City Limits. The document guides the Alameda County Airport Land Use Committee review of airport and land use development proposals within the airport influence area or referral area associated with the airport. This plan coordinates planning at the state, regional, and local levels to provide for the orderly development of air transportation, while protecting the public health, safety, and welfare of residents.

12.2 EXISTING CONDITIONS

12.2.1 HAZARDOUS MATERIALS SITES

California Government Code Section 65962.5 requires CalEPA to compile, maintain, and update lists of hazardous material release sites. The California Environmental Quality Act (CEQA) requires the lead agency to consult the lists compiled pursuant to California Government Code Section 65962.5 to determine whether a project or any alternatives are identified on any of the following lists:

- USEPA NPL. The USEPA's National Priorities List (NPL) includes all sites under the USEPA's Superfund program, which was established to fund the cleanup of contaminated sites that pose risks to human health and the environment.
- USEPA CERCLIS and Archived Sites. The USEPA's Comprehensive Environmental Response, Compensation, and Liability Information System (CERCLIS) includes a list of 15,000 sites nationally identified as hazardous sites. This would also involve a review for archived sites that have been removed from CERCLIS due to "No Further Remedial Action Planned" status.
- USEPA RCRIS (RCRA Info). The Resource Conservation and Recovery Act Information System (RCRIS or RCRA Info) is a national inventory system about hazardous waste handlers. Generators, transporters, handlers, and disposers of hazardous waste are required to provide information for this database.
- DTSC Cortese List. The DTSC maintains the Hazardous Waste and Substances Sites (Cortese) list as a planning document for use by State and local agencies to comply with the CEQA requirements in providing information about the location of hazardous materials release sites. This list includes the Site Mitigation and Brownfields Reuse Program Database.
- DTSC HazNet. The DTSC uses this database to track hazardous waste shipments.
- SWRCB LUSTIS. Through the Leaking Underground Storage Tank Information System (LUSTIS), the State Water Resources Control Board (SWRCB) maintains an inventory of Underground Storage Tanks (USTs) and leaking USTs (LUST), which tracks unauthorized releases.

The required lists of hazardous material release sites are commonly referred to as the "Cortese List," named after the legislator who authored the legislation. Because the statute was enacted more than 20 years ago, some of the provisions refer to agency activities that were conducted many years ago and are no longer being implemented, and, in some cases, the information required in the Cortese List does not exist. Those requesting a copy of the Cortese Lists are now referred directly to the appropriate information resources contained on internet websites hosted by the boards or departments referenced in the statute, including DTSC's online EnviroStor database and the SWRCB's online GeoTracker database. These two databases include hazardous material release sites, along with other categories of sites or facilities specific to each agency's jurisdiction. The hazardous materials sites listed in this chapter are therefore gathered from the online EnviroStor and GeoTracker databases.

12.2.2 HAZARDOUS MATERIAL SITE AND STATUS TYPES

As noted previously, hazardous materials sites are documented on the DTSC's online EnviroStor and the SWRCB's online GeoTracker databases. Each site is identified by name, address, site type, and status. There are two primary types of hazardous material sites- permitted and cleanup sites.

A site that is used to operate a business which must, by nature of the business, store, treat, or dispose of hazardous materials, must obtain a permit or a grant of authorization from the DTSC. Such sites in the state are regulated through a five-tiered permitting program that enforces regulatory requirements imposed upon each category of hazardous material site. The permit ensures that any business that handles hazardous materials does so in compliance with the federal RCRA and the state-adopted regulations to ensure hazardous materials are not released into the environment.

In cases where the storage, treatment, or disposal of hazardous materials has resulted in those hazardous materials being released into the environment, extensive investigation and cleanup actions are required. The USEPA, DTSC, SWRCB, and any other applicable agency, actively conduct investigations into hazardous material sites to monitor the potential release of hazardous materials into the environment. When a release is identified, these agencies direct and supervise cleanup activities to ensure the hazardous materials are satisfactorily removed from the site and no longer pose a danger to the public or the environment.

The listing of status types is the mechanism by which the DTSC and the SWRCB identify their involvement at each site, the status of cleanup activities, and whether the cleanup is active or complete. Status types are also an important tool for jurisdictions to understand where there are sites actively undergoing cleanup of a hazardous material that may pose a hazard to the public or the environment. Status types that identify active and ongoing cleanup activities in the General Plan SOI include:

- Active: Identifies that an investigation and/or remediation is currently in progress and that DTSC is actively involved.
- Certified O & M- Land Use Restriction Only: Identifies sites where a remedy is implemented which results in hazardous substances remaining at the site at concentrations above those acceptable.
- Inactive- Needs Evaluation: Identifies non-active sites where DTSC has determined an evaluation is required.

- Open: Active site with the RWQCB and the property/owner may upload data/files to GeoTracker. Sites that are open may have multiple investigations. A site is closed when data can no longer be uploaded since investigation/cleanup is done and there is no more regulatory oversight.
- Open – Operating: An active clean up that may still be operation with a permit.
- Open – Eligible for Closure: A request for closure has been requested meaning the extent of contamination has been defined, source areas, exposure pathways have been identified, cleanup has occurred if needed, post cleanup confirmation sampling, and a closure report submitted.
- Open – Site Assessment: The extent of soil and groundwater contamination being defined.
- Open- Assessment & Interim Remedial Action: An interim remedial action is occurring at the site simultaneously with other activities such as site characterization, investigation, risk evaluation, or site conceptual model development.
- Open - Inactive: Means no regulatory oversight activities are being conducted.
- Open - Remediation- Land Use Restrictions: Identifies sites for which approved remedies have been selected and that the remedies have been started and includes remedies that are both passive and active.
- Open - Verification Monitoring: Refers to sites where the remediation phases are essentially complete, and a monitoring/sampling program is occurring to confirm successful completion of the cleanup activities.
- Refer: Identifies sites that DTSC referred to other agencies for investigation, which often includes the Regional Water Quality Control Board (RWQCB) or local jurisdictions.

12.2.3 EXISTING HAZARDOUS MATERIAL SITES IN LIVERMORE

A search of the online databases on September 21, 2021, identified eight EnviroStor and 34 GeoTracker sites which have not been fully remediated or had their cases closed. The complete list and location of active cleanup sites within Livermore is shown in Table 12-2 and shown in Figure 12-1. Because of duplication between the EnviroStar and GeoTracker sites, there are a total 44 hazardous sites being tracked by state agencies.

According to EnviroStor, there are a variety of site types with various clean up statuses. There are two-tiered permit projects that are inactive and need evaluation. Additionally, two sites have been referred to the RWQBs and the DTSC's Site Mitigation and Brownfield Reuse Program (SMBRP) for cleanup and closure. Per GeoTracker, most sites are labeled as cleanup program sites and are in varying statuses (i.e., site assessment, inactive, remediation, and verification monitoring).

Livermore includes the active Livermore Oil Field in the eastern portion of Livermore, east of Greenville Road and south of Interstate (I-) 580, and the abandoned Hospital Nose Gas Field located along the

southern edge of the city between Wetmore Road and Arroyo Road.[3][4] Both sites are shown on Figure 12-2, Oil and Natural Gas Fields. Geotracker tracks both sites. Active and abandoned oil and natural gas fields tend to be large and complex sites that can present unique and specific planning challenges.

The Local Oversight Program/Voluntary Remedial Action Program group within the Alameda County Department of Environmental Health (ACDEH) is responsible for regulatory oversight of site investigation and cleanup activities for the Livermore Oil Field. ACDEH has worked with the E&B Natural Resources, the owners of the facility, to create a work plan to monitor the site. The Livermore Oil Field contained an oil storage tank that leaked. Soil contamination with petroleum hydrocarbon to approximately 15 feet below ground surface (bgs) was observed via soil well sampling.[5] The observed soil contamination compounds were not detected at concentrations above the reporting limit in soil samples collected below a depth of 15 feet bgs. In 2015, E&B Natural Resources, as part of their work plan with ACDEH, installed monitoring wells and analyzed samples revealing that the groundwater has not been impacted from the crude oil stock tank release. Based on the absence of soil contamination below a depth of approximately 15 feet bgs and other factors (e.g., grab groundwater testing), the release from the stock tank does not pose a threat to water supply wells or groundwater resources in the area. .

In addition, research indicates some oil wells are a major source of methane emissions.[6] Though there has been no investigation for methane in shallow soil in this area, it is important to note this possible source of contamination from abandoned wells for future development.

Information on the Hospital Nose Gas Field is much more limited; the SWRCB determined that groundwater contamination from the field is unlikely to occur.[7]

Figure 12-3 shows the pollution burden for Livermore relative to California per the CalEnviroScreen (CES) 3.0 database. The pollution burden score considers the following factors:

- Exposures
  - Ozone concentrations
  - PM2.5 Concentrations
  - Diesel PM emissions
  - Pesticide Use
  - Drinking water contaminants
  - Toxic releases from facilities

[3] California Department of Conservation, California Geologic Energy Management Division, 2020, 2019 Annual Report of the State Oil and Gas Supervisor, October 2020.

[4] California Department of Conservation, California Geologic Energy Management Division, 2021, WellFinder website https://maps.conservation.ca.gov/doggr/wellfinder/#openModal/-121.70805/37.67235/13. Accessed September 17, 2021.

[5] State Water Resources Control Board, GeoTracker, Case Summary. Available online: https://geotracker.waterboards.ca.gov/case_summary?global_id=T10000007269

[6] Townsend-Small, Amy, and Jacob Hoschouer, 2021."Direct measurements from shut-in and other abandoned wells in the Permian Basin of Texas indicate some wells are a major source of methane emissions and produced water" in *Environmental Research Letters* 16 (5). https://iopscience.iop.org/article/10.1088/1748-9326/abf06f. Accessed October 1, 2021.

[7] State Water Resources Control Board, August 11, 2021. SWRCB comments, Livermore Oil Field Aquifer Exemption

    - Traffic density

- Environmental effects
    - Cleanup sites
    - Groundwater threats
    - Hazardous waste
    - Impaired water bodies
    - Solid waste sites and facilities
    - Poverty
    - Unemployment

The Pollution Burden score is calculated by averaging the score of the Environmental Effects and Exposure factors and assigning a percentile ranking by Census tract; CES weights the Environmental Effects by half because it considers Environmental Effects to contribute to pollution to a smaller degree compared to the Exposure factors. The higher percentile value indicates a greater Pollution Burden.

The highest cumulative pollution burden score in Livermore is in the Census tract at the far eastern City Limits and extends to the Alameda County line north, east, and south of Livermore. The pollution burden in this large Census tract reflects contaminated waterways and groundwater, hazardous material sites, and solid waste sites. This Census tract has a higher pollution burden than 93 percent of the Census tracts in California.

TABLE 12-2 HAZARDOUS MATERIAL SITES IN LIVERMORE

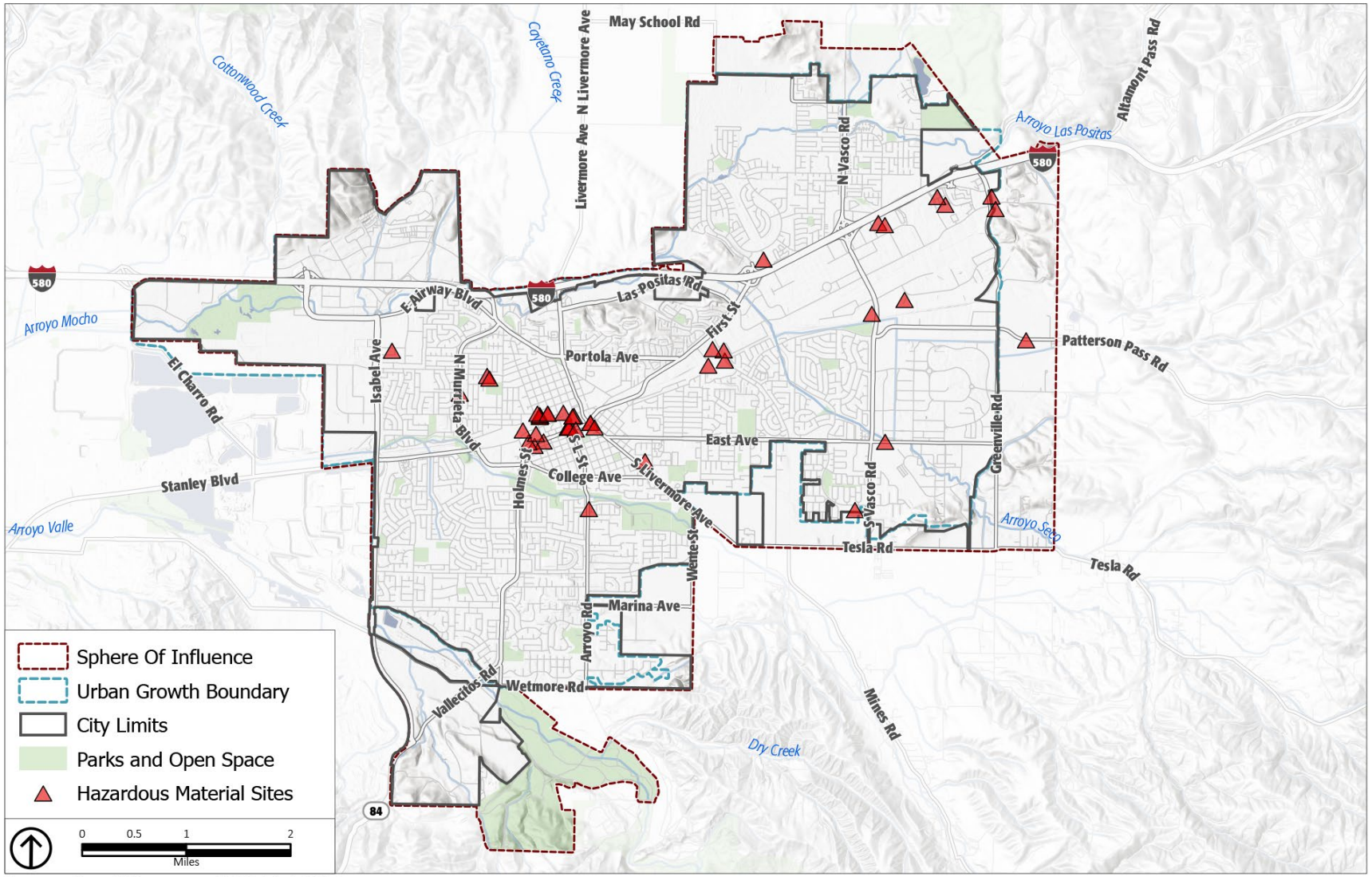
Map ID	Site Name	Address	Site Type	Cleanup Status
Envirostor				
1	CHESTNUT STREET (LIVERMORE)	1625 & 1635 CHESTNUT STREET	EVALUATION	REFER: LOCAL AGENCY
2	FORM FACTOR, INC.	7545 LONGARD AVENUE	TIERED PERMIT	INACTIVE - NEEDS EVALUATION
3	FORMFACTOR, INC.	501 LAWRENCE DR	TIERED PERMIT	INACTIVE - NEEDS EVALUATION
4	HEXCEL CORPORATION	10 TREVARNO ROAD	STATE RESPONSE	REFER: RWQCB
5	LAWRENCE LIVERMORE NATIONAL LAB	7000 EAST AVE	CORRECTIVE ACTION	REFER: SMBRP
6	LIVERMORE ANODIZE	6421 FRONT ROAD #E	TIERED PERMIT	INACTIVE - NEEDS EVALUATION
7	LIVERMORE ARCADE SITE	FIRST STREET & SOUTH P STREET	EVALUATION	REFER: RWQCB
8	LIVERMORE SENIOR HOUSING	EAST OF MURRIETA BLVD.	VOLUNTARY CLEANUP	CERTIFIED / OPERATION & MAINTENANCE - LAND USE RESTRICTIONS
GeoTracker				
9	824 LAS FLORES ROAD	824 LAS FLORES ROAD	* AGLAND DOMESTIC WELL	ACTIVE - AGLAND
10	217 NORTH N STREET	217 NORTH N STREET	CLEANUP PROGRAM SITE	OPEN - REMEDIATION
11	2617 SOUTH VASCO	2617 SOUTH VASCO	CLEANUP PROGRAM SITE	OPEN - INACTIVE
12	ABANDONED DISPOSAL SITE	NORTH MINES ROAD	LAND DISPOSAL SITE	OPEN
13	ALTAMONT LF/RESOURCE RECOVERY	10840 ALTAMONT PASS	LAND DISPOSAL SITE	OPEN - OPERATING
14	ARROW RENTALS	187 NORTH L STREET	LUST CLEANUP SITE	OPEN - ELIGIBLE FOR CLOSURE
15	ARROYO CROSSING	1364 ARROYO ROAD	CLEANUP PROGRAM SITE	OPEN - INACTIVE
16	CARNEGIE SVAA (TESLA MINE)	17999 TESLA	LAND DISPOSAL SITE	OPEN
17	CFN CARDLOCK FACILITY	533 EXCHANGE COURT	LUST CLEANUP SITE	OPEN - SITE ASSESSMENT
18	CHESTNUT SQUARE, FAMILY HOUSING - LONG-TERM MONITORING	1665 CHESTNUT STREET	CLEANUP PROGRAM SITE	OPEN - VERIFICATION MONITORING
19	CHESTNUT SQUARE, SENIOR HOUSING - LONG-TERM MONITORING	1651 CHESTNUT STREET	CLEANUP PROGRAM SITE	OPEN - VERIFICATION MONITORING
20	CHEVRON #30-7233 / MILLS SQUARE PARK	2259 1ST STREET	LUST CLEANUP SITE	OPEN - REMEDIATION
21	FORMER LIVERMORE SEWAGE PONDS	PINE STREET & ALGOQUIN AVENUE	CLEANUP PROGRAM SITE	OPEN - SITE ASSESSMENT
22	GIG FACILITY SOIL CLEANUP	8467 PATTERSON PASS ROAD	CLEANUP PROGRAM SITE	OPEN - VERIFICATION MONITORING
23	GROTH BROTHERS CHEVROLET	57-59 SOUTH L STREET	CLEANUP PROGRAM SITE	OPEN - LONG TERM MANAGEMENT
24	INDUSTRIAL LADDER	115 MINES ROAD NORTH	CLEANUP PROGRAM SITE	OPEN - INACTIVE
25	INTEL FAB 3	250 NORTH MINES ROAD	CLEANUP PROGRAM SITE	OPEN - LONG TERM MANAGEMENT
26	J CLEANERS	2093 RAILROAD AVENUE	CLEANUP PROGRAM SITE	OPEN - SITE ASSESSMENT
27	JUST TIRES	1485 1ST ST	CLEANUP PROGRAM SITE	OPEN - ELIGIBLE FOR CLOSURE
28	LIVERMORE ARCADE SHOPPING CENTER/MILLERS OUTPOST SHOPPING CENTER	1410/1554 FIRST STREET	CLEANUP PROGRAM SITE	OPEN - REMEDIATION
29	LIVERMORIUM PLAZA - MILLS SQUARE PARK REDEVELOPMENT	2259 1ST STREET	CLEANUP PROGRAM SITE	OPEN - REMEDIATION
30	NICA METALS	6491 SOUTHFRONT	CLEANUP PROGRAM SITE	OPEN - INACTIVE
31	OLD TRAIN DEPOT	2009 TO 2073 RAILROAD AVE	CLEANUP PROGRAM SITE	OPEN - SITE ASSESSMENT
32	PACIFIC AVENUE CLEANERS	3018 PACIFIC AVENUE	CLEANUP PROGRAM SITE	OPEN - SITE ASSESSMENT
33	PAUL'S SPARKLE CLEANERS	1332 RAILROAD AVENUE	CLEANUP PROGRAM SITE	OPEN - INACTIVE

TABLE 12-2 HAZARDOUS MATERIAL SITES IN LIVERMORE

Map ID	Site Name	Address	Site Type	Cleanup Status
34	PERCIVA / METRO VALLEY CLEANERS	224 RICKENBACKER	CLEANUP PROGRAM SITE	OPEN - SITE ASSESSMENT
35	QUALITY CLEANERS	2048 FIRST STREET	CLEANUP PROGRAM SITE	OPEN - SITE ASSESSMENT
36	SALINAS REINFORCING, INC.	355 SOUTH VASCO ROAD	CLEANUP PROGRAM SITE	OPEN - SITE ASSESSMENT
37	SANDIA NATIONAL LAB	969 PO BOX	CLEANUP PROGRAM SITE	OPEN - VERIFICATION MONITORING
38	SPARKLIZING CLEANERS	855 RINCON AVENUE	CLEANUP PROGRAM SITE	OPEN - ASSESSMENT & INTERIM REMEDIAL ACTION
39	TDW CONSTRUCTION	101 GREENVILLE	CLEANUP PROGRAM SITE	OPEN - INACTIVE
40	UPTOWN, LONG-TERM MANAGEMENT	217 NORTH N STREET	CLEANUP PROGRAM SITE	OPEN - LONG TERM MANAGEMENT
41	VASCO RD SANITARY LANDFILL	4001 VASCO	LAND DISPOSAL SITE	OPEN - OPERATING
42	VISION RECYCLING GREENVILLE ROAD COMPOST FACILITY	30 GREENVILLE ROAD	LAND DISPOSAL SITE	OPEN - PROPOSED

Source: Department of Toxic Substance Control (DTSC) EnviroStor 2021 and State Water Resources Control Board (SWRCB) GeoTracker 2021.

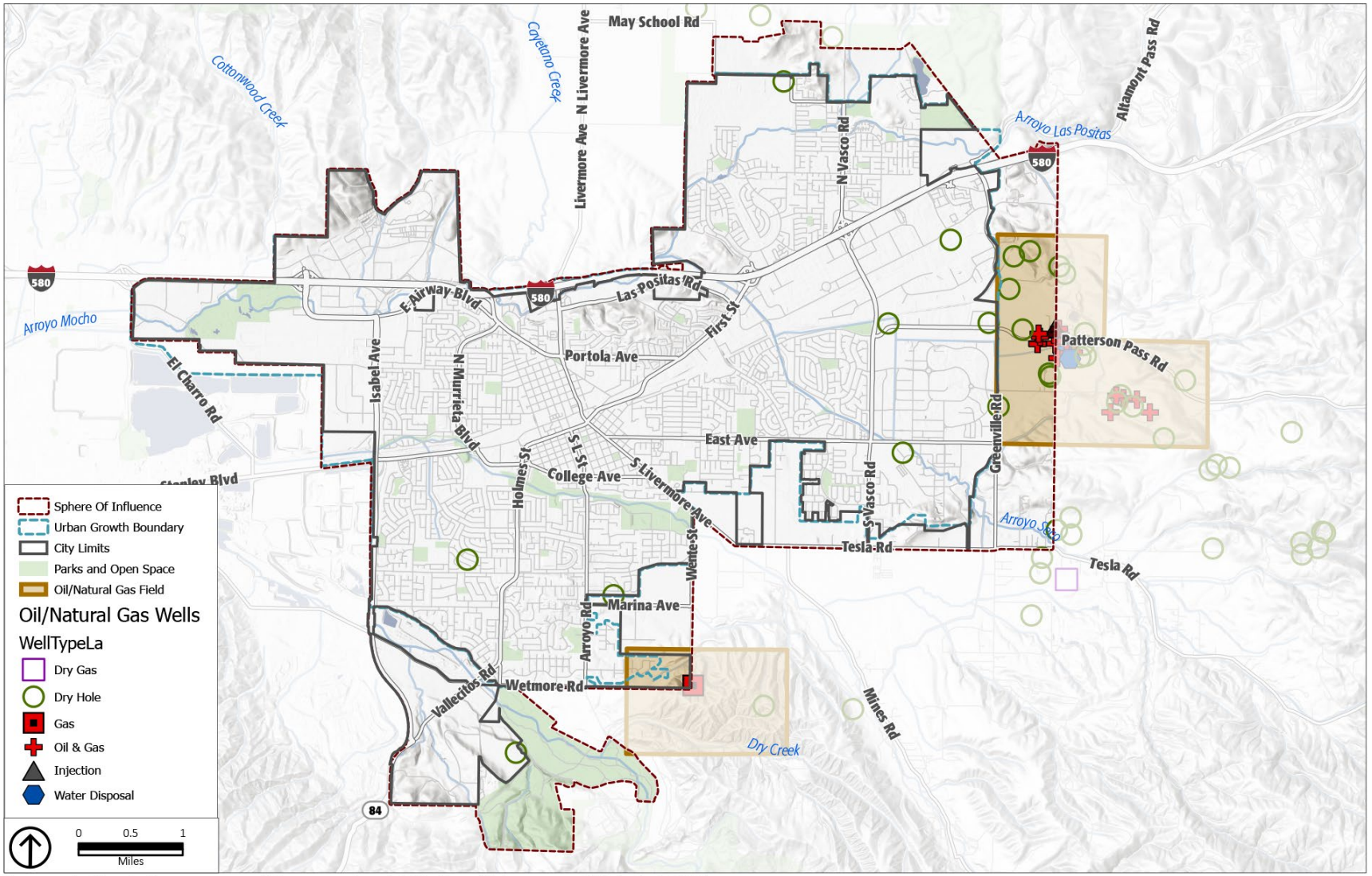
Figure 12-1 Hazardous Materials Sites



Source: City of Livermore, 2021; Esri, 2021

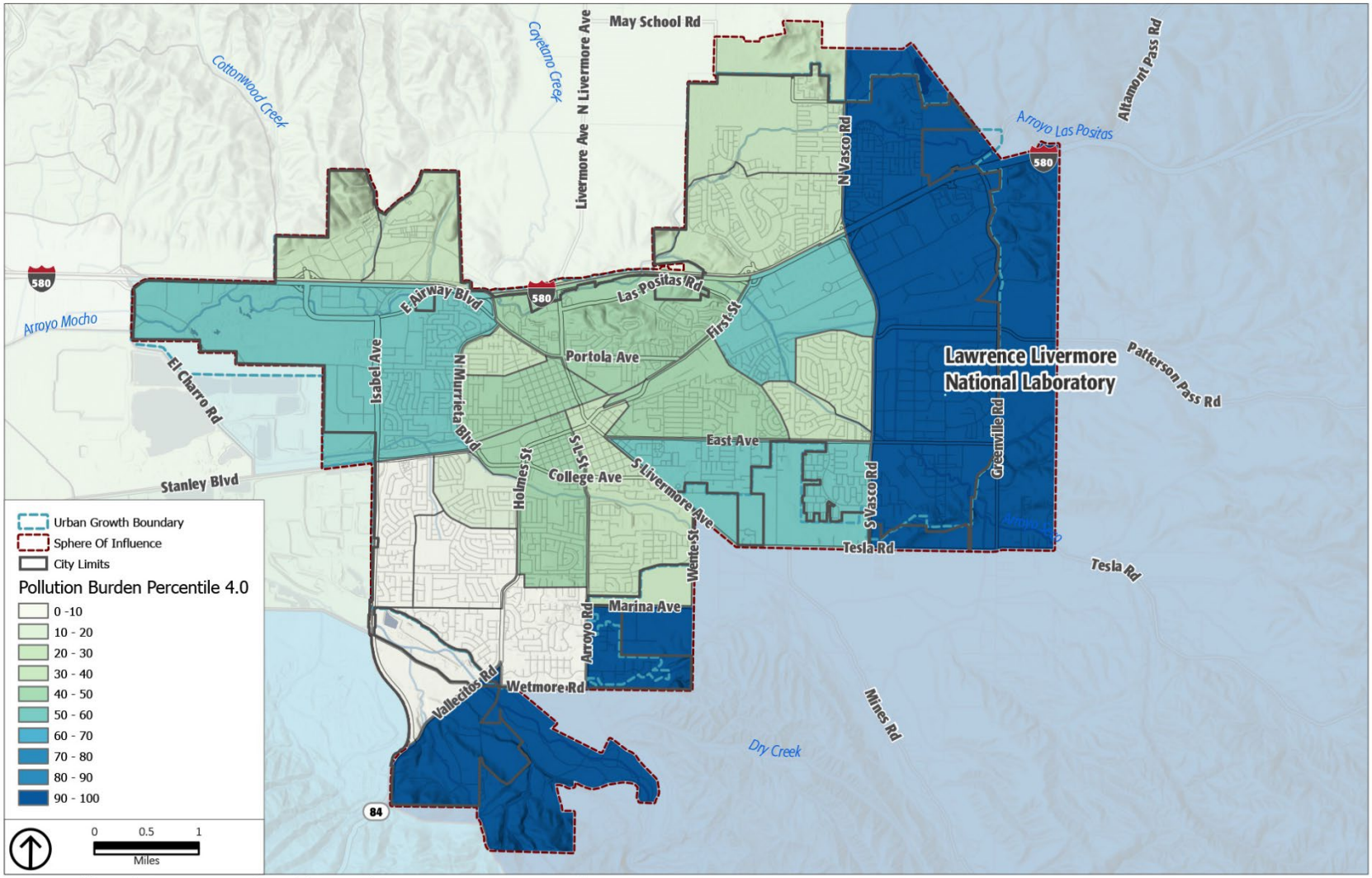
HAZARDS AND HAZARDOUS MATERIALS

Figure 12-2 Oil and Gas Fields



Source: California Department of Conservation, 2021; City of Livermore, 2021; Esri, 2021.

Figure 12-3 Pollution Burden in Livermore



Source: Office of Environmental Health Hazard Assessment, 2021; City of Livermore, 2021; Esri, 2021.

12.2.4 AIRPORT HAZARDS

The 643-acre Livermore Municipal Airport (LMA) is owned and operated by the City of Livermore. The LMA is classified as a General Aviation Reliever Airport, which means it serves private, business, and corporate tenants and customers. The LMA primarily serves the Tri-Valley region with a population of over 300,000 residents. Most of the LMA's 460 tenants are Livermore and Pleasanton residents. As of December 2021, 480 aircrafts were based at LMA. The greatest number of aircraft at LMA were Single-Engine Piston. Aircraft based at the LMA are:

- Single Engine Piston – 432
- Twin Engine Piston – 26
- Jet – 8
- Turbo Prop – 7
- Helicopter – 6

Airside facilities include two runways, four taxiways, and airport lighting (identification, runway and taxi, and approach lighting). The Livermore Municipal Airport also includes airfield lighting, identification lighting, runway and taxiway lighting, visual approach lighting, pavement markings, a helipad, and navigational aids. Other facilities at LMA include a tiedown apron of 249 spaces (one shelter with 9 aircraft spaces),22 city-owned enclosed hangars containing 393 aircraft hangar units, an aircraft storage shelter, a corporate-style hangar building with hangar and office space, an airport control tower, and a terminal building. The airport's terminal building consists of airport administration offices, a conference room, and pilot's lounge.

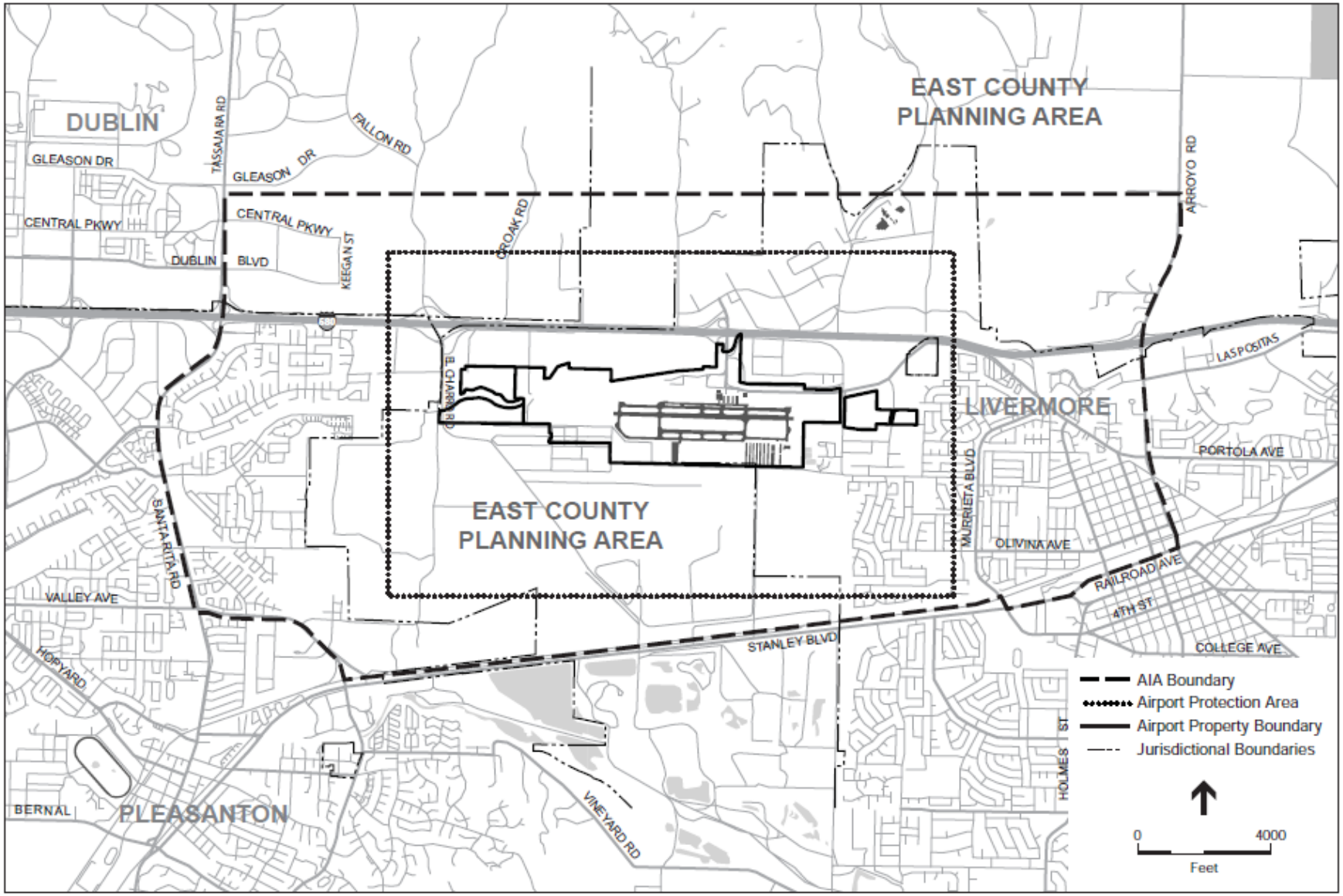
A full range of aviation services are available at LMA, including aircraft rental, flight training, aircraft fueling, and aviation supplies. In addition to general aviation and aircraft storage, operations at the airport include aircraft maintenance, supplies, flight instruction, commercial scenic flights, and repairs.

Land uses surrounding the LMA include Las Positas Golf Course to the west, commercial uses to the north, office, industrial, and residential uses to the east, and industrial uses to the south. As shown on Figure 12-4, the LMA has an Area of Influence that covers the northwestern portion of the Livermore SOI. Per the LMA ALUCP, land uses that could conflict with airport operations include those with occupants that have reduced mobility or are unable to respond to emergency situations. These land uses include children's schools, day care centers, hospitals, nursing homes, and other uses in which most occupants are children, elderly, the ill or infirm, and/or handicapped. The land uses surrounding the LMA are generally consistent with airport operations.

12.2.5 EMERGENCY RESPONSE AND EVACAUTION PLANNING AREAS

As described in Section 12.1, Regulatory Framework, Livermore's SOI is within the planning areas of the Livermore Emergency Operations Plan, Alameda County Emergency Operations Plan, and Tri-Valley Hazard Mitigation Plan.

Figure 12-4 Livermore Municipal Airport Influence Area



Source: Alameda County Airport ALUC, Livermore Executive Airport Airport Land Use Compatibility Plan, August 2012.

12.3 IMPLICATIONS FOR THE GENERAL PLAN UPDATE

Based on information contained in this chapter, the General Plan Update should consider the following:

- The potential for hazardous material sites when planning for future development.
- For future development within or adjacent to the boundaries of the Livermore Oil Field or the Hospital Nose Gas Field, consider requiring methane testing to evaluate potential methane risk and additional research to determine precise locations of abandoned wells so that new development is not inadvertently constructed over abandoned wells.
- Continuing to maintain consistency between the County EOP and Tri-Valley Hazard Mitigation Plan.
- Update of the 2018 Tri-Valley Hazard Mitigation Plan is scheduled to begin in 2022 with completion anticipated by spring 2023.
- Examining potential airport safety hazards when identifying future land uses within the AIA.