CHAPTER 6

ENVIRONMENTAL RESOURCES AND CONSERVATION

Ensuring a high level of environmental quality in the Planning Area is integral to maintaining and improving the health and safety of all residents, employees, and visitors of the Isabel Neighborhood, as well as protecting ecological systems in the area and surrounding region. The Draft Environmental Impact Report (EIR) and Draft Supplemental EIR prepared for the Isabel Neighborhood Specific Plan analyze the potential effects of new development on the environment and the effects of environmental conditions on future residents. The Plan establishes goals and policies which, in combination with other local, state, and federal regulations, mitigate the potential negative effects of natural and man-made environmental hazards. Specifically, this chapter addresses airport compatibility, noise, air quality, biological resources, hazardous materials, flooding, cultural resources, and geological resources. Please refer to the Draft EIR and Draft Supplemental EIR for the complete analysis of these impact areas and other topics.

6.1 AIRPORT COMPATIBILITY

The Livermore Municipal Airport is adjacent to the Planning Area to the southwest. In 1991, the City of Livermore established an Airport Protection Area (APA) to encourage noise-compatible land uses around the airport. The APA is a rectangular area that extends from the airport runway 5,000 feet to the north, south, and east towards Livermore and 7,100 feet to the west towards Pleasanton. The APA policy, which covers about 65 percent of the Planning Area, prohibits new residential uses within the APA boundary. An amendment to the policy in the General Plan would be required to allow most of the residential development envisioned under the Isabel Neighborhood Specific Plan.

Since the adoption of the General Plan and its APA policies, the City and Alameda County have adopted the Airport Land Use Compatibility Plan (ALUCP), which provides a more precise tool for evaluating land use compatibility. The ALUCP designates safety zones, noise compatibility zones, and height limits based upon current federal and state aviation standards, with the intent of protecting public health and safety. Figure 6-1 shows the ALUCP safety zones in the Planning Area. At the Airport Commission's recommendation, City Council adopted the ALUCP policies into the City's General Plan in 2013. The ALUCP incorporates the City's APA policy, but includes the provision that the County would amend it should the City amend the APA policy in the General Plan.

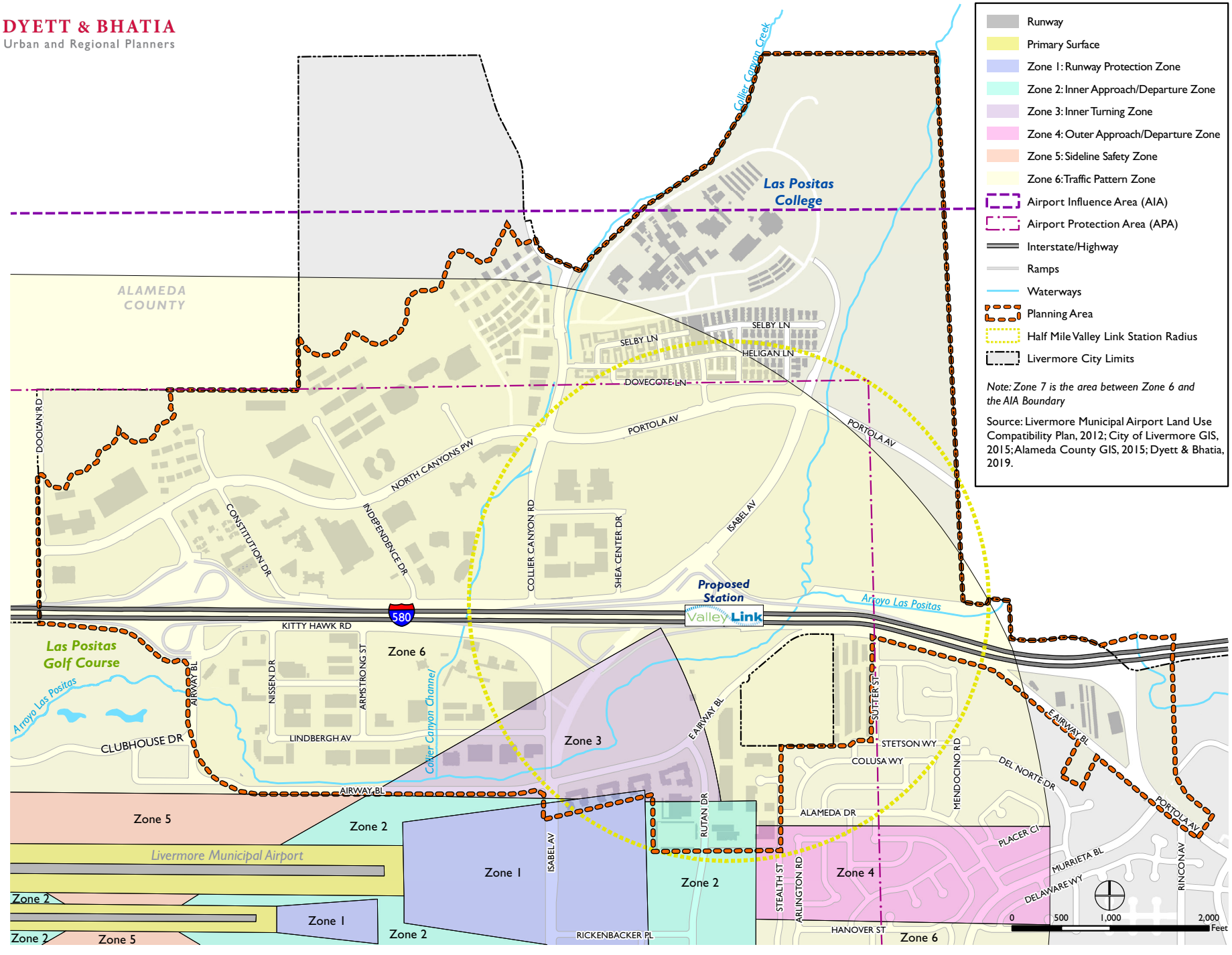
The Airport Land Use Commission (ALUC) is authorized to review local land use actions affecting the Airport Influence Area (AIA), which includes the Planning Area. Their review authority includes adoption or amendments of General Plans, Specific Plans, zoning ordinances, and building regulations.

As part of the Isabel Neighborhood Specific Plan planning process, the City of Livermore conducted an assessment of the Plan's land use diagram against the ALUCP. The assessment found the following:

- **Noise:** The areas planned for new residential development are outside of the airport's noise contours. These areas would experience airport-generated noise levels of less than 65 decibels (dB) Community Noise Equivalent Level (CNEL). The dominant sources of ambient noise would include the freeway, local street traffic, the Valley Link operations, and other activities related to the new neighborhood. Sound attenuation measures that will likely be required to reduce interior noise levels within new residences will also help reduce single-event noise from aircraft overflights.
- **Safety:** The majority of the Planning Area is within Safety Zone 6, which permits most land uses including new residential uses. The areas planned for new residential development are entirely within Safety Zone 6. The other non-residential uses envisioned for the Isabel Neighborhood are also consistent with the Safety Zone 6. There is a small portion of the Planning Area within Safety Zone 3, which allows some low-intensity non-residential uses. The land use designations covering this area are consistent with Zone 3 standards.
- **Airspace Protection:** Proposed buildings in the Planning Area will generally be two to six stories. Maximum height limits above existing grade reach 65 to 70 feet in the Neighborhood's core area. The Height Limit map was developed to be consistent with the Federal Aviation Regulations (FAR) Part 77 height limits for the Livermore airport. The Plan requires new development to comply with FAR Part 77 height criteria, which is also consistent with the current ALUCP height policies.

FIGURE 6-1: AIRPORT SAFETY ZONES

DYETT & BHATIA
Urban and Regional Planners



- **Overflight Annoyance:** Flight patterns were analyzed to identify potential overflight annoyance (due to the intermittent noise from aircraft passing overhead). Residential sites in the vicinity of Isabel Avenue/ Portola Avenue are located under one of the airport's primary flight patterns. As a result, residents may notice the sound of aircraft passing overhead and complain if it becomes a nuisance to them. Sensitivity to aircraft noise varies greatly among individuals, but living near or beneath a flight path increases the chances of annoyance. To inform residents about the potential for overflight annoyance, the ALUCP currently requires overflight notification or avigation easement and Buyer's Awareness Measures on new residential development within the AIA.[21]

In sum, the assessment found that the proposed land use plan is generally consistent with state and local compatibility criteria, except with regard to the APA policy, which prohibits new residential uses. The Plan requires measures in addition to ALUCP requirements to make new residents further aware of the potential overflight annoyance and reduce the potential for airport-related noise complaints.

21. An avigation easement is a property right acquired from a landowner which protects the use of airspace above a specified height, and imposes limitations on use of the land subject to the easement. Buyer's Awareness Measures require sellers of land to disclose information regarding the property's proximity to the airport.

GOAL AND POLICY

G-ENV-1: Ensure that development is compatible with Livermore Municipal Airport safety zones.

P-ENV-1: Increase resident awareness of their proximity to the Livermore Municipal Airport.

- Provide overflight notifications and avigation easements and Buyer's Awareness Measures on new residential development within the Airport Influence Area (AIA).
- Send annual reminders to residents that they knowingly purchased property in the AIA.
- Provide information on the City's website about the APA overlay zone and Airport Land Use Compatibility Plan (ALUCP).
- Proactively advise potential residents who inquire about buying property in the overlay zone that their property will be subject to aircraft noise (via the Permit Center).

6.2 NOISE

Noise can be defined as unwanted sound. Excessive noise exposure can cause adverse physical and psychological responses, in addition to interfering with speech, concentration, and performance. These effects are particularly disruptive for noise-sensitive land uses, such as schools, churches, hospitals, convalescent homes, and residential neighborhoods. A descriptor called day/night noise level (Ldn) is normally used to categorize noise exposure levels for different land uses. The City of Livermore's General Plan Noise Element (2013) identifies land use compatibility based on Community Noise Equivalent Level (CNEL) noise exposure, which is a weighted average of noise level over time.

The most significant noise source in the Planning Area is vehicular traffic along I-580, as well as other major streets (Isabel Avenue, Airway Boulevard, Collier Canyon Road, North Canyons Parkway, and Portola Avenue). Development under the Plan would increase the number of residents and workers in the Isabel Neighborhood, which will generate higher traffic volumes and associated noise levels along streets. Traffic associated with the Valley Link Station will further increase noise levels. Operation of the Valley Link trains would incrementally increase noise levels near the tracks, although the sounds would blend with general freeway noise.

Figure 6-2 shows projected 2040 environmental noise conditions in the Planning Area, based on results of the traffic modeling work performed for the Specific Plan. 65 CNEL noise contour from aircraft operations at the Livermore Municipal Airport is also shown, based on the 2011 Airport Land Use Compatibility Plan.

As can be seen, much of the Planning Area where future residential uses will be located is projected to experience environmental noise in excess of 65dB. Thus, careful building siting, window orientation, and exterior building envelope design will be essential to ensure comfortable interior noise levels.

As described above, aircraft operations associated with the nearby Livermore Municipal Airport is another source of ambient noise in the Planning Area. The land use diagram was developed to be consistent with the noise contours in the Airport Land Use Compatibility Plan (ALUCP), which will avoid exposure of future residents and sensitive land uses to excessive noise levels from airport operations. Some residents, however, may consider the occasional sound of aircraft passing overhead as a nuisance. The Plan includes policies to increase awareness of this potential disturbance.

GOAL AND POLICIES

G-ENV-2: Ensure that the Isabel Neighborhood is a pleasant place to live and work by protecting residents, workers, and visitors from noise that affects comfort and health.

P-ENV-2: Amend the General Plan to clarify that the Isabel Neighborhood Specific Plan is exempt from Noise Compatibility Guidelines, recognizing that certain existing and future exterior noise sources are higher in the Planning Area.

P-ENV-3: In accordance with Title 24 of California Building Code, all residential building spaces must be improved or constructed in such a manner that interior noise levels in any habitable room do not exceed a maximum of 45 dBA with windows closed. If windows must be closed 100 percent of the time to achieve this standard, a fresh air ventilation system must be utilized.

P-ENV-4: Require residential and other noise sensitive land uses within the 60 dBA or higher contours for freeway or major street noise to complete a noise analysis to verify that the interior noise standard can be met.

P-ENV-5: Although not anticipated, any noise sensitive land uses within the 60 dBA contour for the airport shall incorporate adequate noise attenuation into the design and site planning of the project in order to achieve an interior noise level of not more than 45 dBA CNEL.

P-ENV-6: Recreational facilities within new public parks and common open space areas on private development sites should be located and designed such that ambient noise levels do not exceed 70 dBA CNEL. This guideline does not apply to pedestrian and bicycle trails or private outdoor spaces within developments (refer to Chapter 2, Land Use, for open space definitions).

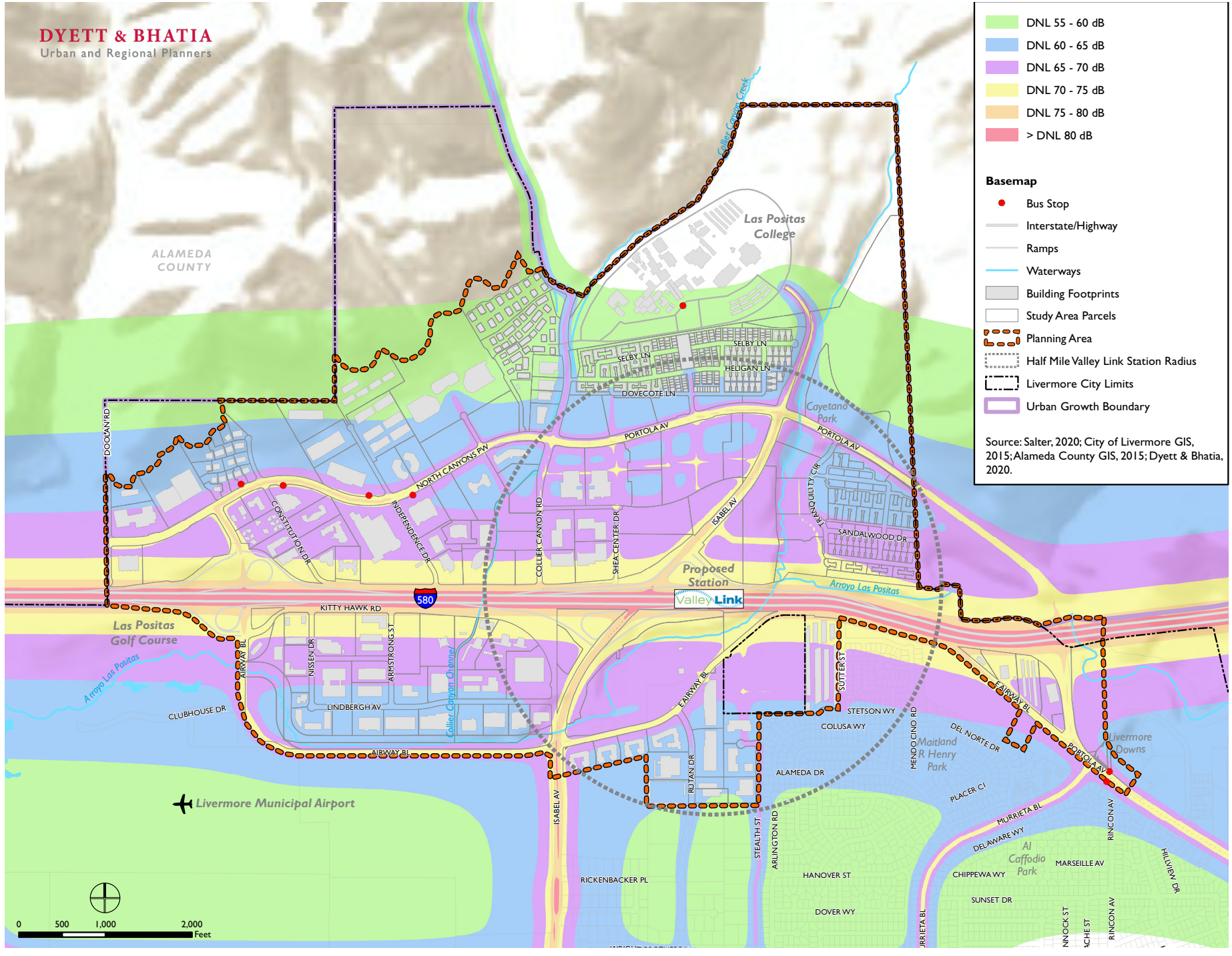
P-ENV-7: Reduce vibration impacts associated with construction activities by requiring construction contractors to implement measures to help reduce vibration levels at nearby sensitive receptors. Measures to reduce vibration levels include, but are not limited to, the following:

- Operating heavy equipment as far as practical from residential uses;
- Using smaller bulldozers (operating weight less than 20,000 pounds) when grading must occur within approximately 50 feet of residential uses or other vibration sensitive uses; and
- Using quiet pile driving technology (such as predrilling piles, using sonic or vibratory pile drivers, or using more than one pile driver to shorten the total duration of pile driving).

P-ENV-8: The following limits shall apply to noise-generating land uses, as measured from the property line:

- In residential areas of the Isabel Neighborhood, exterior noise levels may not exceed 65

FIGURE 6-2: PROJECTED NOISE CONDITIONS



dBA from 7:00 a.m. to 12:00 a.m or 60 dBA from 12:00 a.m. to 7:00 a.m.

- Along Main Street and in the office, commercial, or business park areas of the Isabel Neighborhood, exterior noise levels may not exceed 75 dBA from 7:00 a.m. to 12:00 a.m. or 65 dBA from 12:00 a.m. to 7:00 a.m.

P-ENV-9: Require that project applicants for future development in areas where noise is projected to exceed compatibility standards prepare a detailed acoustical analysis of the noise environment and project characteristics. The analysis should determine whether noise insulation or protection features are required to achieve consistency with the applicable exterior and interior noise compatibility standards. The City shall review and approve the acoustical analyses for proposed projects prior to the issuance of building permits or as part of the planning entitlement process. Project applicants shall then be required to implement measures to ensure exterior noise compatibility with the applicable standards, where feasible.

P-ENV-10: Prohibit Category 1 facilities (according to the FTA guidelines, including research facilities with vibration-sensitive equipment) that use vibration-sensitive equipment that could be affected by Valley Link train vibration in areas located within 600 feet of the Valley Link tracks (noting that 600 feet is the FTA screening distance for Category 1 land uses). These types of facilities shall be allowed within the Planning Area in locations that are more than 600 feet from the Valley Link tracks.

6.3 AIR QUALITY

The Planning Area is located within Livermore Valley in the San Francisco Bay Area Air Basin. Given the local climate, meteorology, and topography of Livermore Valley, the air pollution potential in the area can be high for photochemical pollutants during the summer season, when high temperatures increase the potential for ozone buildup, and during the fall season, when north-easterly wind flow days carry ozone from San Joaquin Valley westward to Livermore Valley. During winter months, air pollutants can also become concentrated in Livermore Valley due to the development of strong, surface-based temperature inversions created by the physical features of the valley, the valley's distance from moderating water bodies, and the presence of a strong high pressure system.

CRITERIA POLLUTANTS

Industrial processes, driving gas-powered vehicles, and other human activities generate air pollution that can adversely affect the local environment, regional air basin, and even the global atmosphere. To manage air pollution, the U.S. Environmental Protection Agency (EPA) and the California Air Resources Board (CARB) have established national and state ambient air quality standards for criteria pollutants. Criteria pollutants include ozone (O_3), carbon monoxide (CO), nitrogen dioxide (NO_2), sulfur dioxide (SO_2), particulate matter (PM_{10} and $PM_{2.5}$), and lead (Pb).

A number of ambient air quality monitoring stations are located throughout the region to monitor progress toward attaining the National Ambient Air Quality Standards and the California Ambient Air Quality Standards for criteria pollutants. The nearest air quality monitoring station to the Planning Area is the Rincon Avenue station, which is located less than one mile from the southeastern boundary of the Planning Area. Based on recent data collected from 2016 to 2018 by the Rincon Avenue monitoring station, it was determined that the general area had experienced occasional violations of both state and federal air quality standards for O_3, NO_2, PM_{10}, and $PM_{2.5}$.

The Bay Area Air Quality Management District (BAAQMD) is responsible for establishing and enforcing regional and local air quality rules and regulations intended to achieve ambient air quality standards. Future development under the Isabel Neighborhood Specific Plan may be subject to one or more of BAAQMD's rules, depending on the specific components of the individual project. For example, BAAQMD has standard measures for reducing criteria pollutant emissions during construction and regulates emergency generators. Implementation of BAAQMD rules and regulations would reduce project-level emissions.

The Plan itself, combined with the Valley Link Station, is intended to minimize the generation of harmful air pollutants by allowing for the development of a walkable neighborhood with a complete mix of residential and commercial uses surrounding a major regional transit system. Transit-oriented development and the creation of complete, walkable neighborhoods reduces dependence on vehicle travel by giving residents and workers cleaner transportation options. This type of living and working environment is in high demand in the Bay Area, as evidenced by the high land values around BART stations. The Plan addresses this unmet demand and will reduce air pollution when compared to more auto-oriented development patterns.

TOXIC AIR CONTAMINANTS

Toxic air contaminants (TACs) are air pollutants that may cause or increase mortality or serious illness, or that may pose a present or potential hazard to human health, and are linked to both short-term (acute) or long-term (chronic and/or carcinogenic) adverse human health effects. Individual TACs vary greatly in the risks they present, where at a given level of exposure one TAC may pose a hazard that is many times greater than another. The primary TACs of concern associated with the Planning Area are fine particulate matter ($PM_{2.5}$) and diesel particulate matter (DPM).

TACs in and around the Planning Area are generated from mobile and stationary sources. I-580 represents the greatest mobile source of TACs (primarily DPM from diesel-powered vehicles) due to high car and truck traffic volumes. Based on a review of BAAQMD's inventory (last updated in 2020), there are 15 existing stationary sources of TACs located within the Planning Area and two existing stationary sources of TACs that are located within 1,000 feet outside of the Planning Area boundaries.

The land use diagram was developed to minimize exposure of future residents to TACs. Specifically, office uses are concentrated along the north side of I-580, near the Valley Link Station, while most new residential uses would be located at least 500 feet away from I-580. Setbacks and open space areas are intended to buffer residences from the freeway, as vegetation can help filter emissions. The Plan includes additional policies to ensure future residents are protected from significant impacts resulting from TAC exposure.

GOAL AND POLICIES

G-ENV-3: Minimize exposure of new development, especially residents and other sensitive pollution groups, to air quality hazards.

P-ENV-11: Require new residential projects and other new sensitive receptors such as schools, child day cares, nursing and retirement homes located within 500 feet of I-580 to install indoor air quality equipment, such as high-efficiency particulate air filters (HEPA) filters or equivalent mechanisms to minimize health risks for future residents.

P-ENV-12: Require project proponents within identified high risk Overlay Zones surrounding existing hazardous sites, roadways, or TAC sources, to assess health risks at the location in question and to incorporate feasible design-related risk mitigation measures, such as HEPA filters or equivalent indoor air quality equipment mechanisms, as appropriate and determined in consultation with the City.

P-ENV-13: Require new large commercial projects to prepare a loading plan aimed to minimize truck idling and reduce diesel particulate emissions related to truck loading.

P-ENV-14: Require construction projects to implement the following measures recommended by the BAAQMD, as applicable:

- All exposed surfaces (e.g., parking areas, staging areas, soil piles, graded areas, and unpaved access roads) shall be watered two times per day;
- All haul trucks transporting soil, sand, or other loose material off-site shall be covered;
- All visible mud or dirt track-out onto adjacent public roads shall be removed using wet power vacuum street sweepers at least once per day. The use of dry power sweeping is prohibited;
- All vehicle speeds on unpaved roads shall be limited to 15 mph;
- All roadways, driveways, and sidewalks to be paved shall be completed as soon as possible. Building pads shall be laid as soon as possible after grading unless seeding or soil binders are used;
- Idling times shall be minimized either by shutting equipment off when not in use or reducing the maximum idling time to 5 minutes (as required by the California airborne toxics control measure Title 13, Section 2485 of California Code of Regulations). Clear signage shall be provided for construction workers at all access points;
- All construction equipment shall be main-

tained and properly tuned in accordance with manufacturer's specifications. All equipment shall be checked by a certified visible emissions evaluator; and

- A publicly visible sign with the telephone number and person to contact at the lead agency regarding dust complaints shall be posted. This person shall respond and take corrective action within 48 hours. The Air District's phone number shall also be visible to ensure compliance with applicable regulations.

P-ENV-15: Require that applicants proposing development of projects within the Planning Area require contractors, as a condition of contract, to reduce construction-related exhaust emissions by ensuring that all off-road equipment greater than 50 horsepower (hp) shall operate on an EPA-approved Tier 4 or newer engine. Exemptions can be made for specialized equipment where Tier 4 engines are not commercially available within 200 miles of the project construction site. The construction contractor must identify these pieces of equipment, document their unavailability from at least two construction equipment rental firms, and ensure that they operate on no less than an EPA-approved Tier 3 engine.

P-ENV-16: Require that applicants proposing development of projects within the Planning Area require contractors, as a condition of contract, to reduce construction-related fugitive ROG emissions by ensuring that low-VOC coatings that have a VOC content of 10 grams/liter (g/L) or less be used during construction. All project applicants shall submit evidence of the use of low-VOC coatings to BAAQMD prior to the start of construction.

P-ENV-17: Ensure that all applicants proposing new development projects within the Planning Area require their contractors, as a condition of contract, to reduce construction-related GHG emissions through implementation of the Bay Area Air Quality Management District's recommended best practices, including but not limited to the following measures (based on BAAQMD's 2017 CEQA Guidelines):

- Ensuring alternative fueled (e.g. biodiesel, electric) construction vehicles/equipment make up at least 15 percent of the fleet;
- Ensuring at least 10 percent of building materials are local building materials (sourced from within 100 miles of the Planning Area); and
- Recycling or reusing at least 50 percent of construction waste or demolition materials.

6.4 BIOLOGICAL RESOURCES

The Planning Area is mostly urbanized, consisting of primarily residential, commercial, and public use developments and associated landscaped areas. Land cover types within the Planning Area consist of developed/landscaped, California annual grassland, cropland, mixed willow riparian scrub and ruderal. Wetlands, including seasonal and freshwater emergent wetlands, and streams, including intermittent streams (Collier Canyon Creek and Cayetano Creek) and perennial streams (Arroyo Las Positas), also occur within the Planning Area.

Special-status species are plants and animal species that are legally protected under State and federal Endangered Species Acts or other regulations, and species that are considered sufficiently rare by the scientific community to qualify for such listing. Based on a review of California Native Plant Society (CNPS), California Natural Diversity Database (CNDDB), and the United States Fish and Wildlife Service (USFWS) sources, Seventeen special-status species (three plant and 14 animal species) have potential to occur within the Planning Area and could be affected by associated development activities. These special-status species include the following:

Plants:

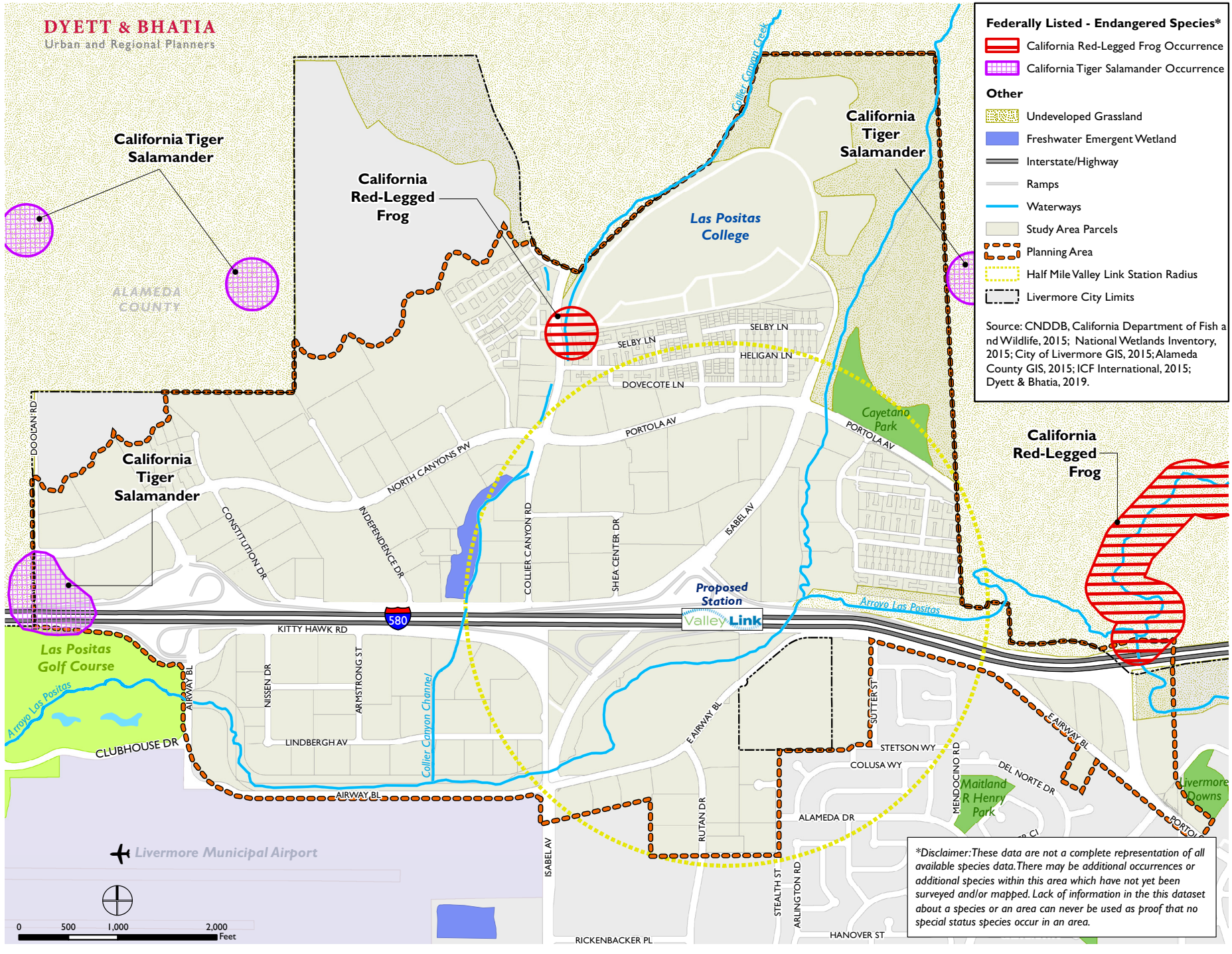
- Big-scale balsamroot (*Balsamorhiza macrolepis*)
- Congdon's Tarplant (*Centromadia parryi ssp. congdonii*)
- Prostrate Vernal Pool Navarretia (*Navarretia prostrata)*

Animals:

- Callippe Silverspot Butterfly (*Speryeria callippe callippe*)
- Vernal Pool Fairy Shrimp (*Branchinecta lynchii*)
- California Red-legged Frog (*Rana draytonii*)
- California Tiger Salamander (*Ambystoma californiense*)
- Western Pond Turtle (*Emys marmorata*)
- Burrowing Owl (*Athene cunicularia*)
- Loggerhead Shrike (*Lanius ludovicianus*)
- Tricolored Blackbird (*Agelaius tricolor*)
- White-tailed Kite (*Elanus leucurus*)
- American Badger (*Taxidea taxus*)
- Hoary Bat (*Lasiurus cinereus*)
- Townsend's Big-eared Bat (*Corynorhinus townsendii*)
- Central California Coast Steelhead (*Oncorhynchus mykiss*)
- Hardhead (*Mylophardon concephalus*)

The East Alameda County Conservation Strategy (EACCS) is a voluntary conservation plan that projects can opt to participate in by applying for coverage under its permits and complying with its avoidance and minimization practices, and mitigation requirements. The EACCS coverage area includes the eastern portions of Alameda County, spanning the Diablo Range (immediately west of Dublin and Sunol) to the east boundary of the County. The Planning Area is located within the EACCS coverage area. Figure 6-3 shows the special-status species closely associated with specific land cover types in the Planning Area.

FIGURE 6-3: HABITATS AND BIOLOGICAL RESOURCES



GOAL AND POLICIES

G-ENV-4: Protect and improve the quality of biological resources and habitat areas.

P-ENV-18: Creek setbacks shall be 2.5:1 from the toe of the channel plus 20 feet, consistent with Zone 7 creek setback criteria. New development shall be restricted within the buffer.

- Expand the buffer edge in areas where the City determines there is high biological value.
- Where feasible, allow public access in the form of open space or a pedestrian or bicycle trail within the creek edge buffer, and incorporate interpretive signage for educational purposes in public access areas along creeks.

P-ENV-19: Promote the healthy growth of trees and minimize the removal of trees within the Isabel Neighborhood through the City's Tree Protection Ordinance (Section 12.20 of the Livermore Municipal Code).

P-ENV-20: Design pedestrian and vehicle bridges over creeks to span the bed and bank of the creek and to avoid placing bridge piers or footings within the creek, within bridge safety limits.

P-ENV-21: Require that new development inventory sensitive resources and develop adequate measures to avoid or mitigate impacts for any parcel that may include special-status species habitat with a moderate or greater potential to exist in the Isabel Neighborhood. The inventory must be conducted by an independent, qualified biologist, and follow guidelines established for federally-listed species. If special-status species are identified, an avoidance strategy must be pursued where feasible.

P-ENV-22: Require that project proponents avoid or minimize the introduction or spread of invasive plant species through measures such as the following:

- Cleaning construction equipment and vehicles in a designated wash area prior to entering and exiting the construction site.
- Treating small, isolated infestations with eradication methods that have been approved by or developed in conjunction with CDFW and USFWS to prevent or destroy viable plant parts or seeds.
- Minimizing surface disturbance to the greatest extent feasible to complete the work.
- Using native, non-invasive species or non-persistent hybrids in erosion control plantings to stabilize site conditions and prevent invasive plant species from colonizing.
- Using weed free imported erosion control materials (or rice straw) in upland areas.

P-ENV-23: Require project proponents to comply with the East Alameda County Conservation Strategy (EACCS). Development activities will either obtain compensatory habitat mitigation through the EACCS, or use the mitigation prescribed in EACCS as a basis for near-term and longer-term mitigation and obtain coverage under separate applicable State and federal permits from CDFW and USFWS. The project proponent will be responsible for acquiring, funding, monitoring, restoring, enhancing, reporting, and implementing compensatory habitat mitigation and contingency actions per the applicable State and federal permits. In accordance with the EACCS, the project proponent will implement compensatory mitigation for impacts on habitat for the following species under or consistent with EACCS at the corresponding mitigation ratios.

- Vernal pool fairy shrimp—10:1 ratio (mitigation area to impact area) dependent on impact location relative to mitigation location
- Callippe silverspot butterfly—5:1 dependent on impact location relative to mitigation location
- California tiger salamander and California red-legged frog—3:1 dependent on impact location relative to mitigation location, or above through coordination with relevant regulatory agency/ies
- Burrowing owl—3:1 dependent on impact location relative to mitigation location, or above through coordination with relevant regulatory agency/ies

- Temporary effects to State and federally listed species—1.1:1
- Big-scale balsamroot—4:1 to 3:1 dependent on impact location relative to mitigation location, or above through coordination with relevant regulatory agency/ies
- Congdon's tarplant—5:1 or above through coordination with relevant regulatory agency/ies
- Prostrate vernal pool navarretia— ranges from 4:1 to 3:1 dependent on impact location relative to mitigation location, or above through coordination with relevant regulatory agency/ies

P-ENV-24: Where a biologist has identified areas supporting or potentially supporting sensitive biological resources, require project proponents to prepare and implement a worker environmental awareness training program prior to equipment staging, grading, or vegetation removal. The training program should be provided to all construction personnel (contractors and subcontractors) and include the following information:

- The need to avoid effects on sensitive biological resources and the importance of protecting habitat;
- Penalties for not complying with applicable State and federal laws and permit requirements;
- General restrictions and guidelines to be followed by all construction personnel to reduce or avoid effects on sensitive biological resources during construction;
- The life history and habitat requirements of special-status species potentially occurring in or adjacent to the improvements footprint; and
- The terms and conditions of the Biological Opinions and other applicable permits.

In addition, the training program should educate construction supervisors and managers about invasive plant identification and the importance of controlling and preventing the spread of invasive plant infestations:

P-ENV-25: If any work remains to be completed after the start of the rainy season or during the upland migration periods of protected amphibians (October 15 to June 1), require project proponents or their contractors to install exclusion fencing and erosion control measures prior to any ground disturbance within 50 feet of wetlands and vernal pools to be avoided by construction (where feasible) under the guidance of a City-approved biologist. The fencing should be installed around the perimeter of vernal pools and other seasonal wetlands and be erected and maintained under the supervision of the biologist.

P-ENV-26: Require that construction within 300 feet of freshwater marsh or streambank habitat take place during the non-breeding season for tricolored blackbirds (September 1 through January 31) to the extent feasible.

P-ENV-27: Require that construction and structure demolition/modification activities be conducted outside of the bird nesting season (February 1 to August 31) to the extent feasible.

P-ENV-28: Require project proponents to compensate for tree removal during construction. Prior to the removal of any trees, proponents of projects within the Planning Area shall obtain a tree removal permit, and if necessary, develop a tree avoidance, minimization, and replacement plan in consultation with a certified arborist, the City of Livermore's Department of Public Works and/or the Community Development Department, and is consistent with the City of Livermore's Street Tree and Tree Preservation Ordinance Chapter 12.20. Replacement plantings should be native species where practicable. Invasive species (as defined by the California Invasive Plant Council) should not be planted.

6.5 HAZARDOUS MATERIALS AND FLOODING

Hazardous materials are substances with physical or chemical properties that pose an existing or potential future hazard to human health or the environment when improperly handled, disposed, or otherwise managed. Hazardous materials and wastes are extensively regulated by federal, State, regional, and local agencies. Several sites in the Planning Area face challenges associated with previous uses, some of which have resulted in contamination that must be cleaned up before new uses can be developed.

The Planning Area includes three hazardous material sites that have since been closed, as shown in Figure 6-4. These sites may be subject to use restrictions or warrant additional attention and clean up prior to development. Project-specific investigations will be necessary for projects on or adjacent to these sites to ensure that potential health risks are fully addressed.

The Planning Area is within the Arroyo Las Positas watershed, a 77-square-mile watershed within the larger San Francisco Bay Watershed. Arroyo Las Positas originates at the confluence, or junction, of its two major tributaries, Altamont Creek and Arroyo Seco. Arroyo Las Positas is one of the main tributaries to Alameda Creek, which drains to San Francisco Bay. Other tributaries to Arroyo Las Positas include Cottonwood Creek, Collier Canyon Creek, and Cayetano Creek. Collier Canyon Creek crosses the Planning Area and drains southerly into Arroyo Las Positas adjacent to Airway Boulevard.

Arroyo Las Positas is a perennial stream, while Collier Canyon Creek is believed to be intermittent, with groundwater-fed base flow occurring from December through May. For most of the year, the upper portions of all of the creeks in the Arroyo Las Positas watershed are dry. During the dry season, the primary source of water in Arroyo Seco is runoff from irrigation and treated groundwater from the Lawrence Livermore National Laboratory, which is drained to the relocated Arroyo Las Positas, Line P-1, located along the northern portion of the Lawrence Livermore National Laboratory. The area receives approximately 14.53 inches of total rainfall per year, with a majority of the rainfall occurring from November through March.

Figure 6-5 shows waterways and flood zones in the Planning Area. As can be seen, the majority of the Planning Area is outside of the 100- and 500-year flood zone areas designated by the Federal Emergency Management Agency (FEMA).

However, there has been a history of flooding in the Planning Area, including at the Airway Boulevard crossing of Arroyo Las Positas. This is due to limited channel capacity on the Livermore Golf Course and limited capacity in the roadway culverts, often intensified by siltation.

Portions of the Planning Area that are within the 100-year Floodplain FEMA Zone A (FEMA, 2009)[22] include areas adjacent to Arroyo Las Positas and Collier Canyon Creek. These areas, which are subject to inundation by the one percent annual chance flood event, are contained within the floodplain of existing drainage channels, and include the Portola Avenue flyover, as well as commercial areas along the north side of Airway Boulevard (City of Livermore, 2015). North of I-580, some sections along Collier Canyon Creek also are within Flood Zone A. The one percent annual flood discharge areas are contained in culverts along the creek. In addition, portions of the Planning Area in the vicinity of Arroyo Las Positas are within FEMA shaded Zone X. These are areas of moderate flood hazard, usually between the limits of the 100-year and 500-year floods. Areas within the 500-year flood-hazard area are subject to a 500-year flood, which means that, in any given year, the risk of flooding is 0.2 percent.

In addition, the Del Valle Dam, located at the northern end of Lake Del Valle southeast of Livermore, and the Patterson Dam, located east of Greenville Road and north of Patterson Pass Road, could cause widespread flooding in the City in the event of dam failure.

22. FEMA designated Zone A areas can be further subdivided (AO, AH, A1-A30, AE, A99, AR, AR/AE, AR/AO, AR/A1-A30, AR/A) according to variations in depth of potential flooding, flood velocity, and other factors derived from hydraulic analysis.

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FIGURE 6-4: HAZARDOUS MATERIALS SITES

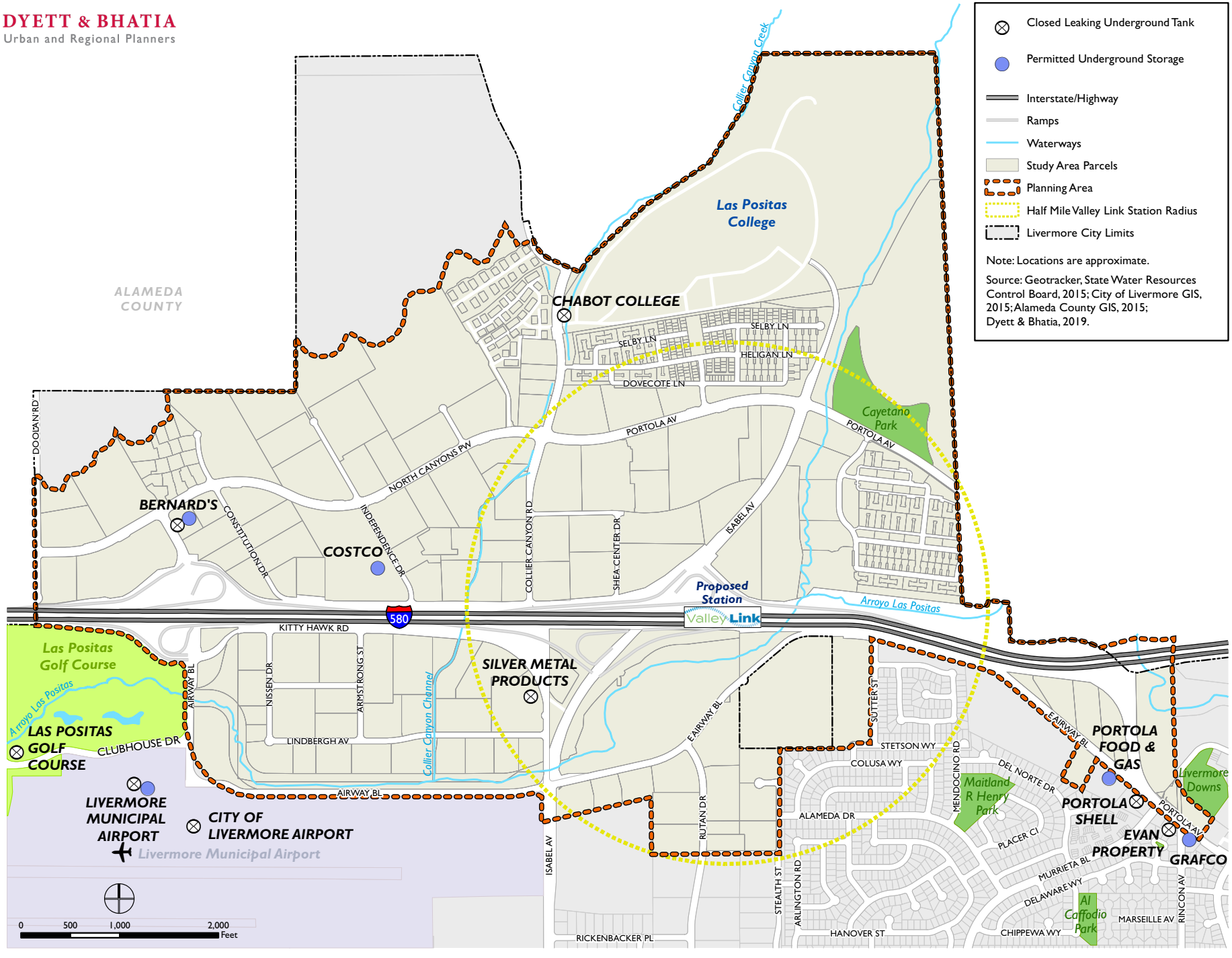

FIGURE 6-5: WATERWAYS AND FLOOD ZONES

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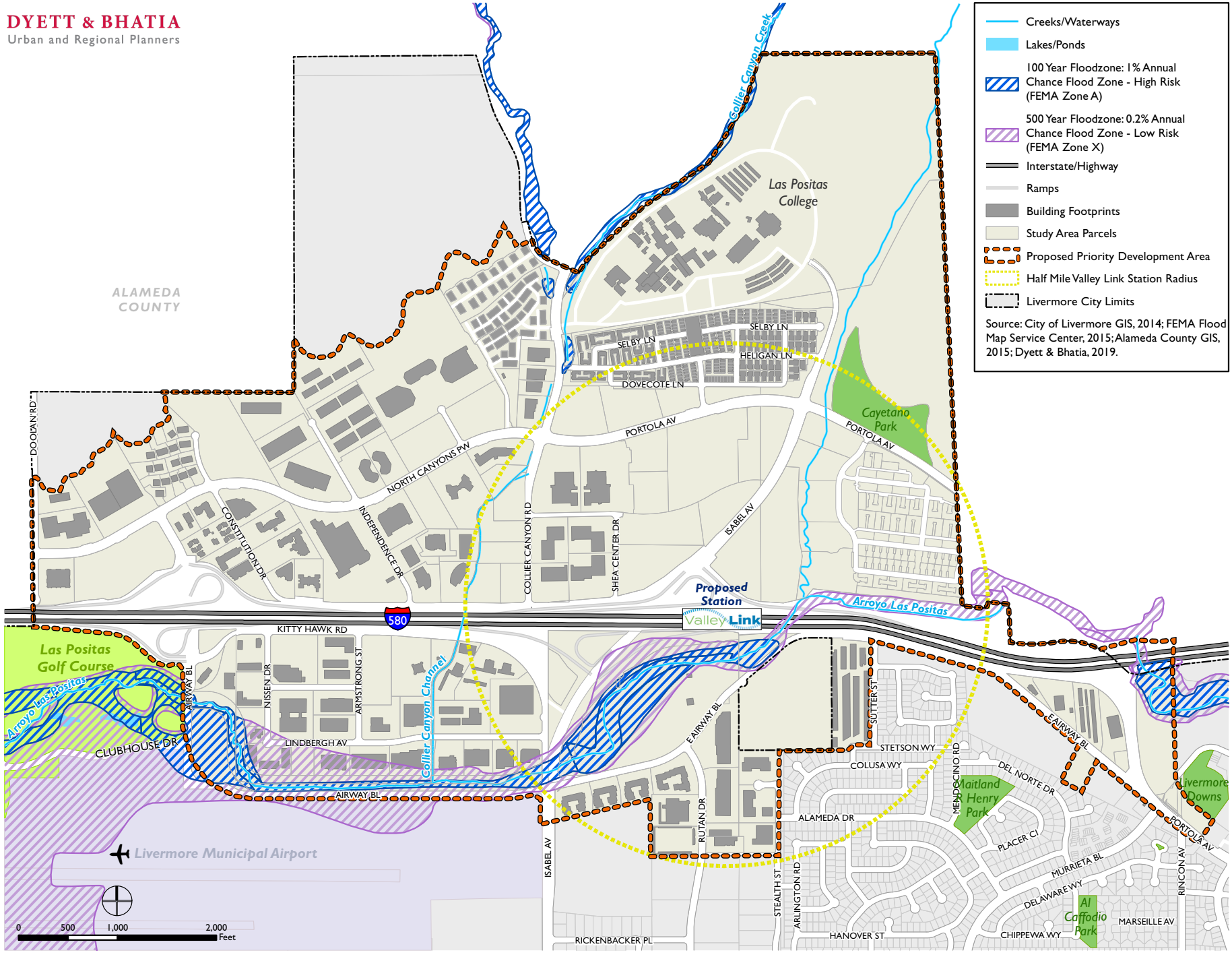


Regular inspections and required maintenance of the dams substantially reduce the potential for catastrophic failure. In 2002, the City adopted an evacuation plan for the Del Valle and Patterson dam failure inundation areas as an annex to the Comprehensive Emergency Management Plan. Lake Del Valle is located south of the Planning Area and Patterson Reservoir is located east of the Planning Area. However, according to dam failure inundation maps, although portions of the city are within the Del Valle and Patterson Dam inundation zones, the Planning Area is not located within a dam inundation zone. In addition, there are no levees within or around the Planning Area.

The City's 2018 Local Hazard Mitigation Plan addresses planning and mitigation efforts for local hazards such as flooding, wildfire, and landslides.

GOALS AND POLICIES

G-ENV-5: Minimize the exposure of new development in the Planning Area to hazardous materials and flooding.

P-ENV-29: Require documentation of the site investigation and any required cleanup to be submitted to City staff during the entitlement review process. Remediation and clean-up of any contaminated sites in the Planning Area shall be in accordance with federal and State standards.

P-ENV-30: Ensure compliance with the City's Stormwater Master Plan to reduce flooding and stormwater hazards and for information on site-specific flooding areas.

- Development that falls within potential flooding areas shall design buildings to be at least 12 inches above the potential flooding elevation.
- The City may require a site-specific flooding hazard analysis where the City determines there is moderate to high flooding potential.

P-ENV-31: Ensure new projects within the 100-year flood zone are designed to reduce flood risk. In accordance with Municipal Code Chapter 16.12, Flood Control Regulations, strategies include site planning, grading to minimize flood risk, and flood proofing new commercial construction.

P-ENV-32: If any structure or grading for the Isabel Station parking will alter the floodplain, a floodplain analysis including a conditional letter of map revision and letter of map revision may be required to meet FEMA requirements in the City.

P-ENV-33: Require that a final drainage study be prepared for projects in the Planning Area by a registered civil engineer and submitted to the City of Livermore with the initial grading plan check in accordance with City, County, and engineering standards, prior to issuance of a grading permit. The final study shall identify stormwater runoff quantities (to mitigate the 100-year storm event) from the development of the site and upstream of the site, and shall identify all existing or proposed drainage facilities intended to discharge this runoff. The final study shall include a capacity analysis verifying the adequacy of all facilities to convey runoff to an adequate outfall capable of receiving the stormwater runoff without damage to public or private property. If the receiving facilities are determined to be under capacity, then onsite detention would be considered.

P-ENV-34: The 6.4-acre property located at the bend of Airway Boulevard across from the Livermore Municipal Airport is within the floodplain and covered by a Zone 7 Flood Control Easement. Any development on this parcel cannot hinder the purpose, intent and use of the easement for flood control purpose. Interim uses such as surface parking and temporary sales with no permanent buildings can be considered with approval by City and Zone 7. The large oak tree shall also be preserved in good health as part of any physical change on the property.

6.6 GEOLOGY, SOILS, SLOPES AND FAULTS

The composition of geologic material, topography, and groundwater conditions may pose risks for geologic hazards within the Planning Area. Figure 6-6 summarizes these potentially hazardous conditions, showing areas prone to liquefaction (moderate, high, and very high liquefaction susceptibility), fault traces, and areas with slopes greater that 20 percent. Additional maps related to soil types, landslides, and slope are included in the EIR on the plan.

While steep slopes are generally only outside of the Planning Area's boundaries and within the existing hillside conservation area, areas of moderate liquefaction and fault lines are throughout the Planning Area.

City of Livermore requirements for geotechnical studies apply to all development within the Isabel Neighborhood. In addition, the Isabel Neighborhood Specific Plan Environmental Impact Report addresses these hazards in detail, and policies related to the prevention of geologic hazards are provided as follows.

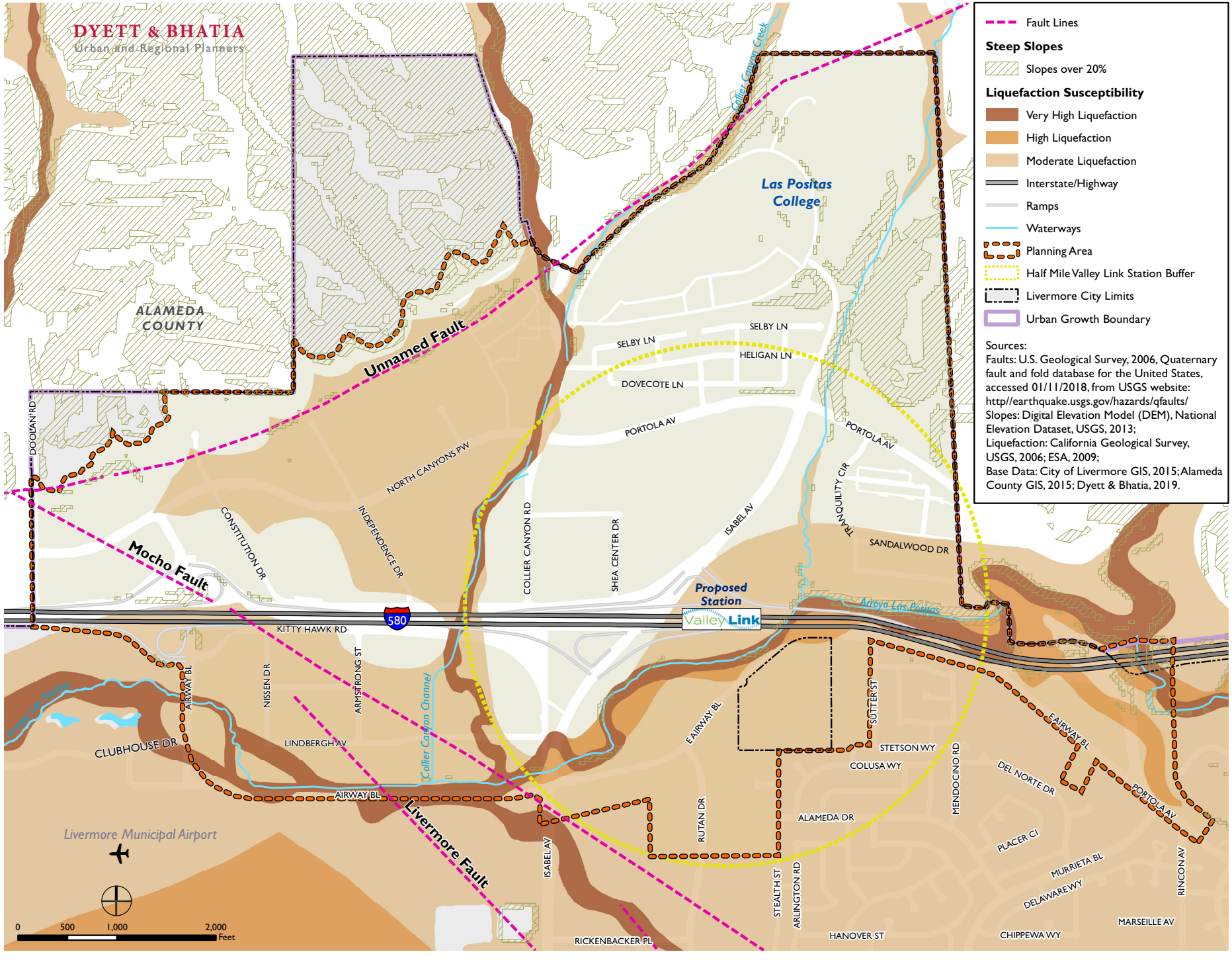
GOAL AND POLICIES

G-ENV-6: Reduce risks resulting from geologic and seismic hazards.

P-ENV-35: Ensure continued compliance with City standards and procedures for minimizing risks associated with geology and soils, including through integra- tion of required geotechnical investigations into the planning and design of projects.

P-ENV-36: Require development applications to include a preliminary soils report and hydrologic and hydraulic analyses in accordance with the City's Facility Planning Guidelines, the City's Scenic Corridor Polices, and the Development Plan Check Manual.

FIGURE 6-6: SOILS HAZARDS



6.7 CULTURAL RESOURCES

Cultural resources are defined as buildings, sites, structures, or objects that may have historical, architectural, archaeological, paleontological, cultural, or scientific importance. As part of the planning process, a field reconnaissance and supplemental research was conducted to document all cultural resources within the planning area. The research found 11 cultural resources—six archaeological and five historic resources (above ground and intact from the historic period). Among the historic resources is the Gandolfo Ranch Historic District.

The fact that the Planning Area encompasses a portion of the Arroyo Las Positas suggests that the Planning Area has elevated potential for archaeological resources, such that unrecorded archaeological resources may also exist within the Planning Area.

Conservation is a priority for the Livermore community, and standard City of Livermore protocol must be followed to ensure that any cultural resources within the Isabel Neighborhood be documented and conserved to the extent feasible. Policies that follow provide additional guidance on the preservation of cultural resources within the Planning Area.

GOAL AND POLICIES

G-ENV-7: Protect and conserve cultural resources within the Planning Area.

P-ENV-37: When future individual projects are proposed and require site-specific environmental reviews, require project proponent to retain a professional who meets the Secretary of the Interior's standards for archaeology to conduct a project-level study of the proposed action. Such studies will include the following:

- Review of the NWIC records search or conduct an updated records search, if necessary;
- Archaeological pedestrian survey of the proposed project area; and
- Formal evaluation to determine NRHP or CRHR eligibility.

In those instances where it has been determined that unique archaeological resources may be impacted, recommended mitigation measures, including but not limited to, avoidance, preservation in place, and data recovery may be applied.

P-ENV-38: Require that all applicants proposing development projects within the Planning Area retain a qualified paleontologist, as defined by the Society for Vertebrate Paleontology, who is experienced in teaching non-specialists, prior to the start of any excavation, drilling, or pile-driving activities. The qualified paleontologist will train all construction personnel who are involved with earthmoving activities, including the site superintendent, regarding the possibility of encountering fossils, the appearance and types of fossils that are likely to be seen during construction, and proper notification procedures should fossils be encountered. Procedures to be conveyed to workers include halting construction within 50 feet of any potential fossil find and notifying a qualified paleontologist, who will evaluate the significance. The qualified paleontologist will also make periodic visits during earthmoving in high sensitivity sites to verify that workers are following the established procedures.

P-ENV-39: Require development to follow the following steps regarding discovery of paleontological resources:

- If paleontological resources are discovered during earthmoving activities, the construction crew will immediately cease work near the find and notify the project applicant. Construction work in the affected areas will remain stopped or be diverted to allow recovery of fossil remains in a timely manner.
- The project applicant will retain a qualified paleontologist to evaluate the resource and prepare a recovery plan in accordance with Society of Vertebrate Paleontology guidelines. The recovery plan may include a field survey, construction monitoring, sampling and data recovery procedures, museum storage coordination for any specimen recovered, and a report of findings.

- Recommendations in the recovery plan that are determined by the project applicant to be necessary and feasible will be implemented before construction activities can resume at the site where the paleontological resources were discovered.
- The project applicant may be responsible for ensuring that the monitor's recommendations regarding treatment and reporting are implemented.

P-ENV-40: Ensure that all future development in the Planning Area shall occur in accordance with State laws pertaining to the discovery of human remains. Accordingly, if human remains of Native American origin are discovered during project construction, the developer and/or the Planning Department shall comply with State laws relating to the disposition of Native American burials, which fall within the jurisdiction of the Native American Heritage Commission (Pub. Res. Code Sec. 5097). If any human remains are discovered or recognized in any location on a project site, there shall be no further excavation or disturbance of the site or any nearby area reasonably suspected to overlie adjacent human remains until:

- The Alameda County Coroner/Sheriff has been informed and has determined that no investigation of the cause of death is required; and
- If the remains are of Native American origin:
  - The descendants of the deceased Native Americans have made a recommendation to the landowner or the person responsible for the excavation work, for means of treating or disposing of, with appropriate dignity, the human remains and any associated grave goods as provided in Public Resources Code Section 5097.98; or
  - The Native American Heritage Commission was unable to identify a descendant or the descendant failed to make a recommendation within 24 hours after being notified by the commission.