DUBLIN BOULEVARD – NORTH CANYONS PARKWAY EXTENSION PROJECT

ALAMEDA COUNTY, CALIFORNIA
DISTRICT 4 – ALA – 0
CITY OF DUBLIN
RTPL 5432 (019)

Draft Environmental Assessment

Prepared by the
State of California, Department of Transportation

The environmental review, consultation, and any other actions required by applicable Federal environmental laws for this Project are being, or have been, carried out by Caltrans pursuant to 23 USC 327 and the Memorandum of Understanding dated December 23, 2016 and executed by FHWA and Caltrans.

Caltrans

February 2020

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GENERAL INFORMATION ABOUT THIS DOCUMENT

WHAT'S IN THIS DOCUMENT

The California Department of Transportation (Caltrans or Department), as assigned by the Federal Highway Administration (FHWA), in cooperation with the City of Dublin (Dublin), the City of Livermore (Livermore), Alameda County (County), and Alameda County Transportation Commission (Alameda CTC), has prepared this Draft Environmental Assessment (Draft EA). This Draft EA examines the potential environmental impacts of alternatives being considered for the Project located in Alameda County, California. This document tells you why the Project is being proposed, alternatives considered, how the existing environment could be affected, the potential impacts of each of the alternatives, and the proposed avoidance, minimization, and/or mitigation measures.

What You Should Do:

- Please read this document.
- Additional copies of this document and the related technical studies are available for review online at: https://dublin.ca.gov/1919/Dublin-Boulevard-Extension and in print at:
  Dublin City Hall, 100 Civic Plaza, Dublin, California
  Livermore City Hall, 1052 South Livermore Avenue, Livermore, California
  Alameda CTC, 1111 Broadway, Suite 800, Oakland, California
  Caltrans District 4, 111 Grand Avenue, Oakland, California
- For more information, visit the Project website at: https://www.alamedactc.org/programs-projects/multimodal-arterial-roads/
- Attend the public hearing:
  March 19, 2020 from 6:00 to 8:00 p.m.
  City of Dublin Public Library, Program Room
  200 Civic Plaza, Dublin, CA 94568
- We'd like to hear what you think. Comments on the Project can be sent to:
  Obaid Khan
  City of Dublin
  100 Civic Plaza, Dublin, CA 94560
  Obaid.Khan@dublin.ca.gov
- Be sure to send comments by the deadline: **March 24, 2020 by 5:00 p.m.**

What Happens Next:

After comments are received from the public and reviewing agencies, Caltrans, as assigned by the FHWA, may: (1) give environmental approval to the proposed Project, (2) request additional environmental studies, or (3) the Local Agency may abandon the Project. If the Project is given environmental approval and funding is obtained, the local agencies could design and construct all or part of the Project.

ALTERNATIVE FORMATS:

For individuals with sensory disabilities, this document can be made available in Braille, in large print, on audible file, or on computer disk. To obtain a copy in one of these alternate formats, please call or write to Caltrans District 4, Attn: Antara Murshed, Office of Local Assistance, 111 Grand Avenue, Oakland, CA 94612; (510) 286-5250 (Voice), or use the California Relay Service 1 (800) 735-2929 (TTY), 1 (800) 735-2929 (Voice) or 711.

DISTRICT 4 – ALA
RTPL 5432 (019)

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Draft Environmental Assessment

Submitted Pursuant to:
(Federal) 42 USC 4332(2)(C)

THE STATE OF CALIFORNIA
Department of Transportation

2/18/2020
Date

Tony Tavares
District 4 Director
California Department of Transportation

The following persons may be contacted for more information about this document:

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SUMMARY

This section includes information on the roles of Caltrans and the City of Dublin, background on the environmental process to-date, and a summary table listing the effects of the Project and avoidance, minimization, and mitigation measures proposed.

The Project is subject to federal, as well as state environmental review requirements because the City of Dublin proposes the use of federal funds from the Federal Highway Administration (FHWA) and/or the Project requires an approval from FHWA. Project documentation, therefore, has been prepared in compliance with the National Environmental Policy Act (NEPA). The City of Dublin is the Project proponent and the lead agency under the California Environmental Quality Act (CEQA). Caltrans is the lead agency under NEPA, and the environmental review, consultation, and any other action required in accordance with applicable Federal laws for this Project is being, or has been, carried-out by Caltrans under its assumption of responsibility pursuant to 23 United States Code (USC) 327.

PROJECT BACKGROUND AND HISTORY

The eastern extension of Dublin Boulevard from its current terminus at Fallon Road to the Doolan Road/North Canyons Parkway intersection has been planned since 1984. Dublin's General Plan, the General Plans of Alameda County and Livermore, Eastern Dublin Specific Plan (EDSP), Fallon Village Supplemental Environmental Impact Report (SEIR), and Plan Bay Area 2040 all include the extension of Dublin Boulevard. The Project is programmed in the current TIP.

The Project would include the extension of Dublin Boulevard approximately 1.5 miles eastward through eastern Dublin and an unincorporated portion of Alameda County. The roadway extension would start from the current terminus of Dublin Boulevard at the Dublin Boulevard/Fallon Road intersection in Dublin and would end at the Doolan Road/North Canyons Parkway intersection along the boundary of Alameda County and Livermore.

While this Project is subject to the requirements of both NEPA and CEQA, separate environmental documents have been prepared, one that complies with NEPA and another that complies with CEQA. This Environmental Assessment (EA) complies with the requirements of NEPA and other federal environmental laws. Compliance with CEQA and state environmental laws is provided in the Dublin Boulevard – North Canyons Parkway Extension Project Final Environmental Impact Report which was certified by the City of Dublin on August 20, 2019.

This EA analyzes the Project's effects on environmental resources by comparing the effects of the No Build Alternative to the Build Alternative. Avoidance, minimizations, and mitigation measures (AMMs) have been developed for the following topic areas: Utilities/Emergency Services, Traffic and Transportation/Pedestrian and Bicycle Facilities, Visual/Aesthetics, Cultural Resources, Geology/Soils/Seismic/Topography, Paleontology, Hazardous Waste/Materials, Air Quality, Noise and Vibration, and Biological Resources. The measures are detailed under each topic section, and summarized in **Appendix C**.

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CHAPTER 1 PROPOSED PROJECT

1.1 INTRODUCTION

The City of Dublin (Dublin), in cooperation with the City of Livermore (Livermore), Alameda County (County), Alameda County Transportation Commission (Alameda CTC), and the California Department of Transportation (Caltrans) as assigned by the Federal Highway Administration (FHWA), proposes to extend Dublin Boulevard approximately 1.5 miles eastward through eastern Dublin and an unincorporated portion of the County, terminating at the boundary between the County and Livermore city limits (Project). The Project vicinity and proposed alignment of the roadway extension is shown on **Figure 1-1**, and Project components are shown on **Figure 1-2**, **Figure 1-3,** and **Figure 1-4**, and described in detail in **Section 1.3, Project Description**.

The Project is included in the MTC's current conforming RTP, Plan Bay Area 2040 (RTP ID 17-01-0048) and the current financially constrained 2019 TIP (TIP ID ALA150003). In the discussion below and throughout this environmental document, the term "Project site" refers to the permanent area that would be changed by the Project. The term "construction footprint" is defined as an area larger than the Project site that would be temporarily affected by the Project due to construction. The construction footprint includes all areas of the Project site. The "operational footprint" is a term that is equivalent to the Project site but is used in some technical discussions to provide clarity between the construction and operational footprints.

The term "study area" refers to an area including the Project site but extending beyond the Project site to include surrounding areas that could be affected by the Project. The "study area" is not defined as a specific radius around the Project site, but varies from one environmental topic to another; some environmental topics are generally concerned with impacts close to the Project site, such as archaeological resources, while other topics by their nature are concerned with broader impacts, such as regional growth.

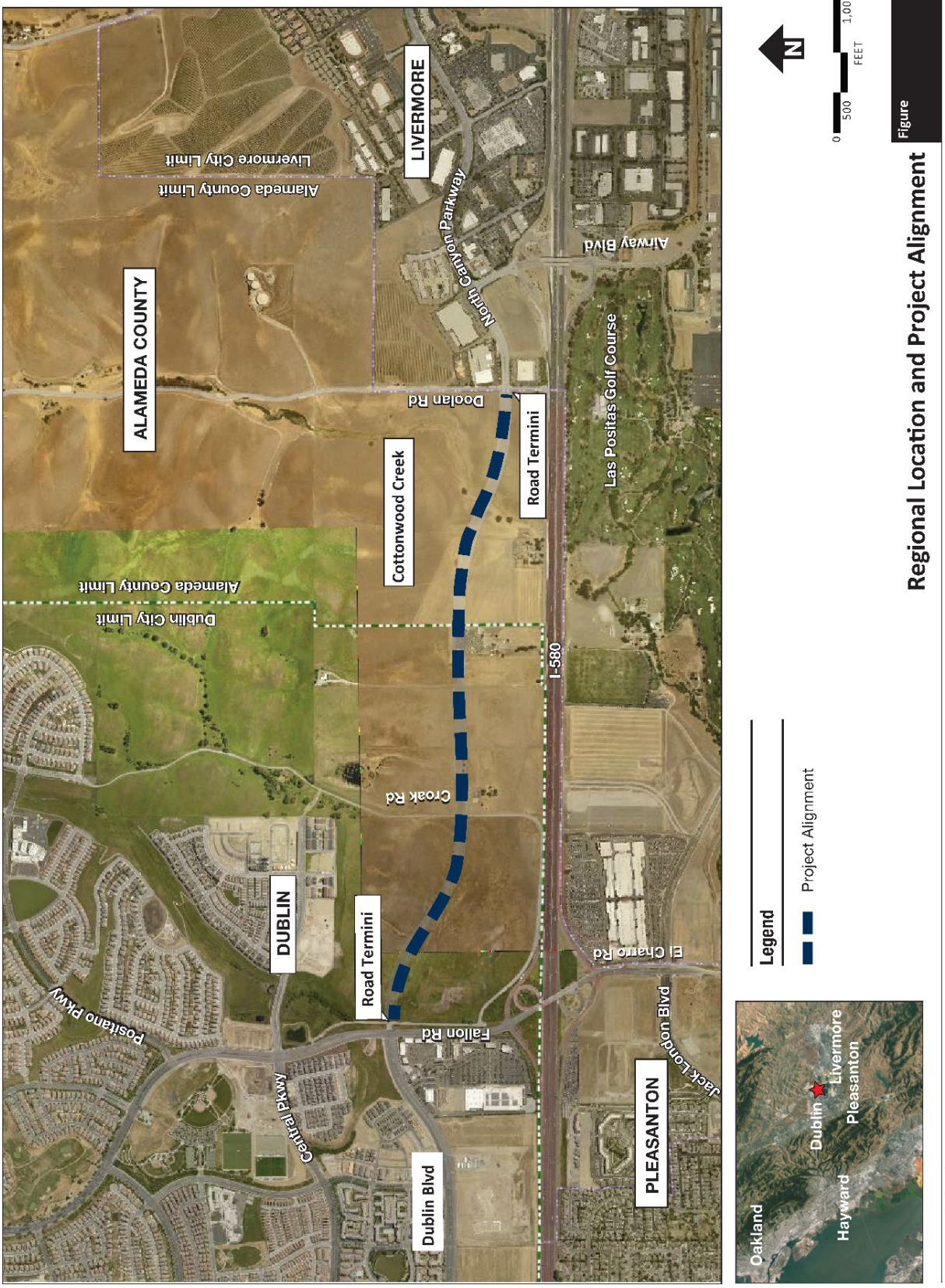
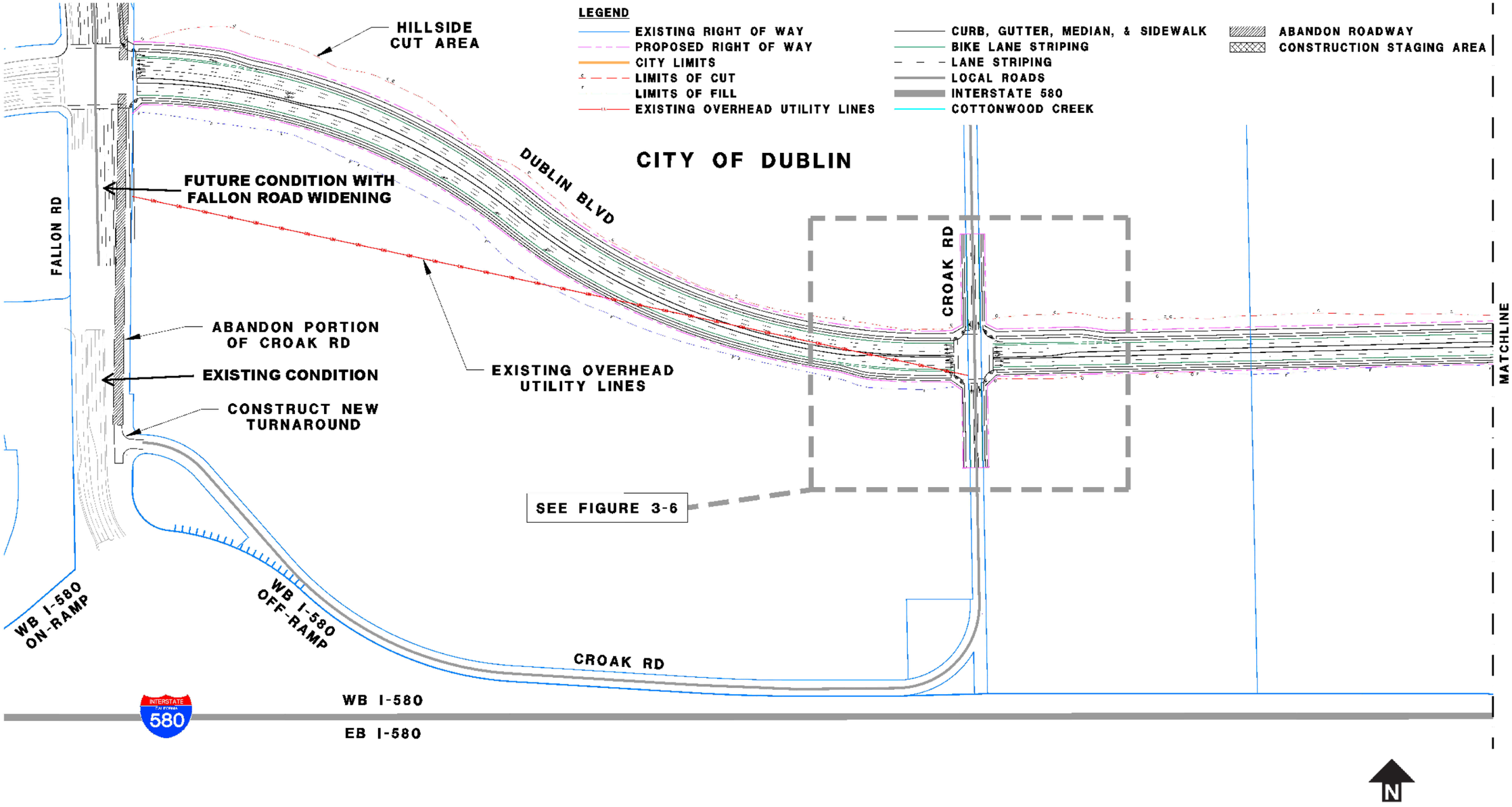


Figure 1-1

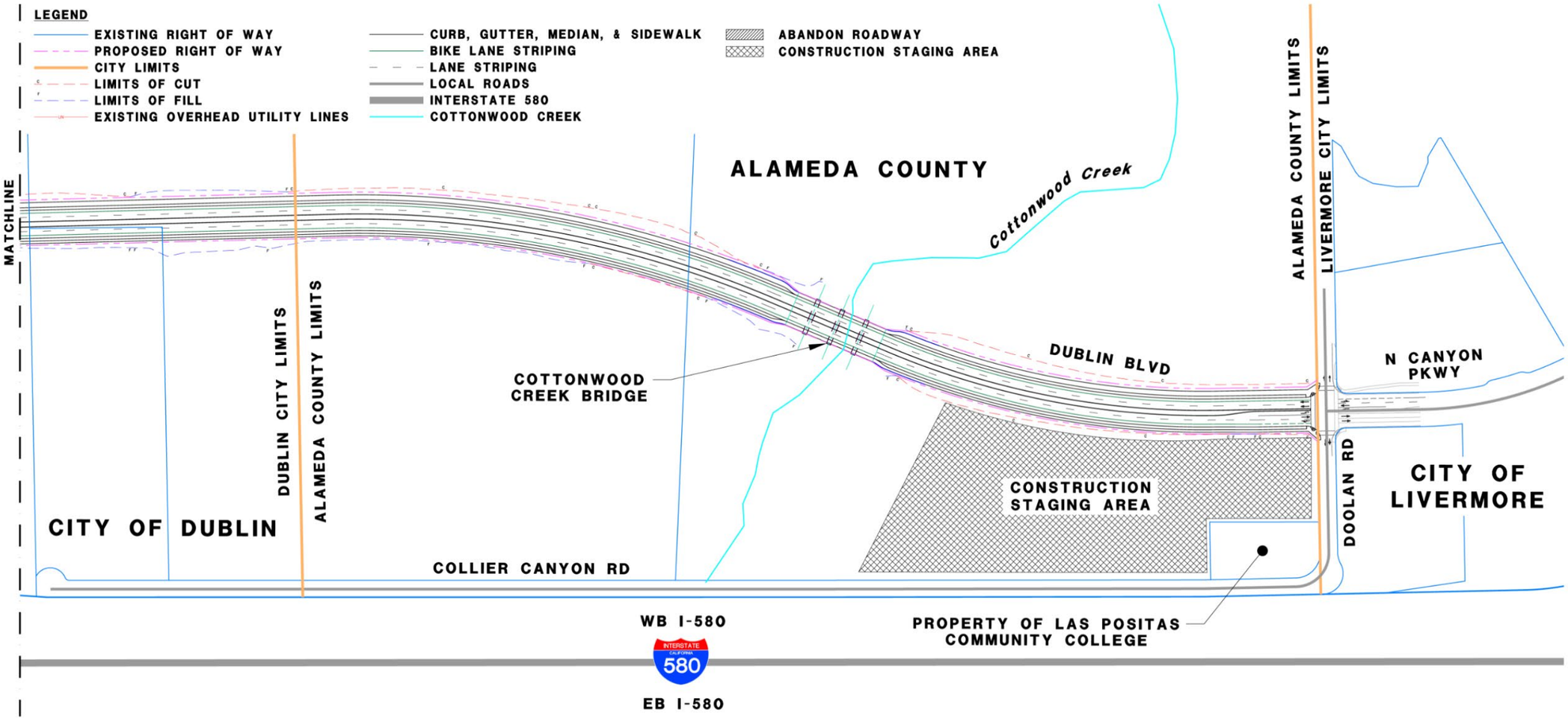
Regional Location and Project Alignment

Source: Circlepoint, 2018



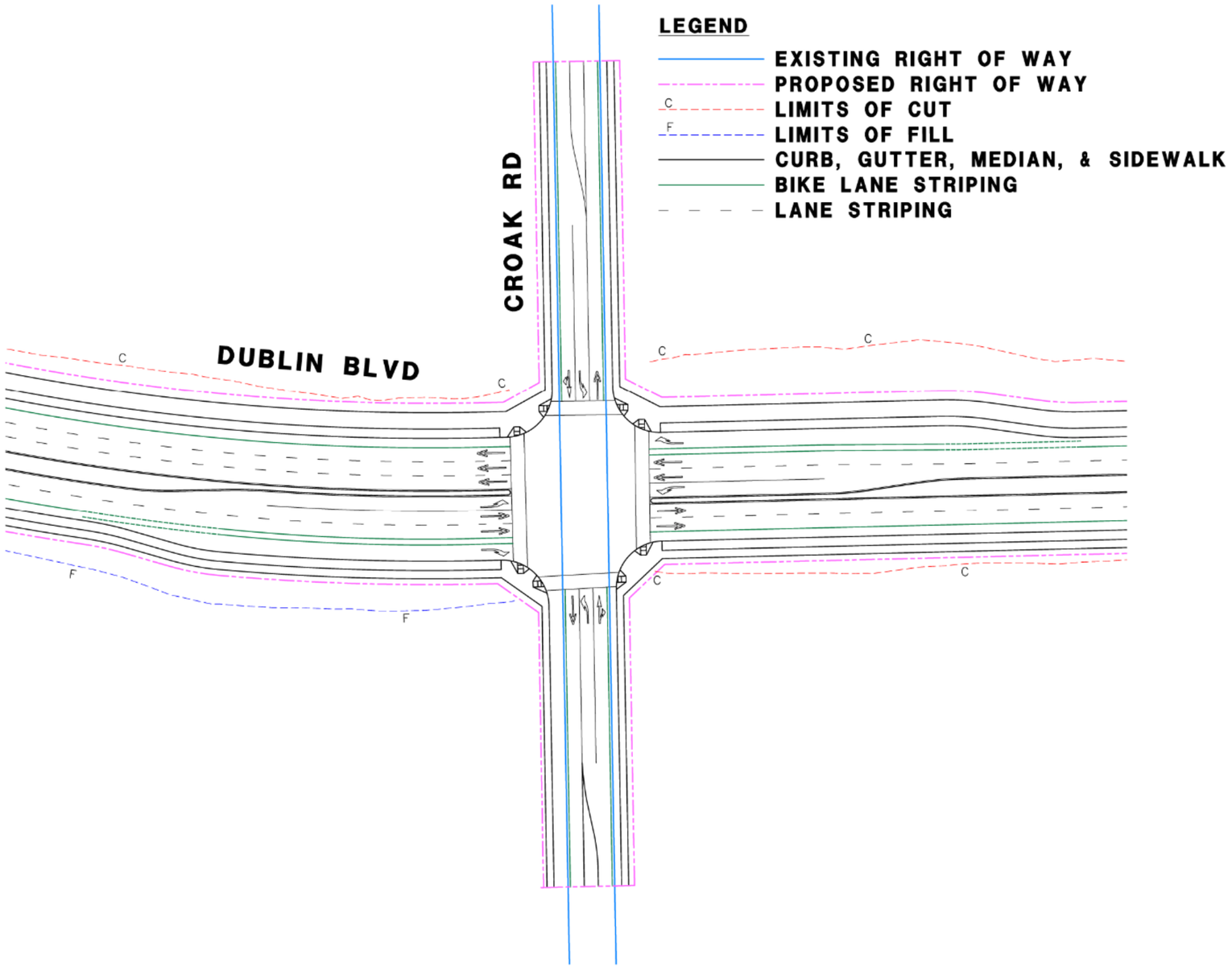
Proposed Improvements Figure **1-2**

Source: BKF, 2019



Proposed Improvements Figure **1-3**

Source: BKF, 2019



Proposed Improvements – New Croak Road Intersection Figure **1-4**

Source: BKF, 2019

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1.1.1 PROJECT BACKGROUND AND HISTORY

The eastern extension of Dublin Boulevard from its current terminus at Fallon Road to the Doolan Road/North Canyons Parkway intersection has been planned since 1984. Dublin's General Plan, the General Plans of the County and Livermore, Eastern Dublin Specific Plan (EDSP), Fallon Village Supplemental Environmental Impact Report (SEIR), and Plan Bay Area 2040 all include the extension of Dublin Boulevard. The Project is programmed in the current TIP.[1]

INTERSTATE 580 IN DUBLIN

Interstate 580 (I-580) is a major regional connector, beginning in Marin County in the North Bay Area, connecting through the cities of Berkeley and Oakland before traveling east through Dublin, Pleasanton, and Livermore (Tri-Valley area cities in the County), and ending in San Joaquin County south of Tracy. Traffic congestion on I-580 is an ongoing issue in the Tri-Valley area.[2] Various projects on I-580, including roadway widening, interchange improvements, and express lanes have been implemented or are planned throughout the County. In 2016, new I-580 express lanes were opened in Dublin, Pleasanton, and Livermore to provide congestion relief.[3] While the express lanes have helped reduce some congestion, issues remain; traffic volumes on I-580 during peak commute times continue to exceed capacity, leading to delays.

Caltrans' Transportation Corridor Concept Report for eastern I-580 identifies bottlenecks and congestion along the portion of I-580 south of the Project site, along with anticipated capacity issues in the future.[4,5]Caltrans' corridor system management plan (CSMP) for eastern I-580 reflects similar existing and future congestion issues along this segment of I-580. The portion

[1]Each metropolitan planning organization (MPO) is required, under 49 U.S.C. 5303(j), to develop a Transportation Improvement Program (TIP)—a list of upcoming transportation projects—covering a period of at least four years.

[2]The Tri-Valley area is a triangle-shaped region of the eastern San Francisco Bay Area, 18 miles southeast of Oakland and 33 miles from San Francisco. It encompasses the cities of Pleasanton, Livermore, Dublin, San Ramon, Danville, Alamo, Blackhawk and Diablo.

[3] Express lanes allow carpool vehicles, clean air vehicles, motorcycles, and transit vehicles to access a separate lane during peak commute times. Single-occupancy vehicles can pay a toll to travel in express lanes during peak hours.

[4] Caltrans, 2010

[5] Caltrans, 2002

of I-580 from the I-680 interchange to Isabel Avenue/SR-84 is shown as having the worst evening traffic congestion along the eastern I-580 corridor.

Similarly, the Circulation and Scenic Highways Element of Dublin's General Plan discusses existing and future capacity issues along the I-580 corridor. Dublin's General Plan outlines how capacity on I-580 has been affected by new development in Dublin and Livermore, and that additional capacity will be needed to accommodate planned development in Dublin and in the City's Eastern Extended Planning Area (EEPA) in particular. The EEPA is shown on **Figure 1-5**. Dublin's General Plan identifies strategies for addressing capacity issues along I-580, which include widening of I-580 through the addition of more travel lanes, improvements to existing interchanges between I-580 and local roadways and widening or extending local roadways.

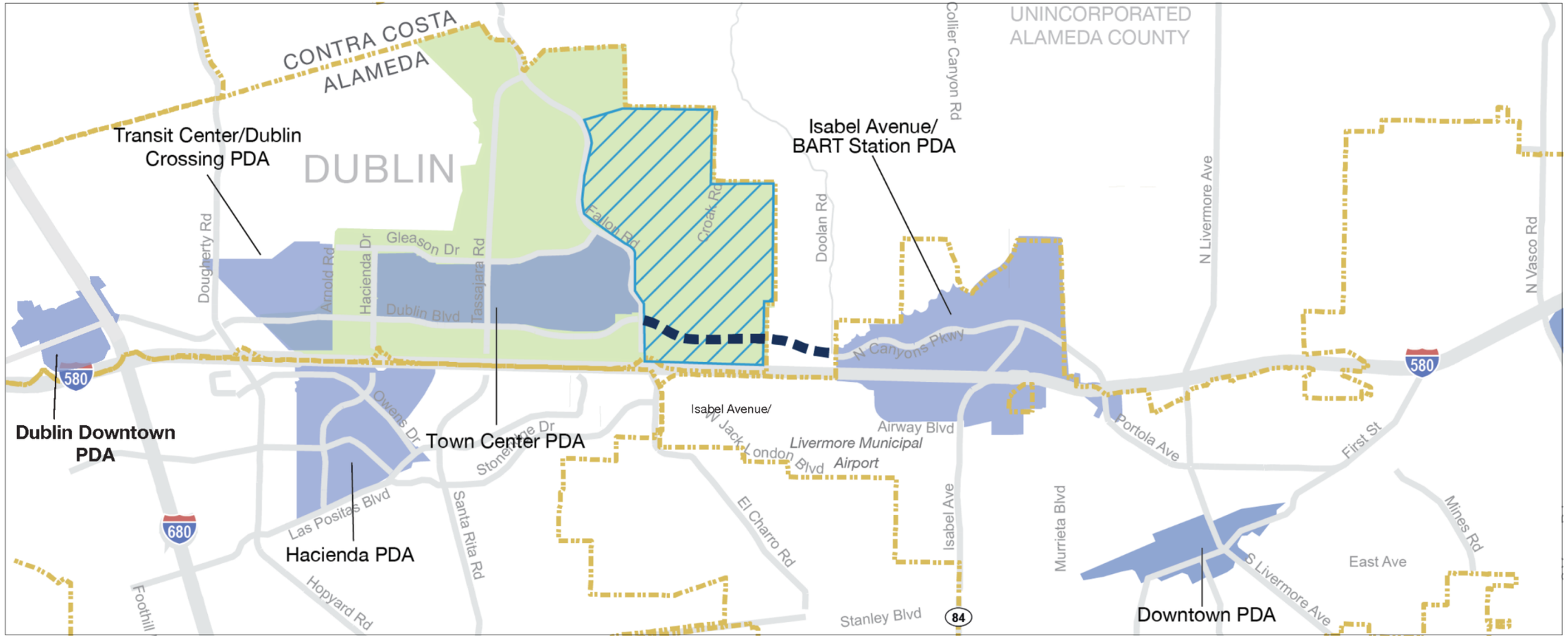
DUBLIN BOULEVARD AND NORTH CANYONS PARKWAY

Dublin Boulevard is a major arterial facility connecting western parts of Dublin, Dublin's downtown area, and partially developed areas in the EEPA.[6]In Dublin's General Plan, Dublin Boulevard is classified as an arterial roadway from its beginning in western Dublin to the intersection of Dublin Boulevard and Tassajara Road. From Tassajara Road to its terminus at Fallon Road, Dublin Boulevard is classified as a collector roadway.

Dublin Boulevard provides connectivity between downtown Dublin and the Dublin/Pleasanton Bay Area Rapid Transit (BART) Station, Camp Parks Army Base, the regional Iron Horse Trail, and various residential, office, and commercial land uses. The area within approximately 0.5-mile of the existing Dublin Boulevard corridor is developed with residential, commercial, and business uses, shown on **Figure 1-6**.

North Canyons Parkway is a four-lane major street in Livermore that provides access to commercial, industrial, residential development, and educational facilities in western Livermore. The area adjacent to North Canyons Parkway includes residential, business, and commercial land uses show in **Figure 1-6**.

[6] Dublin Boulevard is defined as Minor Arterial to Other Principal Arterial, depending on location, in the California Road System, maintained by Caltrans.



Planning Areas Figure 1-5

Source: Circlepoint, 2018

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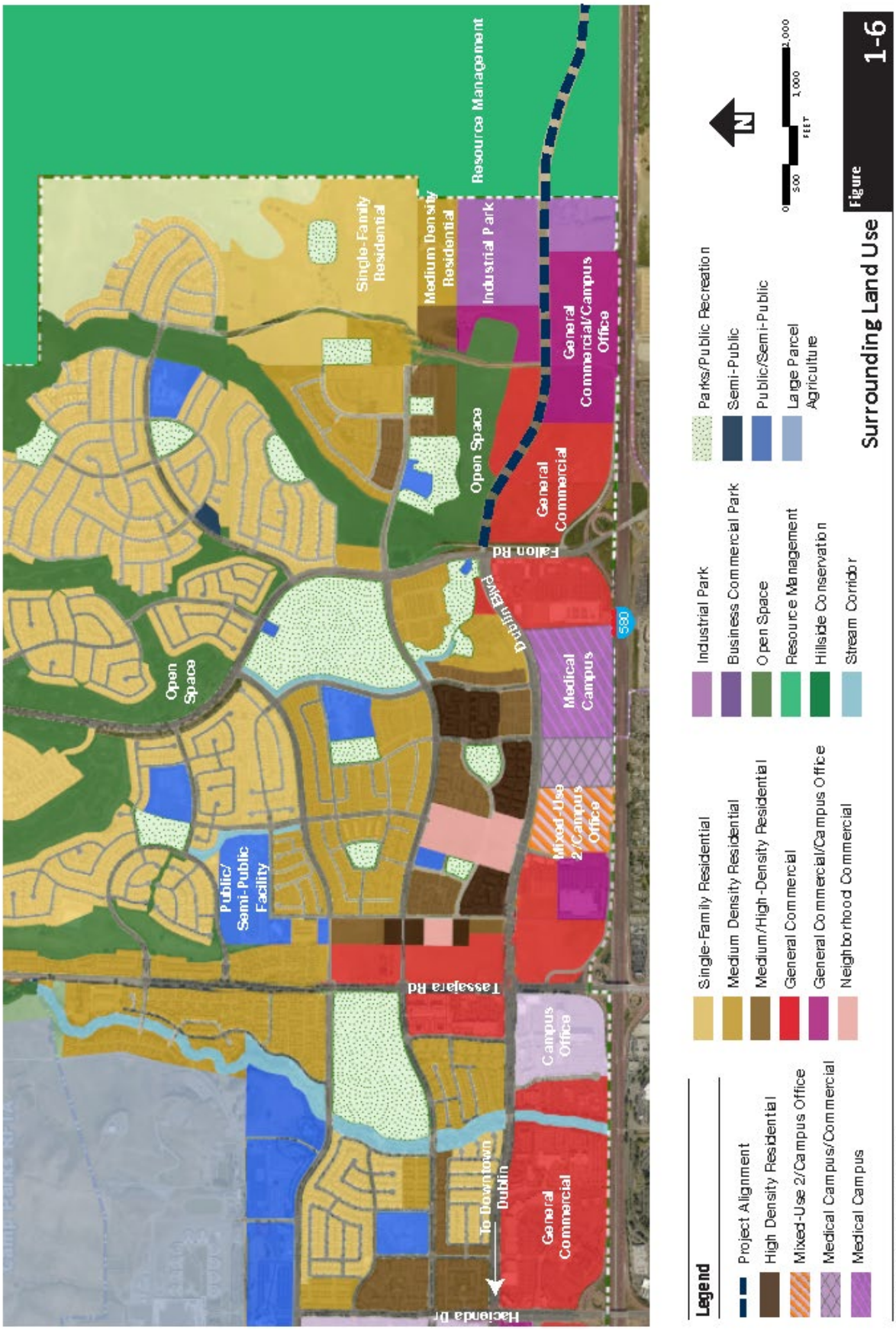
Resource Management
Single-Family Residential
Medium Density Residential
Industrial Park
General Commercial/Campus Office
Open Space
General Commercial
Fallon Rd
Dublin Blvd
580
Open Space
Medical Campus
Mixed-Use 2/Campus Office
Public/ Semi-Public Facility
Tassajara Rd
Campus Office
To Downtown Dublin
General Commercial
Hacienda Dr
Legend
Project Alignment
High Density Residential
Mixed-Use 2/Campus Office
Medical Campus/Commercial
Medical Campus
Single-Family Residential
Medium Density Residential
Medium/High-Density Residential
General Commercial
General Commercial/Campus Office
Neighborhood Commercial
Industrial Park
Business Commercial Park
Open Space
Resource Management
Hillside Conservation
Stream Corridor
Parks/Public Recreation
Semi-Public
Public/Semi-Public
Large Parcel Agriculture
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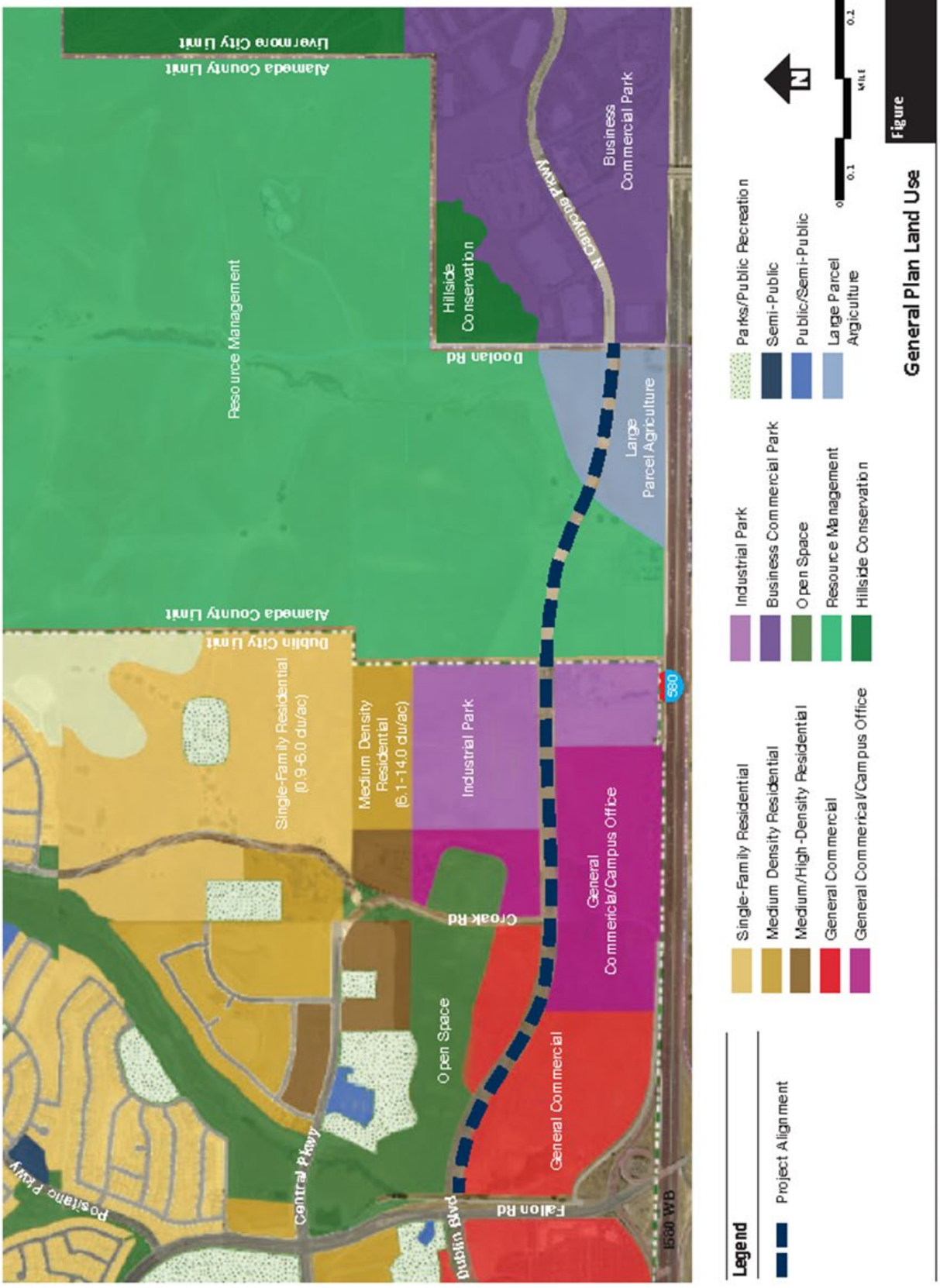
0
500
1,000
2,000
FEET
Figure 1-6
Surrounding Land Use
Source: City of Dublin, 2018


Livermore City Limit
Alameda County Limit
Resource Management
Hillside Conservation
N Canyons Pkwy
Business Commercial Park
Dolan Rd
Large Parcel Agriculture
Alameda County Limit
Dublin City Limit
Single-Family Residential (0.9-6.0 du/ac)
Medium Density Residential (6.1-14.0 du/ac)
Industrial Park
580
General Commercial/Campus Office
Croak Rd
Open Space
General Commercial
Fallon Rd
Dublin Blvd
I-580 WB
Central Pkwy
Positano Pkwy
Legend
Project Alignment
Single-Family Residential
Medium Density Residential
Medium/High-Density Residential
General Commercial
General Commerical/Campus Office
Industrial Park
Business Commercial Park
Open Space
Resource Management
Hillside Conservation
Parks/Public Recreation
Semi-Public
Public/Semi-Public
Large Parcel Agriculture
N
0
0.1
0.2
0.4
Miles
Figure 1-7
General Plan Land Use
Source: City of Dublin, 2014; City of Livermore, 2014; Alameda County, 2000

1.1.2 REGIONAL AND LOCAL PLANNING

The extension of the Dublin Boulevard/North Canyons Parkway is described in various regional and local land use planning documents. These regulating documents include Plan Bay Area; the general plans for Dublin, Livermore, and the County; and the EDSP and Fallon Village SEIR.

The Project was included in Plan Bay Area 2035, a joint effort between MTC and the Association of Bay Area Governments (ABAG). Plan Bay Area is the RTP for the nine-county San Francisco Bay Area. Plan Bay Area includes Priority Development Areas (PDAs), which are areas in existing communities that have been identified and approved by local jurisdictions for future growth. There are two PDAs in immediate proximity to the Project: The Town Center PDA in Dublin and the Isabel Avenue/Bay Area Rapid Transit Station PDA in Livermore (**Figure 1-5**). Three additional PDAs are in the vicinity of Dublin Boulevard and North Canyons Parkway: Transit Center/Dublin Crossings, Hacienda (in Pleasanton), and Downtown Livermore, also shown on **Figure 1-5**. Plan Bay Area was updated in September 2017 to extend the planning horizon year to 2040. The Project is also included in Plan Bay Area 2040. The Project was approved for inclusion in the regional TIP in 2016 and is included in the current TIP (2019).

As characterized in Plan Bay Area 2040, planned growth throughout the Tri-Valley area will continue to increase transportation demand across all modes. In Dublin, planned development including buildout of the EEPA will result in the generation of new vehicle trips and new demand for transit services. Based on future development planned adjacent to the Project site in Dublin and more broadly in Dublin and Livermore, transportation demand on local roadways and the regional highway system will continue to increase over time. Alameda CTC's traffic model reflects that average daily traffic volumes along I-580 adjacent to and in the vicinity of the Project site are anticipated to increase over time from over 147,000 vehicles in 2013 to over 170,000 vehicles in 2040, an increase of 16 percent.[7]

1.2 PURPOSE AND NEED

1.2.1 PURPOSE

The purpose of the Project is to improve east-west local roadway connectivity between Dublin, the County, and Livermore, and improve mobility, multimodal access, and efficiency for all roadway users. The purpose is also to support an integrated corridor management strategy.

[7] Kittelson, 2018

1.2.2 NEED

The need for the Project is to:

- Eliminate a gap in local roadway network connectivity between the cities of Dublin and Livermore, and improve interconnectivity between Dublin and Livermore PDAs.
- Establish transportation facilities and other public infrastructure to serve planned development in the Dublin and Livermore General Plans, EDSP, and Plan Bay Area.
- Reduce demand on the local highway system by providing local access to existing and planned land uses, including residential, commercial, industrial, and business uses, and local destinations on an alternate local route that is convenient to I-580.
- Reduce local trip lengths in Dublin and between Dublin and Livermore by diverting localized inter-city trips from I-580.
- Provide complete streets and multimodal access between Dublin and Livermore, particularly for key public facilities such as Las Positas College, consistent with the requirements of Senate Bill (SB) 375 and regional complete streets policies on multimodal roadways and sustainable transportation.
- Indirectly relieve congestion on I-580 by providing a completed local route on the north side of I-580 between west of I-680 in Dublin to SR-84 in Livermore.

CAPACITY AND TRANSPORTATION DEMAND

As characterized in ABAG's Plan Bay Area 2040, planned growth throughout the Tri-Valley area will continue to increase transportation demand across all modes. In Dublin, planned development including buildout of the EEPA will result in the generation of new vehicle trips and new demand for transit services. ABAG projections for the Project area are discussed in more detail in Section 1.3.3 (No Build Alternative). Based on future development planned adjacent to the Project site in Dublin and more broadly in Dublin and Livermore, transportation demand on local roadways and the regional highway system will continue to increase over time. Alameda CTC's traffic model reflects that average daily traffic volumes along I-580 in the study area are anticipated to increase over time from over 147,000 vehicles in 2013 to over 170,000 vehicles in 2040, an increase of 16%.[8]

SOCIAL DEMANDS OR ECONOMIC DEVELOPMENT

The Project is needed to provide multimodal access to an area of Dublin planned for new residential, commercial, office, and industrial development. As described above, the Dublin General Plan, subsequent specific plans, and Plan Bay Area anticipate future development in eastern Dublin,

[8] Kittelson, 2018

in part to meet regional housing and jobs needs. Currently, the EEPA is not adequately connected to the local or regional transportation network

MODAL INTERRELATIONSHIPS AND SYSTEM LINKAGES

The Project would provide a needed connection between developed areas of Dublin and the EEPA and between Dublin and Livermore. The roadway extension would close a gap in the existing local roadway network, where Dublin Boulevard prematurely terminates within Dublin's city limits. Similarly, the roadway extension would provide direct access from PDAs in Livermore (Isabel Avenue/Bay Area Rapid Transit Station) and Dublin (Town Center and Transit Center PDAs) to existing and planned employment and commercial areas in Dublin.

AIR QUALITY IMPROVEMENTS

Currently, local and inter-city trips between Dublin and Livermore are completed using I-580, as there is no other direct connection between downtown Dublin and eastern Dublin. The diversion of these local trips onto the regional transportation network adds to congestion and indirectly generates additional air pollutants from traffic congestion. Additionally, use of I-580 for local trips may result in a longer trip length, requiring motorists to go out of their way to reach their destination. The Project would allow local users to shorten their trip distance by using local streets. The Project would include pedestrian and bicycle facilities such as sidewalks, multiuse pathways, bike lanes, and/or bikeways. New transit, bicycle, and pedestrian connectivity would provide local travelers an alternative to personal vehicles. The Project would allow for the future extension of bus service, as described in the EDSP, and would connect future development areas to regional transit (BART).

As described above, congestion on I-580 is anticipated to increase over time as more development is added to eastern areas of Dublin and the region in general. To accommodate this growth and encourage reduced VMT, a multimodal connection between the EEPA and developed areas of Dublin and Livermore is needed.

1.2.3 INDEPENDENT UTILITY AND LOGICAL TERMINI

Logical termini for a Project are defined as rational end points for transportation improvements (23 Code of Federal Regulations [CFR] § 771.111(f)). These rational end points should facilitate a thorough review of the environmental impacts. The Project start and end points (Dublin Boulevard/Fallon Road intersection to the Doolan Road/North Canyons Parkway intersection) were determined based on the purpose of the Project to connect the cities of Dublin and Livermore and to provide access to developable areas of eastern Dublin. The selection of these logical termini, or end points, will allow for a thorough review of environmental impacts as a result of construction and operation of the Project, as demonstrated throughout this environmental document.

A project with independent utility is defined as improvements that are usable and provide a reasonable expenditure even if no additional transportation improvements are made in the area. The Project would extend the current eastern terminus Dublin Boulevard to connect with the

current western terminus of North Canyons Parkway, thus connecting two previously unconnected roadways.

Although the Project would contribute to the expansion and interconnection of the local roadway network described in **Section 1.1.1, Project Background and History**, it would be useable even if no additional transportation improvements in the area are made; the construction of other roadways or transportation facilities are not necessary for this Project to meet the goals noted above. The Project would provide the same benefit regardless of whether or not other transportation projects in the area, such as those listed in the No Build (No Action) Alternative section, move forward. Transportation projects listed in the No Build (No Action) Alternative section could proceed without the extension of Dublin Boulevard to North Canyons Parkway. Moreover, the Project has its own funding and is not dependent on any other projects for such funding.

The Project may be constructed under a single construction contract or in multiple phases depending on funding and travel demand. If the Project is constructed in phases, the first phase would be either the connection of Dublin Boulevard to Croak Road, providing local access to eastern Dublin, or a two-lane extension of Dublin Boulevard from Fallon Road to Doolan Road, which would provide an enhanced local roadway network alternative to I-580. If Dublin Boulevard was first extended only to Croak Road, it would be implemented concurrent with planned development in this area, thereby providing necessary access to development. Either initial option would be functional and useable and would not require other transportation projects in order to proceed. Similarly, the initial extension would not preclude the development of other transportation projects.

This indicates that an initial phase connecting Dublin Boulevard to Croak Road has logical termini and independent utility in providing near-term operational benefits to local travelers using the roadway network and regional travelers using the I-580 corridor. As such, the Project is considered to have independent utility. Furthermore, the Project would not restrict considerations of alternatives for other reasonably foreseeable transportation improvements in the area.

1.3 PROJECT DESCRIPTION

This section describes the proposed action and the design alternative developed to meet the purpose and need of the Project, while avoiding or minimizing environmental impacts. The two alternatives are the “Build Alternative”, referred to as the “Project”, and the “No Build (No Action) Alternative. ”Other alternatives, partial alternatives, and design features were considered but eliminated as none were deemed viable due to physical constraints and feasibility or because they did not meet the Project’s purpose and need (see **Section 1.3.3, No Build (No Action) Alternative**).

1.3.1 EXISTING CONDITIONS

The Project site is within Dublin, the County, and Livermore, north of I-580 between the existing terminus of Dublin Boulevard to the west and terminus of North Canyons Parkway to the east (see **Figure 1-1**).

The Project site land use designations include residential, industrial, open space, and commercial uses in Dublin; resource management and large parcel agricultural uses in the County; and business and commercial uses in Livermore. In Dublin, residential, industrial, and commercial land uses have not yet been developed in the study area, and existing land uses are permitted non-conforming uses.

The Project site and vicinity consist of primarily undeveloped grazing ranchland and open space, with intermittent residences and outbuildings. Improvements to the agricultural lands generally consist of private paved and unpaved roads used to access private property, fences, barns, corrals, wells, water tanks, and various outbuildings. Developed residential areas are north and northwest of the Project site within Dublin, and there is one commercial property– a landscaping business – within Dublin south of the Project site.

The topography of the study area ranges from relatively flat at the southern portion near I-580, to gently rolling hills to the north. The topography slopes slightly northward, and Cottonwood Creek drains from north to west across part of the Project site.

A small number of trees exist beyond those planted around existing homesteads and scattered in the drainages. Tree species include willows and valley oaks (*Quercus lobate*). Valley oaks in and around the Project site along Cottonwood Creek are very large, up to 4.8 feet diameter-at-breast-height (DBH). Several patches of ornamental trees, primarily eucalyptus, occur near fence lines and buildings in the study area.

1.3.2 BUILD ALTERNATIVE

The Project would include the extension of Dublin Boulevard approximately 1.5 miles eastward through eastern Dublin and an unincorporated portion of the County (Project) as defined in **Section 1.3, Project Description**.

The roadway extension would start from the current terminus of Dublin Boulevard at the Dublin Boulevard/Fallon Road intersection in Dublin and would end at the Doolan Road/North Canyons Parkway intersection along the boundary of the County and Livermore. This roadway extension would provide four to six travel lanes and bicycle and pedestrian facilities (i.e., sidewalks and bike lanes). Beginning at Fallon Road, the roadway extension would have six travel lanes (three in each direction). Continuing eastward, the roadway extension would transition to four travel lanes (two in each direction) before or at the intersection with Croak Road. From Croak road to Doolan Road, the roadway extension would remain in the four-lane configuration.

The permanent area required for the Project, including the roadway, sidewalks, intersections, and land acquired for right-of-way is estimated at 29 acres. Future average daily traffic (ADT) along the roadway extension is projected to be 17,000 to 19,000 vehicles per day.

DESIGN FEATURES OF THE BUILD ALTERNATIVE

Project design features and components are shown on **Figure 1-2** through **Figure 1-3**, and include (from west to east):

- Intersection improvements at Fallon Road (including modification of the signalized intersection)
- Elimination of the existing intersection of Croak Road and Fallon Road
- Abandonment of a north-south (frontage road) portion of Croak Road parallel to Fallon Road
- The addition of a "T" shaped hammerhead turnaround at the new terminus of Croak Road adjacent to Fallon Road
- Grading and earthwork northeast of the Dublin Boulevard/Fallon Road intersection, including grading at the base of the hills to the north, and more minor grading throughout the road alignment to meet engineering and safety requirements
- Removal of overhead utility lines between Fallon Road and Croak Road
- Creation of a new signalized intersection where the Dublin Boulevard extension would cross Croak Road
- Construction of a new bridge over Cottonwood Creek
- Construction staging and laydown between the extension and Collier Canyon Road, along Doolan Road
- Intersection improvements at the Doolan Road/North Canyons parkway intersection, including the creation of a new, signalized eastbound approach to the intersection
- The extension of underground utility lines within the Project site
- Construction of the new roadway, which would include a median, inside shoulder at some locations, vehicle travel lanes, bicycle facilities, a parkway strip, separated sidewalks and separated Class I bike path and/or a multi-use path, street lighting, and cut/fill embankments
- Retaining walls may be use in addition to, or as an alternative to, cut/fill embankments associated with roadway and hillside grading. If used, retaining walls would be placed outside of the sidewalk and bicycle areas on either side of the roadway cross section, within the construction footprint and within the permanent right-of-way. Retaining walls would measure 3 feet to 10 feet in height and would generally require a smaller area of grading or ground disturbance in comparison to cut/fill slopes.

Each of these components is discussed in more detail below. Right-of-way acquisitions would be needed from multiple private property owners and are also detailed below. Ancillary facilities associated with the Project include traffic signals, lighting, landscaping, irrigation, drainage, and stormwater treatment facilities.

Intersection Improvements

The Project would require the modification of two existing intersections and the creation of one new intersection. Assumptions for each intersection are described below from west to east. All intersection improvements are shown on **Figure 1-7** and **Figure 1-8**.

Modify Dublin Boulevard / Fallon Road Intersection

A new connection to the Dublin Boulevard/Fallon Road intersection would be constructed on the eastern side of the intersection. The intersection is currently a three-way or "T" intersection, with Dublin Boulevard terminating at Fallon Road. For the purposes of this analysis, it is assumed that lane restriping and traffic signal modifications planned on the western side of the intersection for the existing Dublin Boulevard/Fallon Road intersection as a part of the Kaiser Dublin Medical Center project would be implemented before construction of the Project. These improvements may cover the western side of the intersection (Dublin Boulevard) and the south sides of the intersection (Fallon Road).

From the east, Dublin Boulevard would connect to Fallon Road with three eastbound travel lanes, three westbound travel lanes, two dedicated left turn lanes, and one dedicated right turn lane. The roadway connection would also include a center median dividing the eastbound and westbound lanes. New traffic signals and directional signage would be added to the intersection.

To allow for the extension of Dublin Boulevard, the existing north-south alignment of Croak Road parallel to Fallon Road would be abandoned in place by restricting vehicular access with fencing or a similar barrier, and the connection of Croak Road to Fallon Road at the Dublin Boulevard/Fallon Road intersection would be removed. The abandoned segment of Croak Road would be left in place and would likely be removed when Fallon Road is widened under a separate project or the properties located to the east are developed.

Since the intersection of Croak Road and Fallon Road would be eliminated and a portion of Croak Road abandoned, a new western terminus of Croak Road would be created. To allow continued use of Croak Road in this area, a new "T" shaped hammerhead turn around would be constructed, as shown on **Figure 1-2**.

Create Dublin Road / Croak Road Intersection

A new intersection would be created where the Project intersects Croak Road in the generally undeveloped area east of Fallon Road. Currently, there is no intersection of Dublin Boulevard and Croak Road, or any other intersections with Croak Road in the immediate area. Croak Road is a two-lane roadway in this area, with one travel lane running in the north-south direction.

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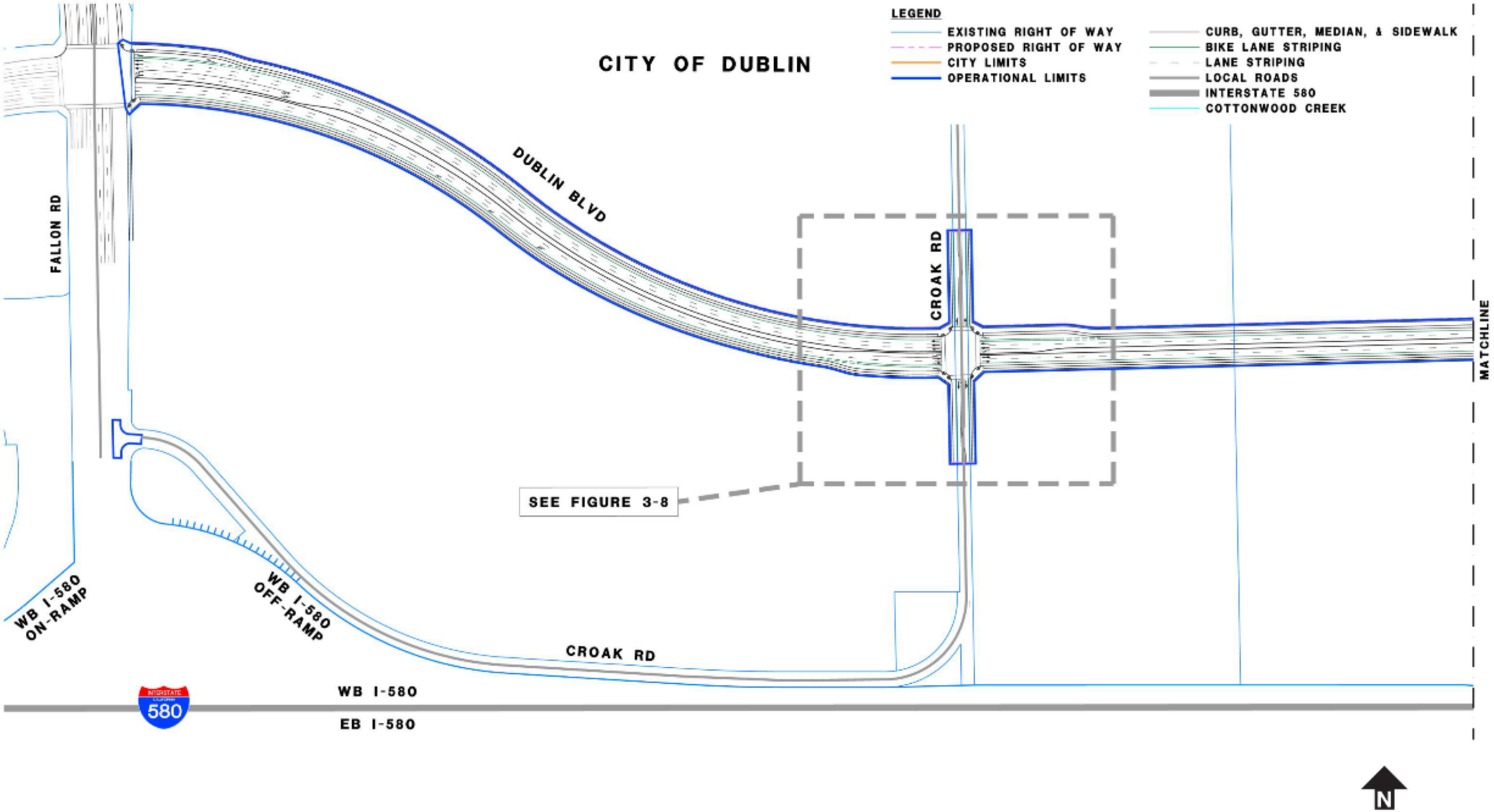
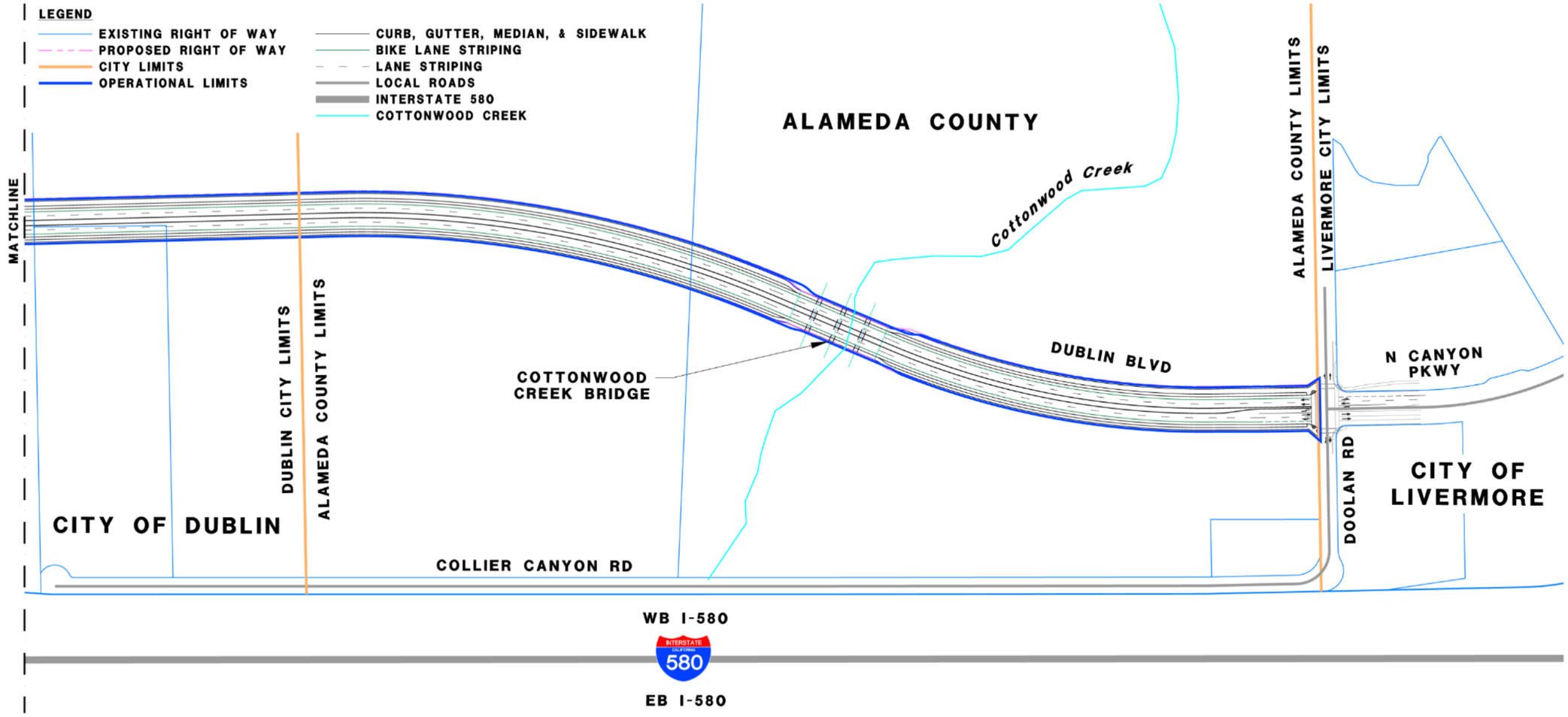


Operational Footprint Figure 1-8

Source: BKF, 2019



Operational Footprint Figure **1-9**

Source: BKF, 2019

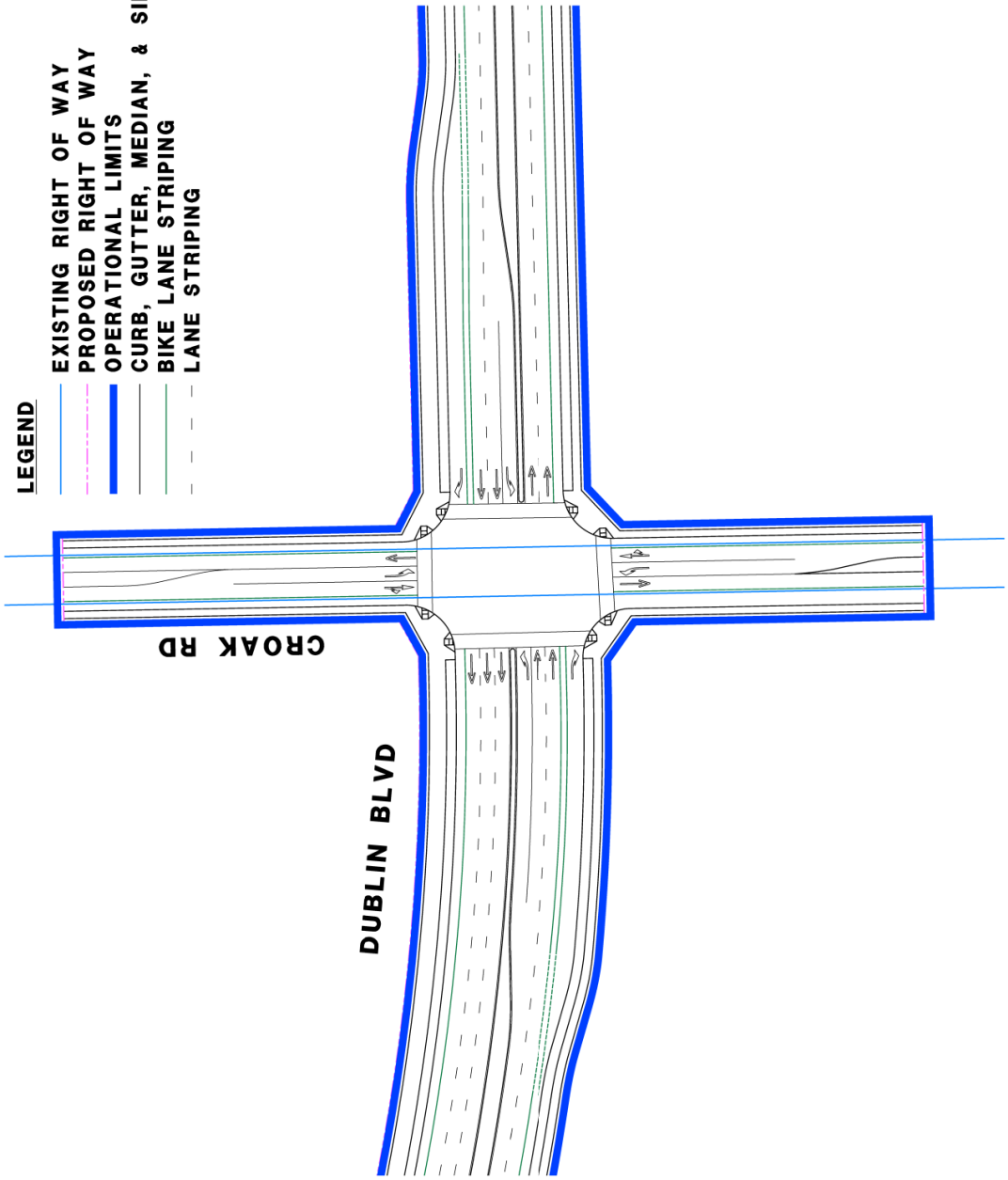


Figure 1-10

Operational Footprint – New Croak Road Intersection

Source: BKF, 2019

Project improvements would create a four-way intersection at Croak Road. From the west, Dublin Boulevard would connect to Croak Road with two eastbound travel lanes,[9] three westbound travel lanes, one dedicated left turn lane, and one dedicated right turn lane. From the east, Dublin Boulevard would connect to Croak Road with two westbound and eastbound travel lanes, one dedicated left turn lane, and one dedicated right turn lane.

Croak Road would be modified at this intersection to have a shared right-hand turn lane in the current travel lane on both sides of the intersection and one dedicated left turn lane on each side of the intersection. New traffic signals and directional signage would be added to the intersection.

Modify North Canyons Parkway / Doolan Road Intersection

A new connection to the Doolan Road/North Canyons Parkway intersection would be constructed on the western side of the intersection. The intersection is currently a three-way or "T" intersection, with North Canyons Parkway terminating at Doolan Road.

From the west, Dublin Boulevard would connect to Doolan Road/North Canyons Parkway with one eastbound travel lane, one eastbound lane with a shared right-hand turn, one dedicated eastbound left turn lane, and two westbound travel lanes. The new roadway connection would also include a center median dividing the eastbound and westbound lanes. The eastern side of the existing intersection would be restriped to include two eastbound lanes, one westbound travel lane, one westbound lane with shared right-hand turn, and one dedicated left turn lane. New traffic signals and directional signage would be added to the intersection.

Roadway Features

Starting from the centerline, roadway features would typically include:

- Median areas which would be paved, landscaped, and/or include post-construction stormwater treatment and hydromodification areas
- Inside (striped) shoulder in some locations
- 12-foot travel lanes
- 8-foot shoulder and bike lanes (Class II)
- Parkway strips, which in various locations would be paved, landscaped, and/or include post-construction stormwater treatment and hydromodification areas.
- Separated multi-use pathway (Class I bikeway) along the north side of the roadway

[9] As described in section 1.3.2, eastbound Dublin Boulevard would narrow from three travel lanes to two travel lanes before intersecting Croak Road.

- Separated sidewalks along the south side of the roadway
- Landscape strips on the outside perimeter
- Cut/fill embankment areas which would include 3:1 earthen slopes finished with landscaping and/or erosion control. Retaining walls may be used in addition to, or as an alternative to, cut/fill embankments associated with roadway and hillside grading.
- Americans with Disabilities Act (ADA) compliant curb ramps and crosswalks at each of the three intersections

Culverts

Culverts would be installed under the roadway to allow existing drainage patterns to continue across the Project site from north to south. Six culverts would be installed: one at the Dublin Boulevard/Fallon Road intersection, two between Fallon Road and Croak Road, and three between Croak Road and Doolan Road. Culvert design and sizing would be developed to ensure existing drainage is continued and is anticipated to include 18-inch culverts and 4-foot by 2-foot box culverts. Culverts may have open bottoms to keep native swales intact where feasible.

Cottonwood Creek Bridge

Cottonwood Creek is a perennial stream with a connection to groundwater that flows through the Project site in a generally north to southwest direction, shown on **Figure 1-2**. The Project would cross Cottonwood Creek from west to east with a new bridge. Cottonwood Creek would be bridged to minimize changes to the existing watercourse and aquatic wildlife passage. The type of bridge structure and details would be determined during final Project design. However, preliminary engineering has identified a possible three-span option requiring two piers and two abutment structures. The piers and other permanent structures, such as footings, would not be placed in the perennial stream limits of Cottonwood Creek. Construction of the bridge may require access within the perennial stream limits for temporary water diversion and/or dewatering.

Bicycle and Pedestrian Facilities

The Project would improve connectivity between Fallon Road and Doolan Road, where there are no pedestrian or bicycle facilities today. The Project would include bicycle and pedestrian facilities along the entire length of the roadway extension. A multiuse pathway (with Class I bikeway) is proposed along the northern side of the roadway extension, and dedicated bikeway/bike lane (Class II) is proposed along the southern side adjacent to vehicle travel lanes. A sidewalk is proposed along the south side of the roadway extension. Bicycle facilities inside the street curb-to-curb (travel way) would be a minimum of Class II.[10]Approximate configurations of pedestrian and

[10] A Class II bike lane provides a striped lane for one-way bike travel on a street.

bicycle facilities throughout the roadway extension are shown on **Figure 1-9** and **Figure 1-10**. Pedestrian and bicycle facilities would be designed to meet current standards.

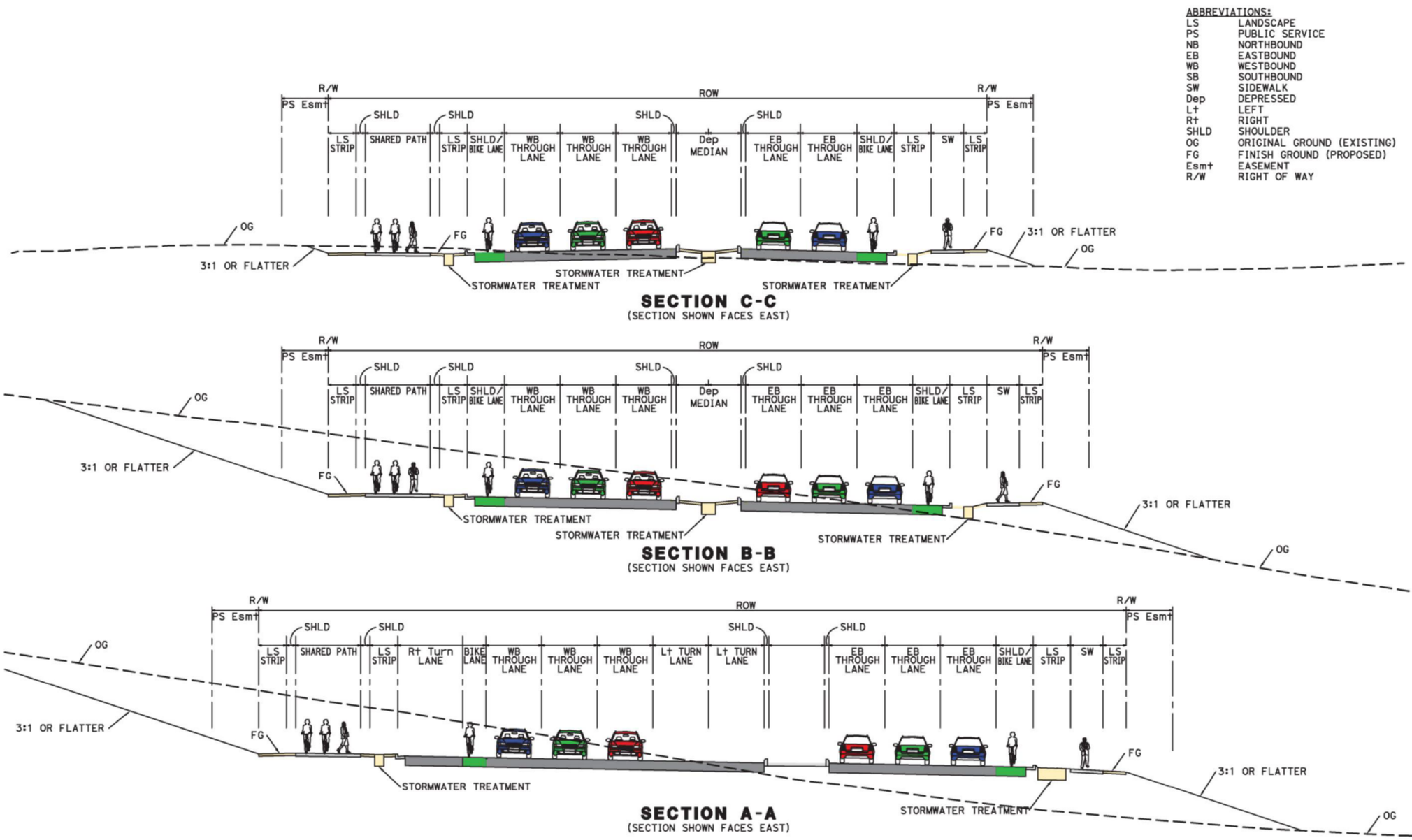
Pedestrian and bicycle access to the Project would be from the Dublin Boulevard/Fallon Road and Doolan Road/North Canyons Parkway intersections. These intersections currently do not have pedestrian crosswalks in the east-west direction. The Project would include the addition of full pedestrian signals and crosswalks at both intersections and at the new intersection of Dublin Boulevard and Croak Road. Signal timing would be adjusted to provide sufficient time to accommodate both pedestrian and bicycle movements at the intersections.

New bicycle and pedestrian connections along Dublin Boulevard would allow users to take a shorter, more direct route between Dublin and Livermore, avoiding the current route for bicycles and pedestrians which is approximately 5 miles long and crosses I-580 at two locations. This would create safer conditions for bicyclists and pedestrians.

Transit Facilities

The primary goal of transit service in the study area is to increase ridership, improve access to BART, and reduce system inefficiencies. The Project would provide a roadway connection on the north side of I-580, better connecting Dublin and Livermore and providing transit operators an alternative local route that avoids the heavy congestion on I-580 during peak commute periods. This would improve the efficiency of local transit routes by reducing delay and trip distance through a more direct route. The Project would also provide the opportunity for transit connections to future land use development along the roadway extension, as outlined in Dublin's General Plan. The Project would be consistent with, and support the goals of, ACTC's Countywide Multimodal Arterial Plan and the Livermore Amador Valley Transit Authority (LAVTA) long- and short-term plans, including the Wheels Short Range Transit Plan for 2016 through 2025.

As future commercial, office, and industrial development is implemented adjacent to the Project in Dublin, transit stops are anticipated to be added as described in Dublin's General Plan. Since the location of transit stops would be correlated with the location of major development, access roads, and curb cuts, the precise number and location of transit stops would be determined at a later time, as a part of individual development project approvals or collectively under a separate project. The Project does not include specific transit facilities but does not preclude their future implementation.

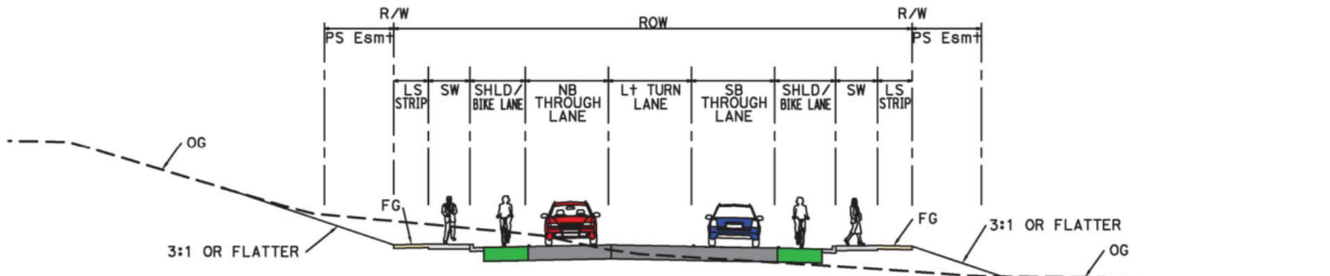


Typical Sections Figure **1-11**

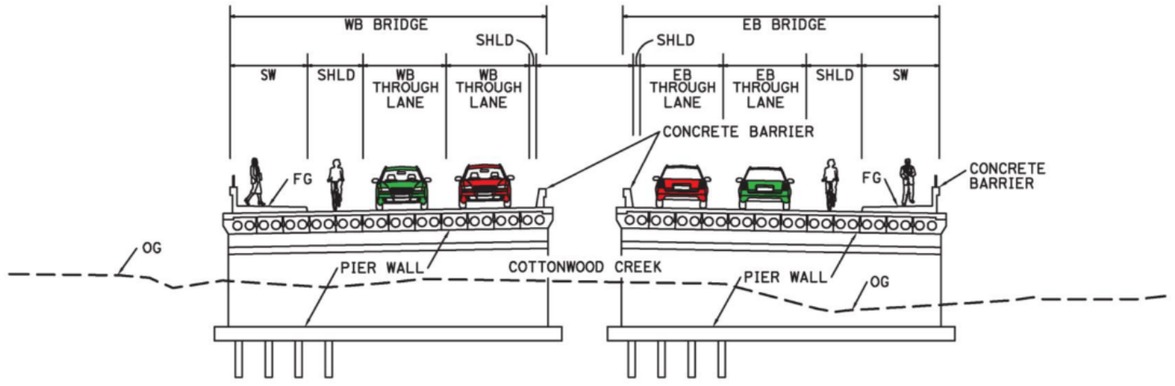
Source: BKF, 2019

ABBREVIATIONS:

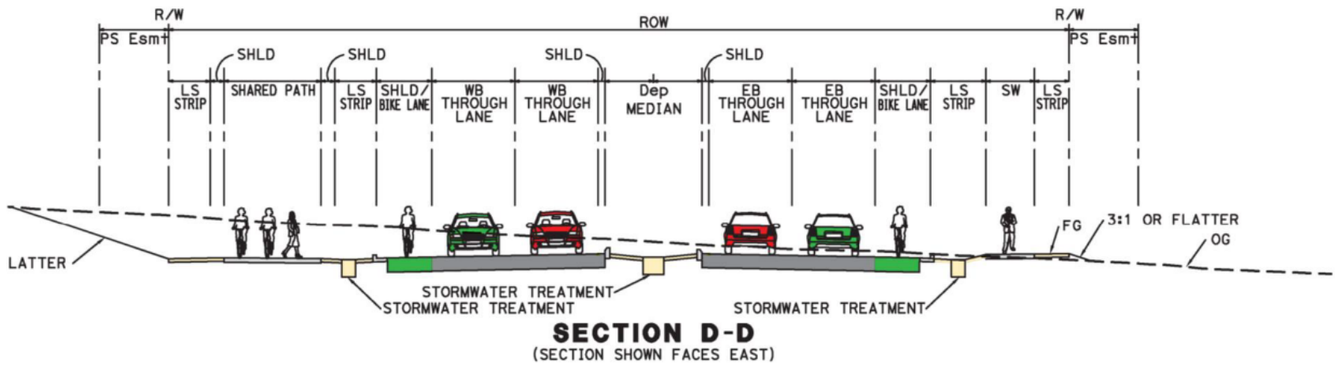
LS	LANDSCAPE
PS	PUBLIC SERVICE
NB	NORTHBOUND
EB	EASTBOUND
WB	WESTBOUND
SB	SOUTHBOUND
SW	SIDEWALK
Dep	DEPRESSED
L†	LEFT
R†	RIGHT
SHLD	SHOULDER
OG	ORIGINAL GROUND (EXISTING)
FG	FINISH GROUND (PROPOSED)
Esm†	EASEMENT
R/W	RIGHT OF WAY



SECTION F-F
(SECTION SHOWN FACES EAST)



SECTION E-E
(SECTION SHOWN FACES EAST)



SECTION D-D
(SECTION SHOWN FACES EAST)

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Typical Sections Figure **1-12**

Source: BKF, 2019

The Project design includes flexibility for implementation of future queue jumps to benefit transit operations. A queue jump provides preference to transit vehicles (such as buses) by providing an additional approach lane at an intersection or allowing transit vehicles to use turning lanes to bypass long intersection queues. This lane is often restricted to transit vehicles only but may also serve a dual purpose as a right turn lane. Once a transit vehicle is detected in a queue jump lane, the transit vehicle receives signal priority. This reduces delay for the transit vehicle at the intersection. To accommodate queue jumps, the Project has been designed with longer right turn lanes at the Dublin Boulevard/Fallon Road and future Dublin Boulevard/Croak Road intersections. These lanes can be converted to exclusive or shared transit queue jump lanes in the future based on the needs of the local transit agency.

Ancillary Project Components

Stormwater Treatment

The Project would include facilities to collect and treat stormwater runoff from new impervious surfaces, such as asphalt and concrete. Bioswales would be constructed in the median and parkway strips to help treat stormwater runoff and would also operate as hydromodification controls to capture and slow stormwater. Bioswales work by employing biofiltration. Biofiltration is a pollution control technique using living material (vegetation) and sub-surface media such as sand and gravel to capture sediment and pollutants from stormwater runoff. After being treated in bioswales, stormwater runoff would discharge into the stormwater system through a storm drain which would be installed beneath the new roadway. If, during final Project design, it's determined that biofiltration areas would not sufficiently provide hydromodification capacity to control stormwater flows off-site, there are two additional components which could be implemented to handle stormwater flows: detention basins and an oversized underground storm drain. If needed, detention basins would be installed at the base of the roadway embankments. Detention basins temporarily detain stormwater, letting sediment in the stormwater settle to the bottom of the basin, before discharging the water through an outlet. These facilities would provide stormwater storage and would regulate the discharge to the collecting water bodies.

The need for, precise number, location, and design of detention basins have not yet been determined and would be developed during final Project design if needed. Therefore, a preliminary concept design for detention basins was utilized for the purposes of this Draft EA: detention basins would be installed within the operational footprint, up to 50 feet from the edge of pavement. Alternatively, stormwater could be accommodated through oversized underground storm drain lines or underground storage vaults.

Safety Lighting

The Project would include new street lighting to provide roadway visibility for drivers during nighttime hours. Lighting would be provided along the roadway extension through high-efficiency LED streetlights, similar to those used throughout Dublin and as required under Dublin's Climate

Action Plan. Streetlights would be selected to meet the photometric requirements for each jurisdiction. Streetlights would be placed on both sides of the roadway extension at appropriate intervals and at all intersections. Typical light shielding or directional devices would be used as required under each jurisdiction's municipal code to reduce light pollution.

Utilities and Utility Easements

The following utility companies have known facilities adjacent to the Project site:

- Dublin/San Ramon Services District (DSRSD)
- Livermore Municipal Water
- Pacific Gas and Electric (PG&E)
- AT&T
- Verizon, Comcast/Cablecom

To provide electrical power and communications to Project traffic signals, streetlights, and easy access for connections to these services for future development projects in eastern Dublin, electrical and communications conduits would be extended underground from existing sources along the roadway in a joint trench system. Extending electrical and communication conduit would require trenching and/or horizontal directional drilling. Installation of pull boxes, controller cabinets, and service enclosures for electrical and/or fiber optic conduits would also be required.

Additionally, new underground water mains (potable) mains/services, recycled water mains, sewer mains, and storm drains would be provided along the roadway extension to provide utility access for future development. Water, recycled water, and wastewater utilities would be extended from existing DSRSD lines at Fallon Road in Dublin. The water line would be extended from the Dublin Boulevard/Fallon Road intersection eastward to the future Doolan Road/North Canyons Parkway intersection. Wastewater and recycled water lines would be extended only from the Dublin Boulevard/Fallon Road intersection to the eastern edge of Dublin. Aside from landscape irrigation, the Project would not include uses or new structures that would tie into new water lines or utility lines.

Permanent utility easements maybe required on private properties. Although the exact location and area of utility easements has not yet been determined, for the purposes of this Draft EA itis anticipated to coincide with the permanent right-of-way acquisitions identified in **Table 1.3-1**.

The Project would include the relocation of existing overhead electrical transmission lines that run diagonally from Fallon Road to Croak Road (**Figure 1-2**). This would include removal of wooden poles and power lines and undergrounding of the relocated electrical lines as part of the proposed utility joint trenching for the Project. Alternatively, the electrical lines would be relocated to the roadway extension and telephone poles may be abandoned in place.

Landscaping

Ornamental landscaping would be installed along the roadway extension in accordance with policies and design guidelines outlined in Dublin's General Plan and the EDSP. Landscaping plans would be developed during final Project design. However, preliminary opportunities for landscaping have been identified along either side of the shared bicycle and pedestrian path along the north side of the Project, along either side of the sidewalk along the south side of the Project, and in center medians. Landscaping would likely coincide with biofiltration strips and biofiltration swales.

The EDSP requires the use of drought-resistant plants within public right-of-way, including medians, and prohibits the use of highly invasive plant species that could out-compete native species and threaten wildlife habitat. All new vegetation would be planted outside of the clear recovery zone or as required under current design standards.[11]

Signage

New roadway signs would be installed along the roadway extension, primarily at intersections. New roadway signs may include posted speed limits and other regulatory signage, directional signs, and other informational signage. New signs are anticipated to be consistent with other signs found along Dublin Boulevard, North Canyons Parkway, and throughout the County.

Intelligent Transportation Systems (ITS)

The Project would include high level Intelligent Transportation Systems (ITS) technology such as:

- Infrastructure to allow for the remote monitoring and active management of field devices
- Traffic signals which are interconnected and communicate information back to a central location, such as a traffic management center
- The inclusion of devices such as closed-circuit television cameras, adaptive signal timing controls, and/or transit signal priority controls which can be monitored and reacted to in real time from a central location
- Devices such as changeable message signs to actively inform drivers and influence traffic flow in real time from a central location
- Technologies which allow next-generation vehicles to communicate with roadway infrastructure in real time

All of the infrastructure, devices and technologies listed above would be installed within the permanent right-of-way described in **Section 1.3.2, Build Alternative**.

[11] A clear recover zone is an unobstructed, traversable roadside area that allows a driver to stop safely or regain control of a vehicle that has left the roadway.

Right-of-Way Requirements

The Project would be constructed within generally undeveloped private property in Dublin and the County. Private property right-of-way acquisitions would not be required in Livermore. Right-of-way acquisitions would be needed from multiple private property owners, as shown in **Table 1.3-1**. No displacement of any existing residences or businesses would be required. Refer to **Section 2.2.4, Community Impacts**, for a complete discussion of community impacts specific to the Project.

Table 1.3-1 Permanent Right-of-Way Acquisitions

Assessor's Parcel Number	Jurisdiction	Right-of-Way Acquisition square feet (sf)
985-0027-002	Dublin	470,000
905-0001-006-03	Dublin	125,000
905-0001-005-02	Dublin	100,000
905-0001-004-04	Dublin	90,000
905-0001-004-03	Dublin	20,000
905-0001-003-02	County	160,000
905-0001-001-02	County	250,000

Source: BKF, 2018

Construction

The Project would be constructed along the alignment shown in **Figure 1-2**, through largely undeveloped areas of Dublin and the County. Construction is anticipated to occur over 1.5 years and would be generally completed during daytime hours. It is possible that nighttime work may occur at signalized intersections in Dublin and Livermore for safety and convenience reasons. Project construction at individual locations along the alignment would be shorter than the total 1.5-year duration, as construction moves along the alignment. To construct the Project, an area larger than the Project site would be used for temporary access, construction staging, and equipment laydown. Additionally, grading work would occur beyond the limits of the operational footprint. The construction footprint is estimated to be 84 acres in size and is shown in **Figure 1-11**.

Construction Methods

Construction activities would include but are not limited to demolition; earthwork; paving; pile driving; concrete, rebar, and formwork; utility trenching; and roadway striping. Throughout the roadway extension, grading would be required to provide a safe roadbed with a vertical geometry that meets Dublin and the County's engineering and safety standards. Under existing conditions, the grade changes along the proposed alignment – small hills and valleys – are too steep to safely and comfortably accommodate the roadway extension. Therefore, both cut and fill areas have been identified to create a generally more level area. Grades for cut and fill slopes will be 3:1 or less wherever feasible and would meet Dublin's engineering and safety standards in Dublin and the County's equivalent standards in unincorporated County areas.

Due to the topography of the Project site, Project construction would require cut (excavation) and grading northeast of the Dublin Boulevard/Fallon Road intersection. There is an uphill slope with an average grade of 5:1at this location. As an alternative to excavation and grading in this and other portions of the Project site, retaining walls may be used along the roadway extension and would result in a smaller construction footprint. The final determination on which areas would be graded only, and which areas would include retaining walls, would be made during final Project design.

Due to the grading work described above, Project construction is anticipated to generate approximately 100,000 cubic yards of soil and other demolition material that would be disposed of off-site. The Project would require fill material in some locations, and it's anticipated that soil excavated elsewhere along the roadway extension could be used as fill material provided it meets minimum geotechnical requirements. This would reduce the amount of imported fill and total disposal amount to be hauled off-site. However, it's possible that some engineered fill may need to be imported. Therefore, appropriate construction disposal and borrow sites would be required and would be determined as part of the final Project design.

The Project would require excavation ranging from 2 feet to 40 feet in depth. The installation of bridge piles for the crossing of Cottonwood Creek are anticipated to require depths exceeding 40 feet. The precise depth needed for bridge piles has not yet been determined, therefore, a conservative estimate of up to 100 feet has been used for the purposes of this Draft EA. Construction activities anticipated for the Project and their corresponding construction depths are listed in **Table 1.3-2**.

Staging and Temporary Construction Easements

Construction staging and equipment laydown areas would be required. Possible options have been identified on private parcels at the eastern end of the Project site, south of the roadway extension and north of Collier Canyon Road (**Figure 1-2**).

Construction access would be provided primarily from the existing intersections of Dublin Boulevard/Fallon Road and North Canyons Parkway/Doolan Road, and possibly from the adjacent local roadways including Croak Road, Doolan Road, and Collier Canyon Road. Depending on construction timing and phasing, the Project could require a temporary road or detour while construction occurs at the Dublin Boulevard/Fallon Road, Croak Road, and North Canyons Parkway/Doolan Road intersections. Temporary construction easements may be required on seven private properties, identified in **Table 1.3-3**.

Construction Vehicles and Construction-Period Traffic

During construction, vehicles and equipment would need to travel to and from the Project site. This would include the movement of large trucks, concrete mixers, and heavy construction equipment. Both Dublin and Livermore have existing approved truck routes within their jurisdictions, and it is anticipated that construction vehicles would use these existing routes to travel to and from the Project site. Approved truck routes are shown in **Figure 1-12** and **Figure 1-13**.

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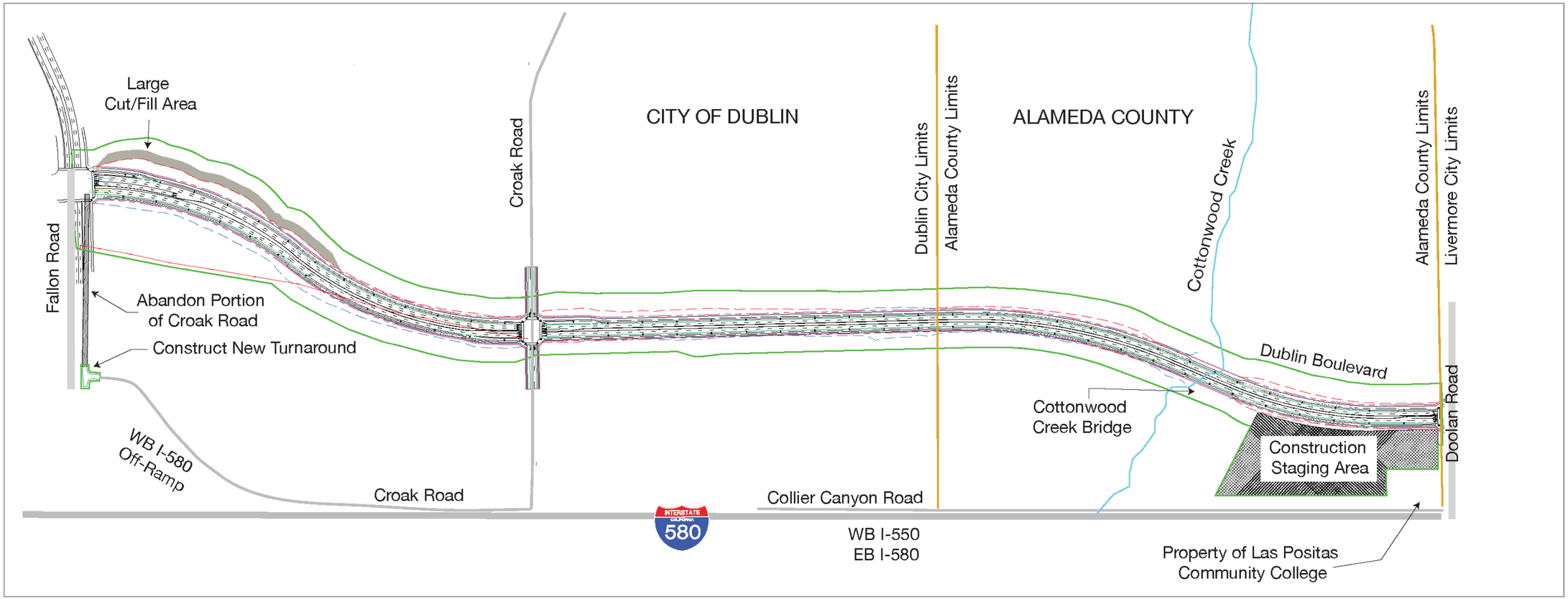

Legend

- Existing Right of Way
- Proposed Right of Way
- Limits of Cut Grading
- Limits of Fill Grading
- Electric Overhead Utility
- City Limits
- Curb, Gutter, Median, & Sidewalk
- Lane Striping
- Interstate 580
- Local Roads
- Construction Limits
- Cottonwood Creek
- Abandon Roadway
- Construction Staging Area

N

0 50 100 200
FEET

Project Construction Footprint Figure **1-13**

Source: BKF, 2018

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Construction of the Project may require temporary roadway closures and detouring at Fallon Road and Doolan Road, which would be planned for in a Transportation Management Plan (TMP). The plan would include press releases to notify and inform motorists, property owners, business community groups, local entities, emergency services, and elected officials of upcoming road closures and detours

Table 1.3-2 Anticipated Construction Activities and Depth of Excavation

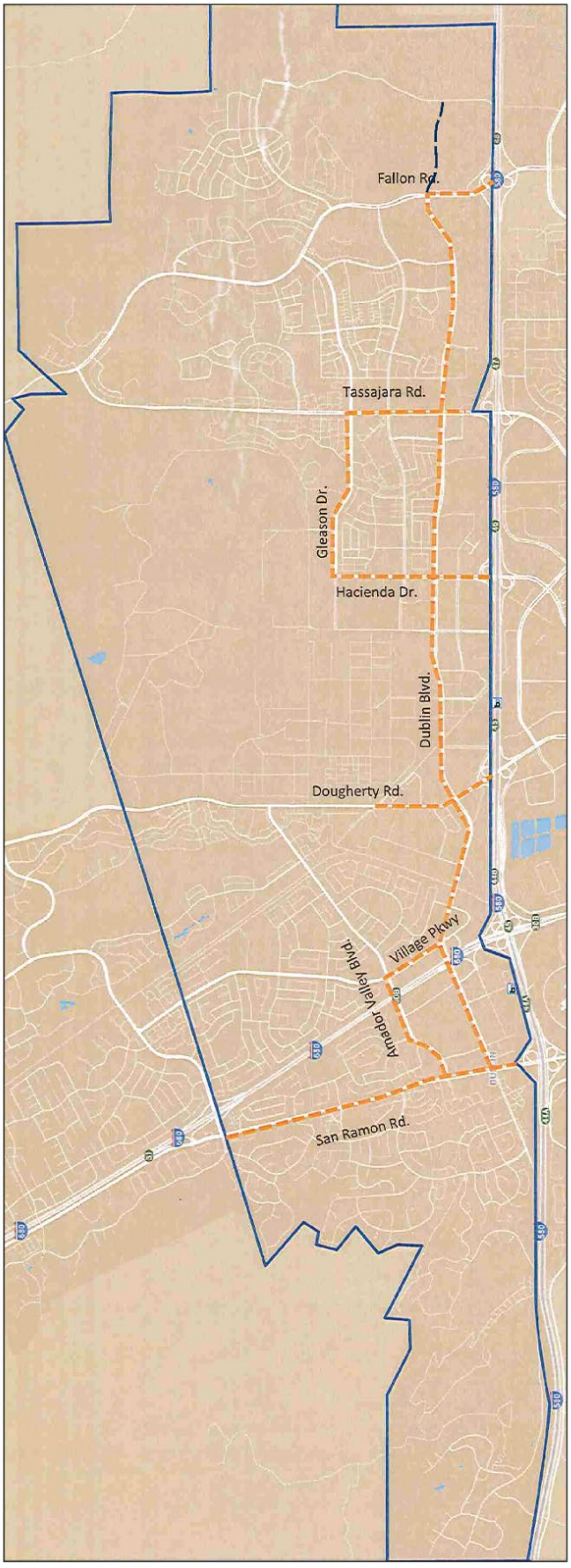
Activity	Typical Depth feet (')
Roadway/Pavement construction, Tree planting, installation of Roadway Signposts	2'-5'
Cut/Fill for roadway	0'-20'
Traffic Signal	5'-13'
Utility Installation	2'-5'
Sewer (manholes and main lines)	5'-40'
Electrolier (Streetlight)	5'-10'
Bridge Piles	100'
Culverts and Stormdrain Inlets	3' to 40'
Grading of construction staging and laydown area	1'-2'

Source: BKF, 2018

Table 1.3-3 Temporary Construction Easements

Assessor's Parcel Number	Temporary Construction Easement Area Square Feet (sf)
985-0027-002	65,000
905-0001-006-03	25,000
905-0001-005-02	16,000
905-0001-004-04	15,000
905-0001-004-03	5,000
905-0001-003-02	25,000
905-0001-001-02	500,000 (Including laydown/staging area)

Source: BKF, 2018



Legend
- Truck Routes
- City Limits
- Project Alignment

N
Not to Scale

Figure 1-14

Dublin Truck Routes

Source: City of Dublin, 2014

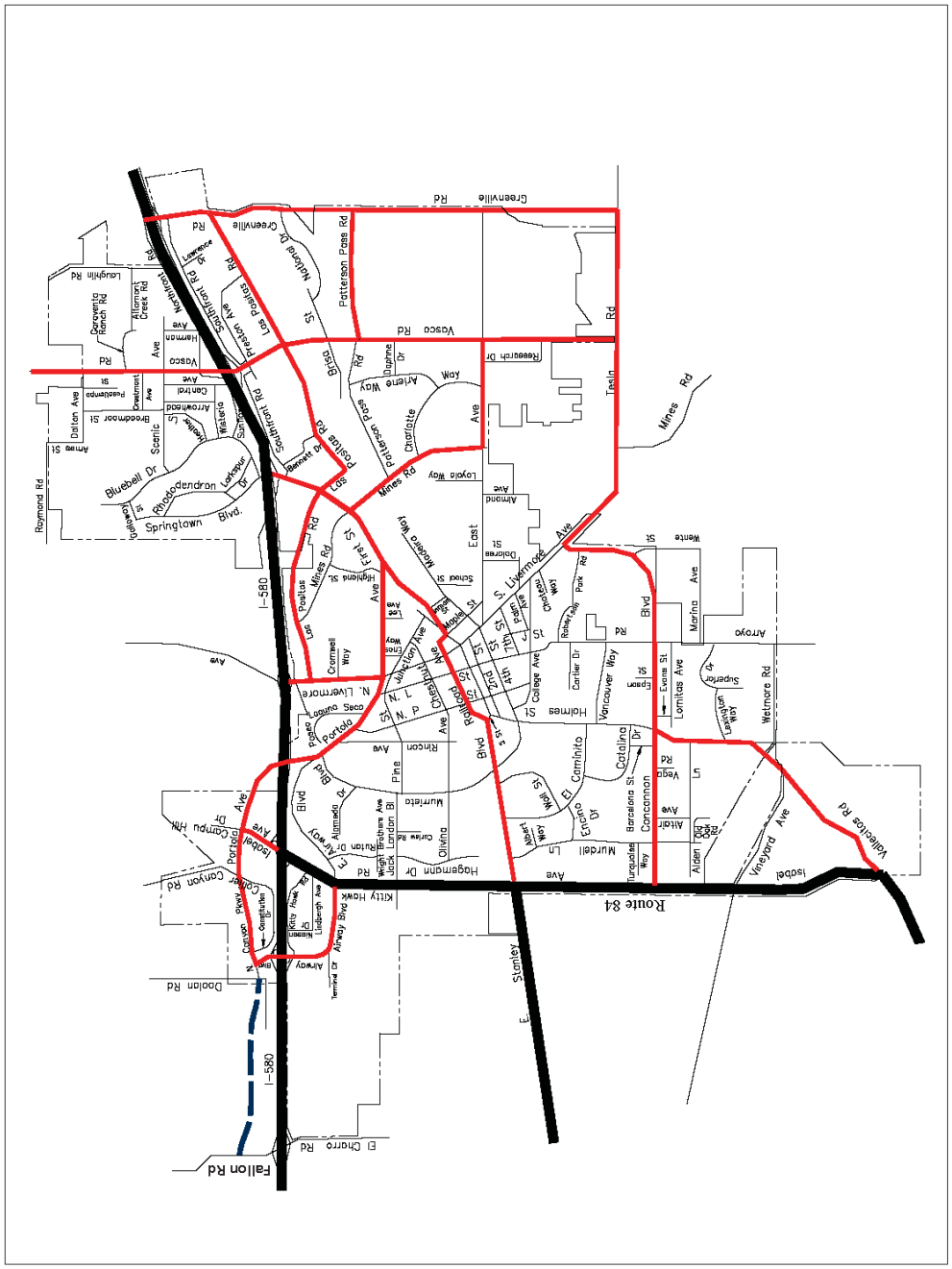


Figure 1-15

Livermore Truck Routes

Source: City of Livermore, 2014

Transportation System Management and Transportation Demand Management Alternatives

System management strategies increase the efficiency of existing transportation facilities without increasing the number of through lanes. Examples of transportation system management (TSM) strategies include ramp metering, auxiliary lanes, turning lanes, reversible lanes and traffic signal coordination. TSM also encourages a unified urban transportation system that integrates multiple forms of transportation modes such as pedestrian, bicycle, automobile, rail, ferry, and mass transit. Although TSM measures alone could not satisfy the purpose and need of the Project, the following TSM measure has been incorporated into this Project:

- Provide a complete streets connection between Dublin and Livermore, including access for bus transit, dedicated bicycle lanes, and pedestrian facilities
- Provide the opportunity for future conversion of dedicated turning lanes into shared turning lanes with queue jumps for buses

There are several transportation demand management (TDM) strategies within the San Francisco Bay Area that are used to reduce the number of vehicle trips within the I-580 corridor. Rideshare offers carpoolers reduced bridge tolls as well as access to carpool lanes.

There are also vanpools for larger groups of commuters. TDM may also involve the provision of contract funds to regional agencies that are actively promoting ridesharing, maintaining rideshare databases, and providing limited rideshare services to employers and individuals. Increased vehicle occupancy reduces traffic volumes during peak commuting periods; however, without the construction of the improvements described above, successful implementation of a TDM alternative would not substantially improve the safety and operation of the freeway. TDM alternative by itself would not satisfy the purpose of the Project.

1.3.3 NO BUILD (NO ACTION) ALTERNATIVE

Under the No Build Alternative, none of the Project features described under the Project would be constructed. The existing conditions at the Project site would remain. Dublin Boulevard and North Canyons Parkway would continue to operate unconnected in their current configurations.

Under the No Build Alternative, the planned and approved land use developments described in **Table 1.3-4** may be implemented by local agencies or under other Projects (see the cumulative analysis section under each environmental topic in **Chapter 2** for a detailed discussion). The No Build Alternative includes the potential for these improvements to be implemented through design year 2040. The No Build Alternative is the baseline for comparing environmental impacts under the National Environmental Policy Act (NEPA).

Table 1.3-4 Planned and Approved Projects

Project	Description	Status and Timing
Dublin		
Grand View Project	Mixed-use development on 122 acres, including residential, retail, dining, hotel, fitness, office, and private recreational uses.	Under Review
Alameda County		
None		
Livermore		
1000 Airway Boulevard	Demolish existing hotel and construct two new hotels, one containing 122 guest rooms and one containing 119 guest rooms	Approved
2000 Freisman Road	Up to 244,152 square feet of new retail, restaurant, hotel, and auto dealership uses	Under Construction
5200 Wolf House Drive (2000 Freisman Road)	New hotel with 122 guest rooms	Approved
5400 Wolf House Drive (2000 Freisman Road)	New hotel with 104 guest rooms	Approved

Sources: Dublin, 2018, Livermore, 2018, County, 2018

2025 No Project

The following assumptions are the baseline for the 2025 No Build scenario:

- ABAG Plan Bay Area buildout (2025) along the Project corridor in Dublin and the County: 321 new housing units and 419 new jobs
- General Plan zoning development (2025) in Dublin outside of the Project corridor
- General Plan zoning development (2025) in Livermore
- BART to Livermore: non-rail alternative
- Kaiser Dublin Medical Center – medical office building, 220,000 square feet/4,000 jobs
- Fallon Road Improvements: intersection improvements as described in the Kaiser Dublin Medical Center EIR

2040 No Project

The following assumptions are the baseline for the 2040 No Build scenario:

- General Plan buildout along the Project corridor (includes Eastern Dublin Specific Plan and Fallon Village): 599 new housing units and new 8,544 jobs
- ABAG Plan Bay Area buildout (2040) in Dublin outside of the Project corridor
- General Plan zoning development (2040) in Livermore
- BART to Livermore: non-rail alternative[12]
- Kaiser Dublin Medical Center – medical office/commercial building, 450,000 square feet/9,500 jobs
- Fallon Road Improvements: intersection improvements as described in the General Plan EIR and Fallon Gateway documents

1.3.4 ALTERNATIVES CONSIDERED BUT ELIMINATED FROM FURTHER DISCUSSION

The Project has been developed to meet the previously identified Project purpose and need, while avoiding or minimizing environmental impacts. The Project alignment was chosen based on the multiple planning efforts listed above (**Section 1.1.1, Project Background and History**) which considered site constraints such as sensitive biological habitats and the existing grade and topography of the area. The Project was developed with a goal to provide developable parcels of a reasonable size. The selected roadway alignment, and the proposal to connect Dublin Boulevard to North Canyons Parkway, is supported by the General Plan documents of Dublin, the County, and Livermore.

The roadway extension would facilitate planned development that has been outlined in Dublin's General Plan (through the EDSP) and captured in Plan Bay Area. The roadway extension as proposed would provide access to planned land uses in eastern Dublin, and would support implementation of transportation, transit, bicycle, and pedestrian plans adopted by Caltrans, Dublin, and the County. Separate from planned development, the proposed roadway extension would close an existing gap in the local roadway network between Dublin and Livermore.

[12] In May 2018, the BART Board of Directors voted not to move forward with the BART to Livermore project at this time. Information on the BART scenario used for baseline conditions in this analysis is retained to disclose that conservative assumptions were used. The non-rail alternative for the BART to Livermore Extension was selected for baseline conditions as it provides the most conservative option for future traffic and land use conditions.

Due to the hills and ridgeline to the north and I-580 to the south, Cottonwood Creek, and the location of existing parcel lines, the roadway alignment selected for the Project best meets the purpose and need and best aligns with Dublin's planning efforts for eastern Dublin. Project alternatives considered but eliminated are summarized in **Table 1.3-5** and detailed below.

Table 1.3-5 Project Alternatives Considered but Rejected

Alternative Type	Description	Reason for Elimination
Alignment Alternatives		
Croak Road and Collier Canyon Road	Widen the existing segments of Croak Road and Collier Canyon Road along I-580 and close the gap (connect the roadways) between Livermore and Dublin.	• Incompatible with approved City and County programmatic-level planning documents (general plans and EDSP) • Impacts to planned land use • Conflicts with other planned projects (commuter rail extension from Dublin/Pleasanton BART station) • Traffic operations/connectivity impacts • Impacts to biological resources • Safety/Design impacts – non-standard geometry • Inconsistent with transit and bicycle and pedestrian master plans
Northerly Alignment	Extend a west-east connection straight from Fallon/Dublin Blvd intersection to Doolan Road (t-intersection).	• Incompatible with approved City and County programmatic-level planning documents (general plans and EDSP) • Impacts to current land use • Impacts to scenic hills and ridgeline • Impacts to biological resources • Traffic operations/connectivity impacts • Additional right-of-way required • Inconsistent with transit and bicycle and pedestrian master plans
Southerly Alignment	Provide an east-west s-curve connection from North Canyon Pkwy/Collier Canyon Road to Fallon Road/ Fallon Gateway.	• Incompatible with approved City and County programmatic-level planning documents (general plans and EDSP) • Impacts to planned land use • Requires relocation of businesses and residences • Impacts to biological resources • Traffic operations/connectivity impacts, including freeway ramp operations for I-580/Fallon/El Charro interchange, as well as the Fallon Road/Dublin Blvd intersection. • Additional right-of-way required (Fallon Gateway) • Inconsistent with transit and bicycle and pedestrian master plans

Alternative Type	Description	Reason for Elimination
Capacity Alternatives		
6-Lane Alternative	Six lanes of travel – three in each direction – for the full length of the Project alignment	Alameda County and Plan Bay Area travel demand forecasts for cumulative conditions were used to determine 6 lanes are not needed between Collier Canyon Road and Croak Road to meet future travel demand. As such, the 6-Lane Alternative was considered but has been eliminated.
Modal Alternatives		
Dedicated Transit Lane	Dedicated transit lane in each direction for the full length of the Project alignment	Travel demand forecasts for cumulative conditions found that with the Project as proposed, travel speeds would remain at close to free flow without a dedicated transit lane. The addition of a dedicated transit lane would not notably improve transit travel times or traffic flow. As such, a dedicated transit lane was considered but has been eliminated. However, the Project design does not prohibit or eliminate the future possibility for right turn pockets at major intersections to be converted to shared/dedicated transit lanes (queue jumps) and the provision of transit signal priority.

Source: City of Dublin, 2019

Impacts to Current and Planned Land Uses

The Northerly Alignment would conflict with existing Dublin land use which protects the hillside and ridgelines and prohibits both development of the hillside or degradation of its aesthetic quality. To construct the Northerly Alignment, major portions of the hills would have to be significantly graded. The Southerly Alignment and Croak Road and Collier Canyon Road connection alternatives would conflict with planned land uses in eastern Dublin by creating irregular parcels (Southerly Alignment) and failing to provide adequate access to developable parcels (Croak Road and Collier Canyon Road connection).

Conflicts with Other Planned Projects

Connecting Croak Road and Collier Canyon Road to provide access from Dublin Boulevard to Livermore would require widening both existing roadways and new right-of-way to connect the roadways. Separate from this Project, relocation of Croak Road and Collier Canyon Road is proposed to accommodate new rail transit along the I-580 corridor between the Dublin/Pleasanton BART station and eastern Alameda County.[13] The addition of a new rail system would require widening of I-580 right-of-way to the north and would require the relocation of these two

[13]Although proceeding with the BART to Livermore project has been voted down by the BART Board, Tri Valley San Joaquin Valley Regional Rail Authority (www.acetobart.org) is proceeding with exploring a regional rail solution, called Valley Link, along the I-580 corridor connecting to North Lathrop in the first phase and then to Stockton in the second phase.

roadways. If the Croak Road and Collier Canyon Road option was selected, it would directly conflict with planned changes to these roadways and could later require removal of the Project improvements to accommodate the rail system. Similarly, the Southerly Alignment could conflict with roadway realignments needed to accommodate the rail extension, which creates a risk for the later relocation of the Southerly Alignment.

Traffic Operations/Connectivity Impacts

Connecting Croak Road and Collier Canyon Road to provide access from Dublin Boulevard to Livermore would require widening the existing roadways from two lanes to four and six lanes. Croak Road would be widened to six lanes and would need a nine-lane configuration at the Dublin Boulevard/Fallon Road intersection. This would be geometrically infeasible, as Croak Road runs parallel to Fallon and would need to make a 90-degree turn to meet this intersection. The widening of Croak Road parallel to Fallon Road would also create potential safety issues as a result of additional glare; motorists traveling along Fallon Road would be subject to additional lighting and glare from the conversion of Croak Road into a local arterial roadway. In addition to the Dublin Boulevard/Fallon Road intersection, Croak Road and Collier Canyon Road would have very sharp turns and T-intersections, which present safety and capacity issues.

Similarly, the Southerly Alignment would have issues with roadway geometry and connections to the existing roadway system. Where the Southerly Alignment would connect to Fallon Road, westbound drivers would merge onto Fallon Road within the potential operational area of the I-580 off ramp, and would have to traverse the eight-lane segment of Fallon Road to make a left-hand turn and continue traveling westward on Dublin Boulevard. The Northerly Alignment would include similar operational issues at its terminus in Livermore, where eastbound drivers would have to traverse Doolan Road to continue on North Canyons Parkway. This type of traffic circulation for two major arterials is considered an unsafe option not only for the vehicular movement but also for bicycle and pedestrian circulation. From a traffic operations and safety standpoint, this alignment would be infeasible.

Dedicated Transit Lane

Given that the Project could be utilized to provide new transit route access north of I-580, the potential for including a dedicated transit lane was explored. Travel demand forecasts for cumulative conditions found that travel speeds remain at close to free flow without a dedicated transit lane. Since the corridor would operate at close to free flow conditions in the future, a dedicated transit lane would not provide substantial additional benefit; the transit vehicle would be traveling at approximately the same speed as regular vehicles both with and without a dedicated transit lane.

While transit vehicles will travel at similar speeds with or without the dedicated transit lane, there is some advantage to providing queue jump lanes at the intersections where most of the delay due to congestion usually occurs. To allow for this possibility, the Project design has incorporated longer right turn lanes at the signalized intersections that can function as queue jump lanes in the future. With transit vehicles able to run at free flow speeds in the general-purpose lanes between intersections and access to queue jump lanes at the intersections, transit travel times are

anticipated to improve as routes shift from I-580 onto the Project. The Project would not prohibit Transit Signal Priority, thus maintaining additional benefits to Transit.

With the above findings, this design feature has been eliminated from consideration at the present time based on the determination that dedicated transit lanes are not needed to provide an adequate LOS for vehicles and transit. However, the Project design allows for the flexibility to add dedicated transit lanes through widening of the roadway at a future time should travel demand change sufficiently to warrant their construction.

1.3.5 PERMITS AND APPROVALS NEEDED

Table 1.3-6 identifies the permits and approvals that would be required for Project construction.

Table 1.3-6 Permits and Approvals Needed

Agency	Permit/Approval	Status
United States Army Corps of Engineers	Section 404 Permit – Nationwide	Issued during the final design phase
United States Fish and Wildlife Service	Biological Opinion	Issued prior to Project approval
	Section 7 Incidental Take Permit	Issued prior to Project approval
California Department of Fish and Wildlife	1602 Agreement	Issued during the final design phase
	Incidental Take Permit	Issued during the final design phase
Regional Water Quality Control Board	Section 401 Certification	Issued during the final design phase
State Historic Preservation Officer (SHPO)	Concurrence on Eligibility Determinations/Finding of Effect with Standard Conditions – Environmentally Sensitive Area (ESA)	Issued prior to Project approval
Metropolitan Transportation Commission (MTC) Air Quality Conformity Task Force/ Federal Highway Administration (FHWA)	Regional Air Quality Conformity	Issued prior to Project approval
	Project-Level Air Quality Conformity	Issued prior to Project approval

Source: H.T. Harvey, 2018, WSA, 2018, Illingworth & Rodkin, 2018

1.3.6 PROJECT COST

The estimated total cost of the Project is provided in **Table 1.3-7**.

Table 1.3-7 Cost Estimate Summary

Expenditure	Cost
Construction	$106,604,000
Right-of-Way	$49,100,000
Project Engineering	$6,957,000
Environmental (Including Preliminary Engineering/Scoping)	$3,443,000
Total Cost	$166,104,000

Source: City of Dublin, 2020; Alameda CTC, 2020

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CHAPTER 2 AFFECTED ENVIRONMENT, ENVIRONMENTAL CONSEQUENCES, AND AVOIDANCE, MINIMIZATION, AND/OR MITIGATION MEASURES

2.1 NO EFFECT DETERMINATIONS

As part of the scoping and environmental analysis carried out for the Project, the following environmental issues were considered but no adverse impacts were identified. As a result, there is no further discussion about these issues in this document (see **Table 2.1-1**).

Table 2.1-1 Issues with No Adverse Impacts

Resource Topic	Reasons for No Effect
Farmlands/Timberlands	The Farmland Mapping and Monitoring Program (FMMP) designates the Project site as entirely grazing land, on which the existing vegetation is suited to the grazing of livestock. Site visits confirmed areas of the Project site are used for livestock grazing. The areas surrounding the Project site to the west of Fallon Road, south of Interstate I-580 (I-580), and east of Doolan Road are designated primarily as Urban and Built-Up land. No Prime or Unique farmlands, or farmlands of local or statewide importance, exist within or adjacent to the Project site. Mapping for agricultural land protected under Williamson Act contracts was also reviewed. The Project site and adjacent properties do not contain any agricultural land protected under the Williamson Act, and the Project site is entirely designated as "Non-Enrolled Land"; land not enrolled in a Williamson Act contract and not mapped by FMMP as Urban and Built-Up Land or Water. Additionally, there are no forest resources or Timber Production Zones within the Project site or on nearby parcels. Therefore, no protected farmlands or timberlands exist within the Project site or vicinity. The Project would not include any change in land use, or any development of uses incompatible with existing land uses or the land use policies contained in each jurisdiction's General Plan. The Project would support implementation of the General Plans of each jurisdiction, which include the extension of Dublin Boulevard eastward to connect with North Canyons Parkway. The Project would not directly or indirectly introduce new, unplanned development in Dublin, County or Livermore, and would therefore not conflict with the urban growth limits established by those jurisdictions. Therefore, the Project would have no effect on farmlands or timberlands.

Resource Topic	Reasons for No Effect
Coastal Zone	The Project is not located in the Coastal Zone. As such, no coastal resources would be affected by construction or operation of the Project.[14]
Wild and Scenic Rivers	The Project is not located near any rivers designated as part of the National Wild and Scenic Rivers System. The closest designated river is the American (Lower) River in Sacramento, which is approximately 50 miles northeast of Dublin. Therefore, no wild or scenic rivers would be directly or indirectly affected by construction or operation of the Project.[15]
Hydrology and Floodplain	The Project site is not within the 100-year floodplain. The Project has been designed to preserve existing hydrology across the site, including stormwater flows from north to south. With implementation of the Project, stormwater would continue to drain into Cottonwood Creek and the existing stormwater system as it does under existing conditions. No adverse effect would occur.
Environmental Justice	No minority or low-income populations that would be adversely affected by the Project have been identified as determined above. Therefore, this Project is not subject to the provisions of Executive Order 12898.

Source: Circlepoint, 2019

2.2 HUMAN ENVIRONMENT

2.2.1 LAND USE

INTRODUCTION

This section evaluates impacts associated with land use and planning that would occur with implementation of the Project. An evaluation of the Project's consistency with regional and local plans and a discussion of potential direct and indirect effects are included in this section. Information in this section relies on the Community Impact Assessment (CIA) prepared for the Project. The study area for land use effects includes the following jurisdictions: Dublin, Pleasanton, Livermore, and the County.

[14] California Coastal Commission, 2018.

[15] National Wild and Scenic Rivers System, 2018.

EXISTING AND FUTURE LAND USE

Existing Land Use

The study area between Fallon Road and Doolan Road primarily consists of undeveloped grazing ranchland and open space, with intermittent rural development such as private paved and unpaved roads, fences, barns, corrals, wells, water tanks, and various outbuildings. Properties associated with large plots of grazing ranchland are located off Croak Road, Collier Canyon Road, and North Canyons Parkway. The largest developed property is a former farm complex located in the center of the study area. No buildings remain at the farm complex. There are residential communities along Fallon Road northwest of the Project site and northeast of Central Parkway. The Fallon Gateway shopping center is southwest of the Fallon Road/Dublin Boulevard intersection. The areas east of Doolan Road and south of I-580 are primarily commercial and industrial developments.

The Project site traverses several land use designations, including commercial, office, and industrial designations in Dublin – which represent planned future uses as described in Dublin's General Plan and the Eastern Dublin Specific Plan (EDSP) – and resource management and large parcel agriculture designations in the County. In Livermore, adjacent to the eastern terminus of the Project site, land use designations include hillside conservation and commercial. The Livermore General Plan has requirements for Planned Development (PD) zones in Livermore; however, there are no PD zones near the Project site or surrounding areas. Within Dublin, the Project site and surrounding areas are zoned PD. Planned industrial, office, and commercial land uses have not yet been developed to the north and south of the Project site, and existing land uses are permitted non-conforming uses. The purpose of Dublin's PD zone is to:

- Establish a Planned Development Zoning District through which one or more properties are planned as a unit with development standards tailored to the site.
- Provide maximum flexibility and diversification in the development of property.
- Maintain consistency with, and implement the provisions of, the Dublin General Plan and applicable Specific Plans.
- Protect the integrity and character of both residential and non-residential areas of the City.
- Encourage efficient use of land for preservation of sensitive environmental areas such as open space areas and topographic features.
- Provide for effective development of public facilities and services for the site.
- Encourage use of design features to achieve development that is compatible with the area.
- Allow for creative and imaginative design that will promote amenities beyond those expected in conventional developments

Regional Planning

The Project was included in Plan Bay Area 2035, a joint effort between the Metropolitan Transportation Commission (MTC) and the Association of Bay Area Governments (ABAG). Plan Bay Area is the Regional Transportation Plan (RTP) for the nine-county San Francisco Bay Area. Plan Bay Area includes Planned Development Areas (PDAs), which are areas in existing communities that have been identified and approved by local jurisdictions for future growth. There are two PDAs in immediate proximity to the Project: The Town Center PDA in Dublin and the Isabel Avenue/Bay Area Rapid Transit Station PDA in Livermore. Three additional PDAs are in the vicinity of Dublin Boulevard and North Canyons Parkway: Transit Center/Dublin Crossings, Hacienda (in Pleasanton), and Downtown Livermore. Plan Bay Area was updated in September 2017 to extend the planning horizon year to 2040. The Project is also included in Plan Bay Area 2040.

Dublin Town Center is located between Fallon Road to the east and Hacienda Drive to the west. The Town Center would provide locally serving businesses within walking distance or a short ride from residential neighborhoods, conveniently served by transit.

The Isabel Avenue/BART Station PDA was created in support of the BART to Livermore Extension project and is located between North Canyons Parkway to the west and Portola Avenue, south of I-580. In May 2018, the BART Board of Directors voted not to move forward with the BART to Livermore Extension project at this time, therefore, implementation of planned development in the Isabel Avenue/BART Station PDA is uncertain.

As characterized in Plan Bay Area 2040, planned growth throughout the Tri-Valley area will continue to increase transportation demand across all modes. Based on future development planned adjacent to the Project site in Dublin and more broadly in Dublin and Livermore, transportation demand on local roadways and the regional highway system will continue to increase over time. Alameda County Transportation Commission's (Alameda CTC) traffic model reflects that average daily traffic volumes along I-580 adjacent to the Project site are anticipated to increase from over 147,000 vehicles in 2013 to over 170,000 vehicles in 2040, an increase of 16 percent.[16]

Local Planning

The Project was envisioned to provide local circulation and access to "potentially developable areas" in Dublin, as first described in Dublin's General Plan Environmental Impact Report (EIR) in 1984. The Project would also provide some capacity relief to I-580 as a secondary, indirect benefit. Dublin's current General Plan and General Plan EIR also describe the Project as a physical link connecting the Eastern Extended Planning Area (EEPA) to the rest of Dublin and Livermore.

[16] Kittelson, 2018

Dublin's General Plan land use map identifies the EEPA for future development including residential, commercial, office, and industrial uses. The EEPA extends from Arnold Road to Dublin's eastern limit. The Project site is within the EEPA. Future land uses are further planned for in the EDSP and EDSP EIR (1994, updated 2016) and Fallon Village Supplemental EIR (2005). These planning documents anticipate new residential, commercial, office, and industrial development in the EEPA east of Fallon Road extending to Dublin's city limits, with up to 3,108 new dwelling units and over 2,500,000 square feet of new commercial, office, and industrial uses. The EEPA and General Plan land uses are shown in **Figure 1-5**, and planning areas within and around the Project site are shown on **Figure 1-6**.

However, most of the area around the Project site is currently inaccessible from public roadways, except for two private properties accessible from Croak Road and Collier Canyon Road. For planned development to occur, a major east-west roadway connection is needed and is anticipated to be provided through the extension of Dublin Boulevard to North Canyons Parkway.

The County's General Plan, East County Planning Area component, includes the Project as a roadway extension connecting eastern Dublin with Livermore across unincorporated County land. Livermore's General Plan Circulation Element (2014) includes the extension of Dublin Boulevard from North Canyons Parkway connecting Doolan Road/North Canyons Parkway with Fallon Road. These documents describe a four- to six-lane roadway extension of Dublin Boulevard.

Planned Development

Table 2.2-1 provides descriptions of anticipated large-scale planned developments within a 1,000-foot radius of the Project site.

Table 2.2-1 Planned Developments

Name	Proposed Uses	Status
Dublin		
Grand View Project	A 122-acre mixed-use development including residential, retail, dining, hotel, fitness, office, and private recreational uses.	Under Review
Alameda County		
None		
Livermore		
1000 Airway Boulevard	Demolish existing hotel and construct two new hotels, one containing 122 guest rooms and one containing 119 guest rooms	Approved
2000 Freisman Road	Up to 244,152 square feet of new retail, restaurant, hotel, and auto dealership uses	Under Construction

Name	Proposed Uses	Status
5200 Wolf House Drive (2000 Freisman Road)	New hotel with 122 guest rooms	Approved
5400 Wolf House Drive	New hotel with 104 guest rooms	Approved

Source: City of Dublin, 2018; Alameda County, 2018; City of Livermore, 2018

STATE, REGIONAL, AND LOCAL PLANS AND POLICY

Relevant local regulations for each jurisdiction included in the study area are provided below. The study area is based on census tracts, as described in the CIA, and therefore includes Pleasanton.

State

Caltrans Complete Streets Policy

A complete street is a transportation facility that is planned, designed, operated, and maintained to provide safe mobility for all users, including bicyclists, pedestrians, transit vehicles, truckers, and motorists, appropriate to the function and context of the facility. Every complete street looks different, according to its context, community preferences, the types of road users, and their needs. Deputy Directive 64-R2, first signed in October 2008, and renewed in October of 2014, directs Caltrans to implement complete streets:

- Deputy Directive-64-R2: Caltrans provides for the needs of travelers of all ages and abilities in all planning, programming, design, construction, operations, and maintenance activities and products on the State Highway System. The intent of this directive is to ensure that travelers of all ages and abilities can move safely and efficiently along and across a network of complete streets.

Regional

Plan Bay Area

Plan Bay Area 2040 (Plan Bay Area) is a state-mandated, integrated long-range transportation and land use plan. As required by Senate Bill 375, all metropolitan regions in California must complete a Sustainable Communities Strategy (SCS) as part of an RTP. Plan Bay Area is the RTP and SCS for the San Francisco Bay Area. In the Bay Area, MTC and ABAG are jointly responsible for developing and adopting a SCS that integrates transportation, land use and housing to meet greenhouse gas reduction targets set by the California Air Resources Board (CARB). On July 18, 2013, Plan Bay Area was jointly approved by the ABAG Executive Board and by MTC. The RTP portion of Plan Bay Area provides a long-range road map to guide the Bay Area's transportation investments for a 25-year period. The Project is listed in the MTC2017 Transportation Improvement Program (TIP) (identification number ALA150003, Fund Management System identification number 6046.00), as well as Plan Bay Area (identification number 17-01-0048).

Plan Bay Area provides a roadmap for accommodating projected household and employment growth in the nine-county Bay Area by 2040 as well as a transportation investment strategy for the region. Plan Bay Area focuses growth and development in nearly 200 Priority Development Areas (PDAs). These existing neighborhoods are served by public transit and have been identified as appropriate for additional, compact development. There are two PDAs immediately adjacent to the study area: Town Center in Dublin and the Isabel Avenue/BART Station Planning Area in Livermore. The study area is not designated as a PDA.

Plan Bay Area also preserves over 100 Priority Conservation Areas (PCA), or regionally significant open spaces which have abroad consensus for long-term protection, but which face nearer-term development pressures. The study area includes two PCAs associated with the City of Livermore: *North Livermore, South Livermore Valley*, designated for natural landscapes/agricultural lands/regional recreation, and *Livermore Arroyos, Parks and Trails*, designated for urban greening/regional recreation. The Project site is not within either PCA. **Table 2.2-2** provides more detail on PCA designations.

Table 2.2-2 Priority Conservation Area Details

PCA Designation	Primary Benefits	Potential Co-Benefits	Examples
Natural Landscapes	▪ Terrestrial (Land) Ecosystems ▪ Aquatic Ecosystems ▪ Water Supply and Quality	▪ Climate and Resilience ▪ Compact Growth ▪ Recreation	▪ Critical habitat areas ▪ Wetlands targeted for restoration ▪ Riparian Corridors ▪ Watershed land protection
Agricultural Lands	▪ Agricultural Resources ▪ Agricultural Economy	▪ Wildlife Habitat ▪ Water Supply and Quality ▪ Recreation ▪ Climate and Resilience ▪ Compact Growth	▪ Farmland or grazing land ▪ Timberlands
Regional Recreation	▪ Recreation	▪ Wildlife Habitat ▪ Water Supply and Quality ▪ Recreation ▪ Climate and Resilience ▪ Compact Growth	▪ Regional trail network ▪ Potential regional park sites
Urban Greening	▪ Community Health ▪ Recreation ▪ Climate and Resilience	▪ Wildlife Habitat ▪ Water Supply and Quality ▪ Recreation	▪ Potential "edible park" sites (park and community garden) ▪ Urban forest areas ▪ Urban portion of riparian corridor

Source: ABAG, 2016

East Bay Regional Park District: East Contra Costa and Alameda Counties Habitat Conservation Plan and Natural Community Conservation Plan

The East Bay Regional Park District (EBRPD)'s Habitat Conservation Plan and Natural Community Conservation Plan (HCP/NCCP) includes eastern Contra Costa County and northern Alameda County parklands. The HCP/NCCP covers over 21,000 acres of existing regional parks and trails and provides regional conservation planning for some of the largest areas of endangered-species habitat in the Bay Area. The HCP/NCCP provides guidance on how to avoid, minimize, and mitigate impacts on listed species and their habitats while allowing for operations, maintenance, and minor new construction in regional trails and in nine parks:

- Black Diamond Mines Regional Preserve
- Round Valley Regional Preserve
- Vasco Caves Regional Preserve
- Contra Loma Regional Park
- Morgan Territory Regional Preserve
- Brushy Peak Regional Preserve
- Castle Rock Regional Recreation Area
- Sycamore Valley Regional Open Space Preserve
- Diablo Foothills Regional Park

None of the regional trails and parks are located near the study area, and therefore this planning document is not discussed further in this section.

City of Dublin

City of Dublin General Plan

Dublin's General Plan is the comprehensive planning document which governs development within the City. The plan sets forth goals, policies, and programs for the growth and development of Dublin. The General Plan is composed of 12 elements. The General Plan identifies policies to protect and enhance the features and services which signify the quality of life of Dublin. The General Plan includes the extension of Dublin Boulevard eastward through Dublin to connect with North Canyons Parkway. The following policies are relevant to the Project:[17]

[17] Each topic discussion in this Draft EA includes a summary of relevant policies. Some policies are applicable to multiple environmental topics and are therefore listed in multiple sections.

Policy 2.7.4.2:	All non-residential development must be consistent with the policies and guidelines set forth in applicable Specific Plans.
Guiding Policy 3.2.1.A.1:	Preservation of oak woodlands, riparian vegetation, and natural creeks as open space for their natural resource value is of the highest importance. Limited modifications may be permitted on a case-by-case basis with adequate mitigation to replace disturbed resources.
Implementing Policy 3.2.1.B.2:	Encourage an efficient and higher intensity use of the flat and gently sloping portions of the planning areas a means of minimizing grading requirements and potential impacts to environmental and aesthetic resources.
Guiding Policy 3.4.1.A.3:	Restrict structures on the hillsides that appear to project above major ridgelines. The present undisturbed natural ridgelines as seen from the Primary Planning Area and key travel corridors are an essential component of Dublin's appearance as a freestanding city ringed by open hills.
Guiding Policy 3.4.2A.3:	Using the natural stream corridors and major ridgelines, establish a comprehensive, integrated trail network within the Planning Area that permits safe and convenient pedestrian and bicycle access within urban areas and between urban areas and open space areas. Per the 2005 Fallon Village amendment, in order to preserve biological resources, trails in Fallon Village will not be placed along ridgelines and in stream corridors.
Guiding Policy 5.2.2.A.1:	Design streets to (1) include sufficient capacity for projected traffic, (2) minimize congested conditions during peak hours of operation at intersections, (3) serve a variety of transportation modes including vehicles, bicycles, pedestrians and transit, and variety of users including people with disabilities, children, and seniors, (4) provide continuity with existing streets, and (5) allow convenient access to planned land uses.
Guiding Policy 5.2.2.A.3:	The goals, policies, and implementation measures for street design in Section 10.8 of the Community Design and Sustainability Element should be consulted when new streets are being designed and/or existing streets are being modified.
Guiding Policy 5.2.2.A.4:	Reserve right-of-way and construct improvements necessary to allow streets to accommodate projected vehicular traffic with the least friction.
Guiding Policy 5.2.2.A.5:	The City shall consider the Tri-Valley Transportation Plan and Action Plan and the City of Dublin Complete Streets Policy when

adopting or amending the Circulation Element of the General Plan, Specific Plans, Zoning Ordinances or the Capital Improvement Program.

Implementing Policy 5.2.2.B.1: Design streets according to the forecasted demand and maximum design speeds listed above, and to the detailed standards set forth in the City of Dublin's Street Design Standards and Standard Plans which are maintained by the Public Works Department, as well as the listed Additional Policies.

Implementing Policy 5.2.2.B.2: Design and construct all roads in the City's circulation network as defined in Figure 5-1 as well as bicycle and pedestrian networks as defined in the City of Dublin Bicycle and Pedestrian Master Plan.

Eastern Dublin Specific Plan

The EDSP is a planning and regulatory tool which implements the City's General Plan by providing a framework to guide future land use and development in eastern Dublin. The EDSP includes policies, programs, and regulations that provide an intermediate level of detail between the General Plan and individual development projects. The EDSP includes the extension of Dublin Boulevard eastward through the plan area to connect with North Canyons Parkway in Livermore. The following goals and policies are relevant to the Project:

Goal: To provide a circulation system for eastern Dublin that is convenient and efficient and encourages the use of alternative modes of transportation as a means of improving community character and reducing environmental impacts.

Policy 5-4: Provide four, six and eight lane arterial streets to carry major community and sub-regional traffic through the Specific Plan area.

Additional discussion of EDSP policies as they relate to the Project is provided in **Section 2.2.6, Traffic and Transportation/Pedestrian and Bicycle Facilities**.

City of Dublin Zoning Ordinance

The Dublin Zoning Ordinance implements the land use designations discussed in the General Plan. As described above, the Project site and immediate vicinity are zoned PD. The intended future use of these areas is detailed in the EDSP and General Plan, and include residential, industrial, office, open space, and commercial uses. These uses have not yet been developed in the Project site vicinity, and existing agricultural land uses are permitted non-conforming uses.

Alameda County

Alameda County General Plan, East County Area Plan

The East County Area Plan is a portion of the Alameda County General Plan adopted by the County's Board of Supervisors in 1994. Since adoption, the East County Area Plan has been amended several times, most recently in 2002. The East County Area Plan is a long-range planning document that serves to present a clear vision of the County's intent for future development and resource conservation in the eastern part of the County. As stated in the East County Area Plan, policies presented in the document remain in effect in perpetuity, or until modified by County voters. The East County Area Plan includes the extension of Dublin Boulevard through unincorporated County land between Dublin and Livermore. The following East County Area Plan policies are relevant to the Project:

Urban and Rural Development

Policy 11: The County shall support phased development in East Dublin to provide for the efficient planning of infrastructure and prevent urban sprawl in the Dublin Hills. The County shall encourage the City of Dublin to include the 600-acre Santa Rita property in the first phase of development.

General Open Space

Policy 51: The County shall work with East County cities to preserve a continuous open space system outside the Urban Growth Boundary with priority given to the permanent protection of the Resource Management area between Dublin and North Livermore and the area north of the Urban Growth Boundary in North Livermore, as established through Program 19.

Policy 52: The County shall preserve open space areas for the protection of public health and safety, provision of recreational opportunities, production of natural resources (e.g., agriculture, wind power, and mineral extraction), protection of sensitive viewsheds (see definition in Table 1), preservation of biological resources, and the physical separation between neighboring communities.

Community Separators

Policy 109: The County shall preserve community separators largely in open space in the following locations:

1. The Resource Management area of approximately 7,400 acres separating East Dublin and North Livermore

Viewsheds

Policy 112: The County shall require development to maximize views of the following prominent visual features: The major ridgelines listed in Policy 105

Landscaping

Policy 114: The County shall require the use of landscaping in both rural and urban areas to enhance the scenic quality of the area and to screen undesirable views. Choice of plants should be based on compatibility with surrounding vegetation, drought-tolerance, and suitability to site conditions; and in rural areas, habitat value and fire retardance.

Policy 115: In all cases appropriate building materials, landscaping and screening shall be required to minimize the visual impact of development. Development shall blend with and be subordinate to the environment and character of the area where located, so as to be as unobtrusive as possible and not detract from the natural, open space or visual qualities of the area. To the maximum extent practicable, all exterior lighting must be located, designed and shielded so as to confine direct rays to the parcel where the lighting is located.

Alteration of Landforms

Policy 116: To the maximum extent possible, development shall be located and designed to conform with rather than change natural landforms. The alteration of natural topography, vegetation, and other characteristics by grading, excavating, filling or other development activity shall be minimized. To the extent feasible, access roads shall be consolidated and located where they are least visible from public viewpoints.

Grading

Policy 117: The County shall require that where grading is necessary, the off-site visibility of cut and fill slopes and drainage improvements is minimized. Graded slopes shall be designed to simulate natural contours and support vegetation to blend with surrounding undisturbed slopes.

Alameda County Tri-Valley Transportation Plan and Action Plan for Routes of Regional Significance

The Tri-Valley Transportation/Action Plan serves as a guide for transportation planning through 2040. The plan outlines a recommended package of vision statements, goals, policies, objectives, and actions for addressing transportation issues. The Tri-Valley area includes Danville, San Ramon, Dublin, Pleasanton, Livermore, and unincorporated portions of Contra Costa County and Alameda County. The Project is referenced as an intraregional route of regional significance in the Tri-Valley Transportation/Action Plan.

Alameda Countywide Transportation Plan

The Alameda Countywide Transportation Plan is a long-range policy document that serves as a guide for future transportation projects, programs, policies, and advocacy in the County through 2040. It addresses all parts of the County's transportation system, including capital, operating, and maintenance activities for all transportation modes. It begins with goals for the system, describes solutions and investment strategies and how they meet the goals. The Project corridor is considered a potential future alignment for West Dublin BART – Livermore Altamont Corridor Express (ACE) service rail line. The future ACE rail alignment is contingent upon the Project.

East Alameda County Conservation Strategy

The purpose of the East Alameda County Conservation Strategy (EACCS) is to preserve endangered species by developing a shared vision for long-term habitat protection. The EACCS assesses areas all across East Alameda County for their conservation value and establishes guiding biological principles for conducting conservation in the County. EACCS partners include the City of Dublin, City of Livermore, and Alameda County. The EACCS is intended to provide an effective framework to protect, enhance, and restore natural resources in eastern Alameda County while improving and streamlining the environmental permitting process for impacts resulting from infrastructure and development projects. The study area is located within the EACCS boundary.

Measure D - Save Agriculture and Open Space Lands Initiative

In 2000, the Alameda County electorate approved the Save Agriculture and Open Space Lands Initiative (Measure D). The purpose of this initiative is to "preserve and enhance agriculture and agricultural lands, and to protect the natural qualities, the wildlife habitats, the watersheds and the beautiful open space of Alameda County from excessive, badly located and harmful development." The measure establishes a County Urban Growth Boundary to focus urban development in and near existing cities where it will be efficiently served by public facilities. However, Measure D does not prohibit infrastructure that has "no excessive growth-inducing effect on the East County area" and has "permit conditions to ensure that no service can be provided beyond that consistent with development allowed by [Measure D]."

City of Livermore

City of Livermore General Plan

The City of Livermore General Plan 2003-2025 provides long-range land use planning goals, objectives, and policies for Livermore. Livermore's General Plan includes the connection of North Canyons Parkway and Dublin Boulevard. As such, the following objectives and policies are relevant to the Project:

Policy LU-4.4-P2: Development in the Airport Influence Area, depicted in Figure 3-5.1, shall be in conformance with the Livermore Airport Land Use Compatibility Plan (ALUCP), dated August 2012. Land uses shall be consistent with this General Plan, the Livermore Development Code, and the Land and Use and Safety Compatibility Criteria contained in Table 2-3 and Table 3-2 of the ALUCP. Existing Land Uses, as defined in Section 2.4 of the ALUCP, are not subject to the policies of the ALUC. ALUCP Section 2.7.5.7 lists other special conditions where ALUC authority may be limited. (Resolution 2013-113)

Objective LU-5.1: Maintain an Urban Growth Boundary to protect open space and agricultural uses in North Livermore.

Objective LU-5.5: Coordinate land use planning for the area north of I-580 between Livermore and Dublin with Alameda County and the City of Dublin so as to increase certainty over future land uses, to reduce speculation, and to enhance preservation of open space.

Policy LU-5.5-P1: Encourage the cooperation of Alameda County, Livermore, and Dublin in coordinating land uses adjacent to the Doolan Canyon-North Livermore area.

Livermore Municipal Airport Land Use Compatibility Plan

The Livermore Municipal ALUCP governs development within the vicinity of the Livermore Municipal Airport. The ALUCP guides the Airport Land Use Commission and local jurisdictions by providing compatibility criteria for noise, safety, and airspace protection. The Project site is located within the Livermore Municipal Airport Influence Area, Zone 6 and Zone 7.

City of Pleasanton

General Plan, Circulation Element

The City of Pleasanton General Plan was adopted in 2009 and has been amended six times between 2010 and 2015. The Plan's overarching goals are to preserve Pleasanton's character and encourage sustainable development. The Circulation Element provides policies and maps that indicate the general location and extent of existing and proposed circulation routes and facilities. The Pleasanton General Plan identifies Dublin Boulevard and North Canyons Parkway as proposed local roadway improvements that would provide relief to the Pleasanton local roadway network.

CONSISTENCY WITH STATE, REGIONAL, AND LOCAL PLANS AND PROGRAMS

Table 2.2-3 below summarizes the consistency of the Project alternatives with the applicable adopted land use plans and programs applicable to the Project.

Table 2.2-3 Consistency with Land Use Plans and Policies

Policy	Build Alternative	No-Build Alternative
Caltrans Complete Streets		
To ensure that travelers of all ages and abilities can move safely and efficiently along and across a network of complete streets.	**Consistent.** The Build Alternative includes enhancements to a main arterial that would provide safe mobility for all users, including bicyclists, pedestrians, transit vehicles, truckers, and motorists.	**Consistent.** No changes to the existing roadway would occur under the No-Build Alternative.
Plan Bay Area		
Provides a Regional Transportation Plan and Sustainable Communities Strategy for the San Francisco Bay Area.	**Consistent.** The Build Alternative is listed in the MTC 2017 TIP and Plan Bay Area itself. The Project would be part of the RTP that connects Dublin, Livermore, and Pleasanton.	**Consistent.** No changes to the existing roadway would occur under the No-Build Alternative.
City of Dublin General Plan, Circulation and Scenic Highways Element		
Promotes transportation options and independent mobility, increases community safety, encourages healthy, active living, reduces environmental impacts, minimizes impacts to climate change from vehicle emissions, and supports greater social interaction and community identity.	**Consistent.** The City of Dublin's General Plan lists the Project as a six-lane roadway improvement on Dublin Boulevard between Fallon Road and Airway Boulevard. The Build Alternative proposes a four- to six-lane extension to connect these areas, as intended in the General Plan.	**Consistent.** No changes to the existing roadway would occur under the No-Build Alternative.
Eastern Dublin Specific Plan		
A five-year effort to develop a planning framework for the future growth and development of approximately 3,300 acres in the largely unincorporated area of East Dublin.	**Consistent.** The Eastern Dublin Specific Plan describes Dublin Boulevard as a connection to Central Dublin from North Canyons Parkway to accommodate local trips.	**Consistent.** No changes to the existing roadway would occur under the No-Build Alternative.

Policy	Build Alternative	No-Build Alternative
City of Dublin Zoning Ordinance		
The Dublin Zoning Ordinance implements the land use designations discussed in the General Plan.	**Consistent.** The Build Alternative would not require changes to existing land use but would support implementation of Dublin's planned zoning and land use.	**Consistent.** No changes to the existing roadway would occur under the No-Build Alternative.
Alameda County General Plan, East County Area Plan		
The East County Area Plan is a long-range planning document that serves to present a clear vision of the County's intent for future development and resource conservation in the eastern part of the County.	**Consistent.** The Build Alternative would not alter existing land use or compromise open space uses in the County. The Build Alternative would include implementation of a planned roadway connection between Dublin and Livermore, traversing unincorporated areas of the County, as described in the County's planning documents (East County Area Plan). The East County Area Plan describes a 6-lane roadway. While the Build Alternative includes both a four-lane segment and a six-lane segment, the Build Alternative would be consistent with purpose of the roadway as described in the East County Area Plan.	**Consistent.** No changes to the existing roadway would occur under the No-Build Alternative.
Alameda County Tri-Valley Transportation Plan and Action Plan for Routes of Regional Significance		
Outlines a recommended package of vision statements, goals, policies, objectives, and actions for addressing transportation issues.	**Consistent.** The Build Alternative is referenced as an intraregional route of regional significance in the Alameda County Tri-Valley Transportation Plan and Action Plan for Routes of Regional Significance. The Project would be a part of the goals, objectives, and actions for addressing transportation issues.	**Consistent.** No changes to the existing roadway would occur under the No-Build Alternative.

Policy	Build Alternative	No-Build Alternative
Alameda Countywide Transportation Plan		
A guide for future transportation projects, programs, policies that establishes goals, describes solutions and investment strategies and how they meet the goals.	**Consistent.** The Project corridor is considered a potential future alignment for West Dublin BART – Livermore Altamont Corridor Express (ACE) service rail line. The Build Alternative would indirectly support implementation of a future ACE rail alignment along the corridor.	**Consistent.** No changes to the existing roadway would occur under the No-Build Alternative.
East Alameda County Conservation Strategy		
The purpose of the East Alameda County Conservation Strategy (EACCS) is to preserve endangered species by developing a shared vision for long term habitat protection.	**Consistent.** Implementation of the Build Alternative would require mitigation measures consistent with the EACCS. Please refer to **Section 2.4, Biological Environment**, for a detailed discussion.	**Consistent.** No changes to the existing roadway would occur under the No-Build Alternative.
Measure D - Save Agriculture and Open Space Lands Initiative		
The purpose of this initiative is to "preserve and enhance agriculture and agricultural lands, and to protect the natural qualities, the wildlife habitats, the watersheds and the beautiful open space of Alameda County from excessive, badly located and harmful development."	**Consistent.** The Build Alternative was considered and accommodated by Measure D because of its previous assessment under the East County Area Plan.	**Consistent.** No changes to the existing roadway would occur under the No-Build Alternative.
City of Livermore General Plan, Circulation Element		
Provides the policy framework for regulation and development of the transportation systems in Livermore.	**Consistent.** The City of Livermore General Plan lists the Project as a four-lane roadway extension from North Canyons Parkway. While the Build Alternative includes a six-lane segment of between Dublin Boulevard and Croak Road, the Build Alternative would be consistent with purpose of the roadway as described in the General Plan.	**Consistent.** No changes to the existing roadway would occur under the No-Build Alternative.

Policy	Build Alternative	No-Build Alternative
Livermore Municipal Airport Land Use Compatibility Plan		
The Livermore Municipal ALUCP governs development within the vicinity of the Livermore Municipal Airport.	**Consistent.** As a roadway development, the Build Alternative is classified as a 'Utilities' land use, which is considered a permitted use in Zones 6 and 7 according the Safety Compatibility Criteria.	**Consistent.** No changes to the existing roadway would occur under the No-Build Alternative.
City of Pleasanton General Plan, Circulation Element		
To preserve Pleasanton's character and encourage sustainable development. The Circulation Element provides policies and maps that indicate the general location and extent of existing and proposed circulation routes and facilities.	**Consistent.** The City of Pleasanton General Plan identifies Dublin Boulevard and North Canyons Parkway as proposed local roadway improvements that would provide relief to the Pleasanton network. The Build Alternative plans to extend Dublin Boulevard and connect to North Canyons Parkway.	**Consistent.** No changes to the existing roadway would occur under the No-Build Alternative.

Source: Circlepoint, 2019

ENVIRONMENTAL CONSEQUENCES

Land Use Consistency

Build Alternative

Dublin and Livermore have planned for new residential and non-residential developments that would increase access to housing and employment opportunities in the region. The direct and indirect impact study area within Dublin is designated as residential, commercial, open space, and industrial land uses. The Build Alternative would help facilitate development of the designated land uses by providing transportation infrastructure. The County land in the study area is designated as Resource Management and Large Parcel Agriculture. The County's General Plan, East County Area Plan, includes the planned extension of Dublin Boulevard through this area. The Build Alternative would travel through these areas to provide access between Dublin and Livermore and would not directly or indirectly affect the existing land uses. As such, the Build Alternative would be compatible and consistent with existing and future land uses.

No-Build Alternative

Under the No-Build Alternative, no changes would be made to the local roadways within the study area. The No-Build Alternative does not preclude the construction of planned improvements by the local agencies and would not present conflicts with the existing land uses or land use designations.

Consistency with State, Regional, and Local Plans

Build Alternative

The eastern extension of Dublin Boulevard from its current terminus at Fallon Road to the Doolan Road/North Canyons Parkway intersection has been planned since 1984. Dublin's General Plan, Eastern Dublin Specific Plan, Fallon Village Supplemental Environmental Impact Report, and Plan Bay Area all include the extension of Dublin Boulevard. The Project is listed in the MTC2017 TIP (TIP identification number ALA150003, Fund Management System identification number 6046.00), as well as Plan Bay Area 2040 (identification number 17-01-0048).

The Project was envisioned to provide local circulation and access to "potentially developable areas" in Dublin as first described in Dublin's General Plan Environmental Impact Report (1984) as well as some capacity relief to I-580 as a secondary benefit. The current General Plan and EIR (2016) also describe the Project as a physical link connecting the EEPA to the rest of Dublin and Livermore. Most of the direct and indirect impact study area is currently inaccessible from public roadways, except for two private properties accessible from Croak Road and Collier Canyon Road.

For planned development to occur, a major east-west roadway connection is needed and is anticipated to be provided through the extension of Dublin Boulevard (the Build Alternative). Adopted planning documents describe a four- to six-lane roadway extension of Dublin Boulevard from Fallon Road to Doolan Road/North Canyon Parkway. The County's General Plan, East County Planning Area component, includes the Project as a roadway extension connecting eastern Dublin with Livermore across County jurisdiction.

Livermore's General Plan Circulation Element (2014) includes a roadway extension from North Canyons Parkway connecting Doolan Road/North Canyons Parkway with Fallon Road. The Build Alternative would be consistent with the Project identified in these local and regional planning documents. To address the inconsistencies related to the number of lanes that would be constructed on Dublin Boulevard between Fallon Road in Dublin and North Canyons Parkway in Livermore, Dublin adopted an amendment to its General Plan in August 2019. The County and Livermore may choose to complete similar amendments to their general plans.[18] The precise timing of general plan amendments is not known but would be completed before final Project approvals.

Local planning documents have identified several transportation goals and policies that the Build Alternative would address:

1. Reduce single-occupancy vehicle trips by providing a transit system along the roadway extension with improved headways during peak demand periods

[18] Amendments to the County and Livermore general plans will be at the discretion of those jurisdictions and are anticipated to be completed to ensure accuracy in roadway system planning across the Tri-Valley.

2. Increase bicycle and pedestrian access and circulation,
3. Interconnect five PDAs in Dublin and Livermore
4. Improve overall mobility, access, connectivity, safety, and efficiency of the multimodal transportation system for all users, including goods movement
5. Provide approaches and technologies that enhance the existing roadway system's efficiency and capacity without widening streets

As proposed, the Build Alternative would incorporate elements in support of all five issues above. The Build Alternative would allow for the extension of bus service, would connect future development areas to regional transit (existing BART stations), would include dedicated bikeways/bike lanes and bike path/multi-use pathway (MUP), and sidewalks, would interconnect areas of Dublin and the cities of Dublin and Livermore, and would provide additional roadway capacity in the EEPA.

No-Build Alternative

Under the No-Build Alternative, no improvements would occur, and the programmed and planned roadway extension would not be met. In order for planned development to occur, a major east-west roadway connection is needed but would not be provided under the No-Build Alternative. Therefore, the No-Build Alternative would not be consistent with state, regional, and local plans.

AVOIDANCE, MINIMIZATION, AND/OR MITIGATION MEASURES

As previously discussed, the Build Alternative would not result in adverse effects to existing and future land use, and would be consistent with state, regional, and local plans. No avoidance, minimization, and/or mitigation measures are required.

2.2.2 PARKS AND RECREATIONAL FACILITIES

Information in this section relies on the Community Impact Assessment (CIA) prepared for the Project. As described in the CIA, the study area for this topic extends into four jurisdictions: Dublin, the County, Livermore, and Pleasanton.

AFFECTED ENVIRONMENT

Public Parks

Dublin, Pleasanton, and Livermore have an extensive park system offering a diverse range of outdoor facilities to meet their communities' needs. **Table 2.2-4** lists public parks and recreation facilities located within 2 miles of the Project site (also shown on **Figure 2.2-1**). Of these facilities, three are within 0.5 miles of the Project site: Fallon Sports Park, Jordan Ranch Park, and Las Positas Golf Course. Both parks are in Dublin. Las Positas Golf Club, a public golf course in Livermore, is located 0.2-mile south of the Project site on the opposite side of I-580. All of the parks and recreation facilities listed below are publicly owned and are protected under the provisions of Section 4(f) of the Department of Transportation Act.

Table 2.2-4 Public Parks within 2 Miles of Project Site

Name of Park	Address	Size	Approximate Distance from Project Site
Dublin			
Jordan Ranch Park	4299 Jordan Ranch Drive	4.4 acres	0.5 mile
Fallon Sports Park	4605 Lockhart Street	60 acres	0.3 mile
Bray Commons	3300 Finnian Way	4.8 acres	0.6 mile
Passatempo Park	3200 Palermo Way	5.1 acres	0.6 mile
Sean Diamond Park	4801 La Strada Drive	5.0 acres	0.8 mile
Devany Square	4405 Chancery Lane	2 acres	0.7 mile
Positano Hills Park	2301 Valentano Drive	5.1 acres	1.2 miles
Ted Fairfield Park	3400 Antone Way	6.9 acres	1.1 miles
Emerald Glen Park	4201 Central Parkway	48.2 acres	1.3 miles
Livermore			
Las Positas Golf Course	917 Clubhouse Drive	200 acres	0.2 mile
Henry Park	1525 Mendocino Road	5.3 acres	1.8 miles
Pleasanton			
Meadows Park	3301 W. Las Positas Boulevard	5.5 acres	0.8 mile
Amaral Park	3400 Dennis Drive	4.6 acres	1.2 miles
Fairlands Park	410 Churchill Drive	10+ acres	1.1 miles

Source: City of Dublin, 2018; City of Livermore, 2018; Google Earth, 2018

Trails and Bikeways

Bicycle facilities generally fall into three categories:

- Bike paths (Class I) – Paved trails that are separated from roadways
- Bike lanes (Class II) – Lanes on roadways designated for use by bicycles through striping, pavement legends, and signs
- Bike routes (Class III) – Designated roadways for bicycle use by signs only; may or may not include additional pavement width for cyclists

According to Dublin's Bicycle and Pedestrian Master Plan, Dublin's extensive bicycling network includes 47 miles of bicycle lanes throughout the City consisting of 23 miles of Class I bicycle paths, 23 miles of Class II, and 1 miles of Class III bicycle routes. Dublin's bicycle network primarily consists of arterial bicycle lanes and off-street Class I paths. These arterial bicycle lanes provide north-south and east-west connections in the western and eastern areas of Dublin. In eastern Dublin, the bicycle network consists of Class II bicycle lanes on arterial and collector streets as well

as wide sidewalks that meet Caltrans minimum standards for Class I paths. Many of these facilities parallel Class II bicycle lanes.

Livermore's bikeways consist of 106 miles of Class I shared use paths and Class II bicycle lanes. Approximately 38 miles of Class I paved shared use paths are designed for bicycling, walking, and horseback riding. The existing trail network is partially developed throughout portions of Livermore and is intended to provide separated and comfortable access to community facilities, schools, and transit. The trail network also provides recreational opportunities and connection to neighborhood and regional parks.

There are no designated bicycle routes (signage or striping) on Fallon Road, Dublin Boulevard, North Canyons Parkway, or Doolan Road within the study area. However, Fallon Road is undergoing upgrades to enhance sidewalks and bicycle facilities along its length. The bicycle lanes closest to the study area are Class II bicycle lanes on Fallon Road north of the Central Parkway intersection and along North Canyons Parkway, east of Airway Boulevard. Class II and Class III bicycle lanes are generally used for transportation purposes (traveling from Point A to Point B) and are not protected as recreational resources under the provisions of Section 4(f) of the Department of Transportation Act.

The existing trail system (Class 1, off-street bikeways or multiuse paths) within Dublin, Pleasanton, and Livermore is mostly regional trails that were constructed by the East Bay Regional Park District and the Livermore Area Recreation and Park District (LARPD). The closest Class I trails follow the natural waterways in the region, which consist of the Tassajara Creek Trail and the Arroyo Mocho Trail. The Iron Horse Trail also runs perpendicular to the Tassajara Creek Trail, generally running in a north-south direction that parallels Owens Drive, before crossing under I-580. These trails are located more than 0.5-mile from the Project corridor, beyond I-580 and other major development. Class I trails are protected under the provisions of Section 4(f) because they are publicly owned and designated or functioning primarily for recreational purposes.

ENVIRONMENTAL CONSEQUENCES

Build Alternative

Recreational facilities would not be acquired as part of the Build Alternative, thereby avoiding direct effects. Similarly, no temporary construction work would occur on or adjacent to any parks or recreational facilities. The Build Alternative would not alter the location of the I-580 freeway or existing thoroughfares fronting nearby parks or recreational facilities. Access to these facilities would not be hindered as result of Build Alternative construction or operation. Construction-period noise would not affect existing recreation facilities because of the relative distance between the Project site and the nearest recreation resources (over 1,000 feet). Therefore, the Build Alternative would not result in direct or indirect effects to parks or recreation facilities. Section 4(f) resources are evaluated in detail in **Appendix A**. As detailed in **Appendix A**, no use would occur under Section 4(f).

As discussed in **Chapter 2.2.3, Growth**, the Build Alternative would indirectly support identified growth in Dublin. As a roadway project, the Build Alternative would not directly increase population or employment, or otherwise increase population within the study area. Therefore, the Build Alternative would not generate increased demands for the parks and recreational facilities. Dublin, the County, and Livermore have taken the Project into account in planning for the future expansion or addition of parks and recreational facilities, as each jurisdiction's General Plan (and related EIR) includes the extension of Dublin Boulevard to the Doolan Road/North Canyons Parkway intersection in Livermore.

Further, implementation of bicycle, pedestrian, and trail infrastructure for the Dublin Boulevard extension has been planned for in the Dublin Bicycle and Pedestrian Master Plan, the Alameda County Bicycle and Pedestrian Master Plan for Unincorporated Areas, and Livermore's Active Transportation Plan. Therefore, the Build Alternative would not affect existing or planned trail and bikeway facilities.

No-Build Alternative

Under the No-Build Alternative, no changes would be made at the Project site. No construction activities would occur, and Dublin Boulevard would continue to terminate at Fallon Road in Dublin. The No-Build Alternative would have no effect on public parks or recreational facilities.

AVOIDANCE, MINIMIZATION, AND/OR MITIGATION MEASURES

The Build Alternative would not result in adverse effects to parks and recreational facilities. Therefore, no avoidance, minimization, and/or mitigation measures would be required.

CUMULATIVE ANALYSIS

As stated above, no use of any Section 4(f) resource would occur. Further, the recreational facilities within 0.5 miles of the Project would not be directly or indirectly affected by the Project. Therefore, there would be no cumulative effect to parks or recreation resources as a result of the Project.

2.2.3 GROWTH

REGULATORY SETTING

The Council on Environmental Quality (CEQ) regulations, which established the steps necessary to comply with the National Environmental Policy Act (NEPA) of 1969, require evaluation of the potential environmental effects of all proposed federal activities and programs. This provision includes a requirement to examine indirect effects, which may occur in areas beyond the immediate influence of a proposed action and at some time in the future. The CEQ regulations (40 Code of Federal Regulations [CFR] 1508.8) refer to these consequences as indirect impacts. Indirect impacts may include changes in land use, economic vitality, and population density, which are all elements of growth.

Figure 2.2-1

Public Parks and Recreational Facilities

Source: Circlepoint, 2018

AFFECTED ENVIRONMENT

This section analyzes the Project's potential to induce growth within the study area. Information from this section was provided by the Community Impact Assessment prepared for the Project in May 2019. Factors considered in this analysis are drawn from existing conditions outlined in **Section 2.2.4, Community Impacts**. As characterized in the Association of Bay Area Governments'(ABAG) Plan Bay Area 2040, planned growth throughout the Tri-Valley area will continue to increase transportation demand across all modes.

In the study area, planned development including buildout of the EEPA will result in the generation of new vehicle trips and new demand for transit services. The study area for growth is defined on a regional level (i.e., growth and consistency with land use plans); the study area for this section includes the following cities, county, and unincorporated areas that intersect with the Project corridor: Dublin, Pleasanton, Livermore, and the County.

Based on future development planned in the Project area and throughout Dublin, transportation demand on local roadways in Dublin and the regional highway system will continue to increase over time. Alameda CTC's traffic model reflects that average daily traffic volumes along I-580 in the Project area are anticipated to increase over time from over 147,000 vehicles in 2013 to over 170,000 vehicles in 2040, an increase of 16 percent.[19]

ENVIRONMENTAL CONSEQUENCES

Build Alternative

Caltrans has developed guidance for determining if a project is considered growth-inducing, either directly or indirectly. The "First-Cut Screening" process is used to consider the potential for a project to have any growth-related impacts, and to consider if any growth-related impacts would affect any resources of concern. Using the Caltrans guidelines "First-Cut Screening," it was determined that indirect Project-related growth is reasonably foreseeable but not to the extent that it would impact resources of concern. This analysis was vetted with each jurisdiction within the study area in September 2018 and received concurrence on the determination that the Project would indirectly support planned growth in eastern Dublin. Each of the three First-Cut Screening questions is presented below with responses.

1. To what extent would travel times, travel cost, or accessibility to employment, shopping, or other destinations be changed? Would this change affect travel behavior, trip patterns, or the attractiveness of some areas to development over others?

[19]Kittelson & Associates. 2018. Transportation Impact Analysis: Dublin Boulevard-North Canyons Parkway Extension.

Travel times for local trips may be slightly shortened with implementation of the Project. Travel cost is not anticipated to change notably, as some drivers would have the option of making shorter trips, but not to the extent that cost savings would be substantial. Drivers may elect to use Dublin Boulevard for local trips in lieu of diverting onto I-580 to travel between Dublin and Livermore. With implementation of the Project, bicycle and pedestrian accessibility between Dublin and Livermore would be improved, making these alternative modes more viable to some users. The Project would provide a new, local roadway alternative to access existing employment, shopping, and other destinations in Dublin and Livermore. Existing land use and zoning regulations in Dublin, the County, and Livermore encourage development in targeted areas while restricting development in others. In particular, the hills north of the Project, including Doolan Canyon Regional Preserve, and County land in the study area are designated as areas preserved for open space or agricultural uses. The Project would not result in land use changes along the alignment or elsewhere. The City of Dublin has designated eastern Dublin as an area for planned growth over time, as documented in Dublin's General Plan and regional planning documents. The Project is included in these planning documents and would indirectly support planned growth in eastern Dublin by providing a new local roadway connection to developable areas.

2. To what extent would change in accessibility affect growth or land use change - its location, rate, type, or amount?

As discussed in **Section 2.2.4, Community Impacts**, planned growth in the study area has been well documented and fully evaluated in the applicable CEQA clearances for the General Plans and individual development projects, as they move forward in the planning process. The Project would support implementation of Dublin's General Plan, which includes the extension of Dublin Boulevard to the intersection of North Canyons Parkway and Doolan Road in Livermore, providing access to developable areas of eastern Dublin. The Project is consistent with the existing and planned land uses in the study area and would not directly or indirectly change land use or induce unplanned growth, but would rather accommodate planned growth. The Project would not directly affect the rate, type, or amount of growth in eastern Dublin, as the Project includes a roadway extension only. The Project would indirectly support the rate, type, and amount of growth planned in eastern Dublin.

The Project would indirectly support planned growth in eastern Dublin, as described in Dublin's General Plan and the EDSP. In this way, the Project would not result in a change in the location of growth. The Project would not include any changes to land use or zoning, and existing parameters on the type and amount of growth permitted in eastern Dublin, the County, and Livermore would not change as a result of the Project. The Project would provide access to developable areas of eastern Dublin and would indirectly support growth at the rate described in the General Plan and EDSP. The No Build Alternative would present a barrier to the planned rate of growth in eastern Dublin. Under the No Build Alternative, the type and amount of growth outlined in the General Plan and EDSP would still occur, but at a slower rate as access to eastern Dublin would remain limited.

3. To what extent would resources of concern be affected by this growth or land use change?

Resources of concern include wetlands, vernal pools, threatened/endangered species, prime farmland, and Section 4(f) property, as defined by Caltrans, and could be expanded to include other

resources such as cultural and historic resources and scenic resources. Each of these resources are evaluated in separate technical reports and memoranda for the Project. As the Project would not result in any land use change, would not directly affect growth, and would indirectly support planned growth in eastern Dublin, resources of concern would not be affected by growth induced by the Project. Future development in eastern Dublin would proceed independently and would be required to evaluate affects to environmental resources under Project-specific environmental documentation. Indirect effects on the rate, type, and amount of growth resulting from the Project would not affect resources of concern because of the previously identified planning controls.

No Build Alternative

Under the No Build Alternative, none of the Project features would be constructed. Dublin Boulevard and North Canyons Parkway would continue to operate unconnected in their current configurations. Under the No Build Alternative, the planned and approved land use developments may be implemented by local agencies or under other projects. The No-Build Alternative would not induce growth.

AVOIDANCE, MINIMIZATION, AND/OR MITIGATION MEASURES

As discussed, the Build Alternative would not result in adverse effects related to Growth. Therefore, no avoidance, minimization, or mitigation would be required.

2.2.4 COMMUNITY IMPACTS

Information in this section is based on the CIA prepared for the Project in May 2019.

COMMUNITY CHARACTER AND COHESION

Regulatory Setting

The National Environmental Policy Act (NEPA) of 1969, as amended, established that the federal government use all practicable means to ensure for all Americans safe, healthful, productive, and aesthetically and culturally pleasing surroundings (42 United States Code [USC] 4331[b][2]). The Federal Highway Administration (FHWA) in its implementation of NEPA (23 USC 109[h]) directs that final decisions on projects are to be made in the best overall public interest. This requires taking into account adverse environmental impacts, such as destruction or disruption of human-made resources, community cohesion, and the availability of public facilities and services.

Affected Environment

Community character is discussed in terms of the community profile and the demographic profile. Per Caltrans guidance, information for the census block groups within the 0.5-mile study area was used to generate the community profile. Existing community characteristics were derived from the U.S. Census Bureau's 2013-2017 American Community Survey (ACS) 5-year estimates.

The study area for community character and cohesion includes four jurisdictions: Dublin, the County, Livermore, and Pleasanton. Project-related effects to the surrounding communities would

stem from activities taking place at the Project site but would also include the broader Tri-Valley area. Therefore, the analysis to community character and cohesion considers community effects on a broader, regional level.

The portion of the study area between Fallon Road and Doolan Road (including the Project site) primarily consists of undeveloped grazing ranchland and open space, with intermittent rural development such as private paved and unpaved roads, fences, barns, corrals, wells, water tanks, and various outbuildings. There are no existing neighborhoods or dense development between Fallon Road and Doolan Road. The area between Fallon Road and Doolan Road also includes County land. There are no developed neighborhoods or communities in the County within the 0.5-mile census block group study area.

There are existing residential communities along Fallon Road northwest of the Fallon Road/Dublin Boulevard intersection and northeast of Central Parkway. The Fallon Gateway shopping center is located southwest of the Fallon Road/Dublin Boulevard intersection. The areas east of the Dublin Boulevard/Doolan Road intersection and south of I-580 are primarily commercial and industrial developments. Fallon Road and Airway Boulevard are the only north-south connections across the I-580 corridor in the study area.

Jurisdictions

Dublin

Dublin's overall mission is to promote and support a high quality of life, ensure a safe and secure environment, and foster new opportunities. Dublin strives to build an engaged and educated community through programs that strengthen Dublin's economic vitality and preserve the natural surroundings through environmental stewardship and sustainability. Additionally, Dublin is dedicated to promoting an active and healthy lifestyle through the creation of first-class recreational opportunities, facilities, and programs. Many of Dublin's community events occur at Emerald Glen park, located north of Dublin Boulevard between Hacienda Drive and Tassajara Road (greater than 1 mile from the Project site).

Livermore

The segment of North Canyons Parkway within the 0.5-mile study area is a planned gateway into Livermore. As California's oldest wine region, Livermore strives to provide a sense of place that contributes to its unique identity. Livermore's most distinct features are its hills and ridgelines that surround the northern edge of the city. Preserving these sightlines is a prominent goal in Livermore's General Plan (see **Chapter 2.2.1, Land Use**).

Livermore's website provides a listing of daily public social events, such as English conversation groups, family story time, and music and dance classes. Livermore is also home to Lawrence Livermore National Laboratory Discovery Center, a science and technology center, and Las Positas Community College for higher education, both located well outside the Project site.

Pleasanton

Pleasanton is considered a major suburb with more than 1,200 acres of surrounding parks, open space, and trails. Located at the junction of I-580 and I-680, Pleasanton is proximate to the major business markets of Silicon Valley, San Francisco, and the Central Valley. This is an attractive feature for existing and future employees and employers. The City's cultural characteristics surround community-oriented activities. Pleasanton offers free summer concerts series, festivals, and a weekly year-round farmers market. The popular Callippe golf course, and Firehouse Arts Center provides diverse entertainment and shopping for both residents and visitors.

Population and Housing

The following population data was compiled from the 2017 ACS, which is the most recent U.S. Census data after the U.S. Census in 2010.

Dublin's population is approximately 57,022. Development in the EEPA is anticipated to generate the largest percentage of Dublin's future growth, with up to 4,033 residential units generating a population growth of 16,778 persons by 2040.

Alameda County is one of the nine counties that make up the San Francisco Bay Area. Alameda County is the second most populous county in the region and the seventh most populous in the state. As described in **Table 2.2-5**, the County has a population of approximately 1.6 million people. According to ABAG data, the County saw an increase of 3.6 percent in employed residents between 2000 and 2011, for a total of 718,035 employed residents aged 16 and over.

Livermore's existing population is approximately 88,000 and Pleasanton's existing population is approximately 79,000.

As shown in **Table 2.2-5**, Dublin experienced a 34 percent increase in population between 2010 and 2017; the largest population increase in comparison to the County, Livermore, and Pleasanton. Livermore and Pleasanton experienced population increases of 9 and 13 percent, respectively, during this same time period. Between 2010 and 2017, the number of households increased by 27.5 percent in Dublin, 7.5 percent in Livermore, and 18 percent in Pleasanton.

Table 2.2-5 2010-2017 Population and Household Growth

Geographic Area	Population			Households		
	2010[a]	2017[b]	Percent Change	2010[a]	2017[b]	Percent Change
Alameda County	1,510,271	1,663,190	+10%	545,138	569,070	+4%
Dublin	42,657	57,022	+34%	14,913	19,023	+27.5%
Livermore	80,968	88,232	+9%	29,134	31,347	+7.5%
Pleasanton	70,285	79,341	+13%	23,716	27,922	+18%

Source: a: U.S Census, 2010
b: ACS, 2017

Age

The median age in Dublin, the County, Livermore, and Pleasanton is between 37 and 43 years. In 2017, residents 65 years and older comprised 9 to 14 percent of the population in all four jurisdictions (see **Table 2.2-6**).

Table 2.2-6 Population 65 Years and Over

Geographic Area	Percentage of Population 65 Years and Over	
	2010[a]	2017[b]
Alameda County	11%	14%
Dublin	7%	9%
Livermore	10%	12.5%
Pleasanton	11%	14%

Source: [a]: U.S Census 2010
[b] ACS, 2017

Race

Alameda County is home to a diverse population representing many races and ethnicities. Minority groups comprise 68 percent of the County, 60 percent of Dublin, and 58 percent of the study area population. Livermore has the lowest percentage of minority populations at 36 percent. **Table 2.2-7** summarizes the population demographics for the County, Dublin, Livermore, and Pleasanton as a whole, and the 0.5-mile study area.

Table 2.2-7 Population Distribution

Population	Alameda County	Dublin	Livermore	Pleasanton	Study Area
Total Population	1,629,615	57,022	88,232	79,341	29,901
Hispanic or Latino (of any race)	367,041	5,616	17,783	6,864	3,291
Not Hispanic or Latino	1,262,574	51,406	70,449	72,477	26,610
White	524,881	22,660	56,218	42,267	12,604
Black or African American	175,063	2,609	1,039	1,580	1,044
American Indian and Alaska Native	5,008	173	108	187	41
Asian	468,356	22,771	9,236	25,011	11,585

Population	Alameda County	Dublin	Livermore	Pleasanton	Study Area
Native Hawaiian and Other Pacific Islander	13,000	182	297	425	153
Some Other Race	4,489	35	71	152	0
Two or More Races	71,777	2,976	3,480	2,855	1,183
Minority Percent[1]	**68%**	**60%**	**36%**	**47%**	**58%**

Source: ACS, 21017

[1] Minority refers to every person who is not of White Race and Non-Hispanic or Latino Ethnicity categories. The percentages were calculated by finding the numerical difference between the total population of all races and total, White, Non-Hispanic population. That number was then divided by the total population of all races.

Income

Table 2.2-8 summarizes ACS per capita and median household income levels for the County, Dublin, Livermore, Pleasanton, and the 0.5-mile study area. Pleasanton has the highest median household and per capita income out of the three jurisdictions. However, median income is higher within the 0.50-mile study area. Dublin's income levels are lower than Pleasanton, and Livermore has the lowest. All three cities have higher-than-average income levels when compared to the County as a whole. Median household income in the study area is comparable to that of the region, with only 4 percent of the population below the poverty level.

Table 2.2-8 Income Levels

Area	Per Capita Income (ACS 2010)	Per Capita Income (ACS 2013-2017)	Median Household Income (Census 2010)	Median Household Income (ACS 2013-2017)	Percent Population Below Poverty Level
Alameda County	$33,961	$41,363	$69,384	$85,743	11.3%
City of Dublin	$39,337	$54,251	$107,754	$138,007	3.6%
City of Livermore	$41,072	$47,903	$93,988	$109,084	4.8%
City of Pleasanton	$48,953	$60,067	$115,188	$138,269	4.3%
Study Area	$48,289	$54,732	$117,024	$137,866	4%

Source: ACS 2010, 2013-2017

Employment

As shown in **Table 2.2-9**, the jurisdictions within the study area share a similar employment mix, with nearly 50 percent or more of employment found in the management and professional sector.

Approximately 9 to 16 percent of the workforce is in the service industry; 20 to 23 percent are in sales and office industries; and 3 to 9 percent are in the "production, transportation, and material moving" field. The smallest employment sectors for the region are natural resources, construction, and maintenance industries.

Table 2.2-9 Employment Sector

Sector	Alameda County		Dublin		Livermore		Pleasanton	
	Persons	Percent	Persons	Percent	Persons	Percent	Persons	Percent
Management, professional	396,990	48%	18,527	64%	21,797	46.3%	25,192	64.3%
Service	131,926	16%	2,668	9.2%	7,202	15.3%	3,818	9.7%
Sales and office	168,949	20.4%	5,649	19.5%	11,035	23.4%	7,692	19.6%
Natural resources, construction, and maintenance	52,594	6.4%	907	3.1%	3,643	7.7%	1,184	3%
Production, transportation, and material moving	75,851	9.2%	1,185	4.1%	3,392	7.2%	1,313	3.3%

Source: ACS, 2017

Environmental Consequences

Build Alternative

Construction

During construction, temporary roadway closures may disrupt the routines of community members for a short period of time. The existing Dublin Boulevard/Fallon Road and Dublin Boulevard/North Canyons Parkway intersections may require temporary, partial closure to allow for construction equipment access, restriping, and traffic signal modifications. Residents and businesses whose access may be affected would be notified in advance of construction and a traffic management plan would be in place to manage construction, detours, etc., as described in **Chapter 2.2.5, Traffic and Transportation/Pedestrian and Bicycle Facilities**. No permanent division of existing neighborhoods or disruption of routines would result from construction of the Build Alternative.

Construction would occur over 0.5-mile from the closest community centers, parks, and recreational areas where community members usually congregate for festivals, the farmer's market, and other community events. For these reasons, construction of the Build Alternative would not negatively affect community cohesion.

Operation

The Build Alternative was envisioned to provide local circulation and access to "potentially developable areas" in Dublin as first described in Dublin's General Plan EIR (1984) as well as some capacity relief to I-580 as a secondary benefit. The current General Plan and EIR (2016) also describe the Build Alternative as a physical link connecting the EEPA to the rest of Dublin and Livermore. Most of the direct impact study area is currently inaccessible from public roadways, except for two private properties accessible from Croak Road and Collier Canyon Road. For planned development to occur, a major east-west roadway connection is needed and is anticipated to be provided through the extension of Dublin Boulevard.

The proposed improvements would enhance access and connectivity within the community, helping to support residents' ability to travel from Dublin to Livermore and vice versa. The Build Alternative would allow drivers to travel from I-680 across Dublin, the County, and Livermore to SR-84/Isabel Avenue without accessing the freeway. This would allow a greater proportion of local trips to remain on the local roadway network but would not be anticipated to substantially increase local trips, as documented in the Transportation Impact Report completed for the Project. Additionally, the provision of bus stops, bicycle lanes/paths, and pedestrian paths would allow multi-modal access along the corridor.

The Build Alternative would not result in direct changes to the population of the area, as it would not introduce new housing or new uses that could attract substantial numbers of new residents to the area. The Build Alternative would not change community focal points or introduce a new focal point, but would rather provide a connection between downtown Dublin, eastern Dublin, and Livermore, and access to a planned future focal point within Dublin (the Fallon Village area).

Build Alternative improvements would be in close proximity and parallel to the existing I-580 freeway. The I-580 freeway is an existing physical and perceptual barrier between Dublin and Livermore. The Build Alternative would not act as a barrier, given that the areas to the north and south of the proposed east-west roadway alignment are undeveloped. Therefore, no new physical or perceptual barriers would be created. Implementation of the Build Alternative would provide new, enhanced access between existing developed areas of Dublin and Livermore and would indirectly support future increases in access to eastern Dublin.

Chapter 3, Comments and Coordination, provides a description of the public reaction to the Project by the local communities.

No Build Alternative

Under the No-Build Alternative, no improvements would occur, and the programmed and planned roadway extension would not be implemented. The No-Build Alternative would have no effect on the exiting community character or cohesion.

Avoidance, Minimization, and/or Mitigation Measures

As discussed, the Build Alternative would not result in impacts to community character and cohesion. Therefore, no avoidance, minimization, or mitigation would be required.

RELOCATIONS AND REAL PROPERTY ACQUISITION

Regulatory Setting

The Department's Relocation Assistance Program (RAP) is based on the Federal Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, as amended (Uniform Act), and Title 49 Code of Federal Regulations (CFR) Part 24. The purpose of the RAP is to ensure that persons displaced as a result of a transportation project are treated fairly, consistently, and equitably so that such persons will not suffer disproportionate injuries as a result of projects designed for the benefit of the public as a whole.

All relocation services and benefits are administered without regard to race, color, national origin, persons with disabilities, religion, age, or sex. Please see **Appendix B** for a copy of the Department's Title VI Policy Statement.

Affected Environment

Between Fallon Road and Doolan Road, the study area primarily consists of privately owned, undeveloped grazing ranchland and open space with intermittent rural development such as private paved and unpaved roads, fences, barns, corrals, wells, water tanks, and various outbuildings. Single-family home properties and associated large plots of grazing ranchland are located off Croak Road, Collier Canyon Road, and North Canyons Parkway. These developed areas are outside of the Project site. The largest developed property within the Project site is a gardening business in Dublin. There is a smaller commercial property – a landscaping business – on unincorporated County land south of the Project site. There is also a former farm complex and associated parking lot, located in the center of the study area. This site is now vacant, and all buildings have been demolished by the property owner, separate from the Project.

Environmental Consequences

Build Alternative

The Build Alternative would be constructed within generally undeveloped private property in Dublin and the County. No private property acquisitions would be required in Livermore. Right-of-way acquisitions would be needed from multiple private property owners, as shown in **Table 2.2-10**.

Table 2.2-10 Permanent Right-of-Way Acquisitions

Assessor's Parcel Number	Jurisdiction	Right-of-Way Acquisition square feet (sf)
985-0027-002	Dublin	470,000
905-0001-006-03	Dublin	125,000
905-0001-005-02	Dublin	100,000
905-0001-004-04	Dublin	90,000
905-0001-004-03	Dublin	20,000
905-0001-003-02	County	160,000
905-0001-001-02	County	250,000

Source: BKF, 2018

No residences or businesses would be displaced as a result of these acquisitions. The Project would require a partial, sliver acquisition from the commercial business in Dublin, parcel number 905-0001-004-04. The acquisition would occur on the northern edge of the site and would include areas currently used for parking and storage. This includes areas informally used for parking (unpaved, unvegetated areas) as well as paved areas used to store equipment. Based on Dublin's ongoing coordination with the property owner, the Project would not result in displacement of this business and would not directly or indirectly affect business operation. There is more than adequate space within the property that is suitable for informal equipment storage, including areas adjacent to where equipment is currently stored.

No-Build Alternative

The No-Build Alternative would not change existing conditions; therefore, it would not have any effect on relocation or real property acquisition.

Avoidance, Minimization, and/or Mitigation Measures

Dublin will continue to implement a comprehensive community outreach program including ongoing outreach and coordination with affected property owners to minimize the impacts of access disruption or alterations as part of property acquisitions and during construction. Because no displacement of any residences or businesses would result from implementation of the Build Alternative, no avoidance, minimization, and/or mitigation measures are required.

ENVIRONMENTAL JUSTICE

Regulatory Setting

All projects involving a federal action (funding, permit, or land) must comply with Executive Order (EO) 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*, signed by President William J. Clinton on February 11, 1994. This EO directs federal agencies to take the appropriate and necessary steps to identify and address

disproportionately high and adverse effects of federal projects on the health or environment of minority and low-income populations to the greatest extent practicable and permitted by law. Low income is defined based on the Department of Health and Human Services poverty guidelines. For 2019, this was $25,750 for a family of four.

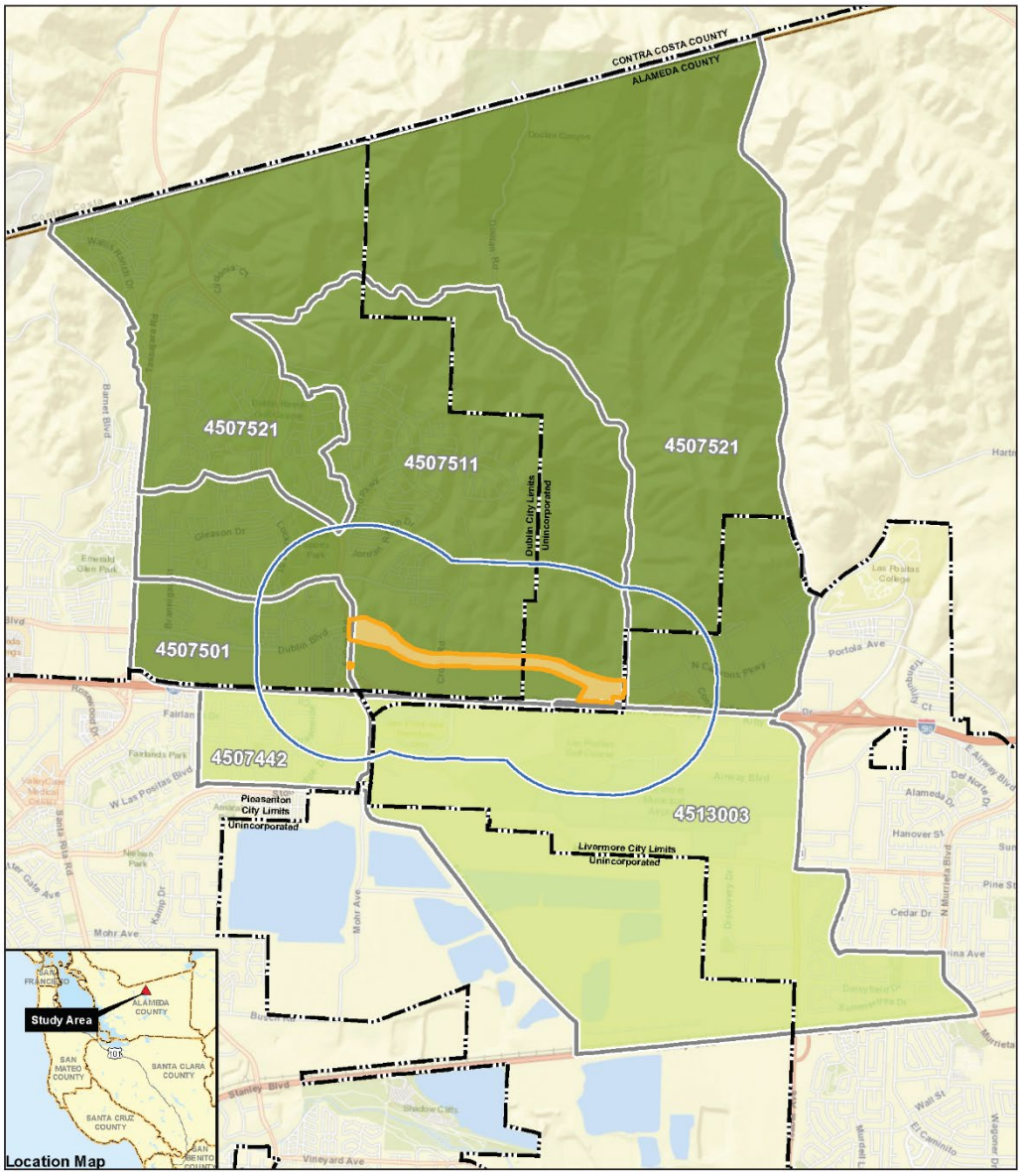
All considerations under Title VI of the Civil Rights Act of 1964, and related statutes, have also been included in this Project. The Department's commitment to upholding the mandates of Title VI is demonstrated by its Title VI Policy Statement, signed by the Director, which can be found in **Appendix B** of this document.

Affected Environment

Communities are generally classified as environmental justice if they meet at least one of the following criteria:

- The low-income population is greater than 25 percent of the total population of the community, or minority population is greater than 50 percent of the total population of the community; or
- The low-income or minority population is more than 10 percentage points higher than the City or County average.

As previously discussed in **Community Character and Cohesion,** Alameda County is home to a diverse population representing many races and ethnicities. Minority groups comprise 67 percent of the County as a whole and 59 percent of Dublin. Livermore has the lowest percentage of minority populations at 36 percent. The 0.5-mile study area is comprised of 58 percent minority populations. Due to the similar percentages of minority populations in the study area relative to the County and cities as a whole, the former criteria, "*minority population is greater than 50 percent of the total population of the community*" is used for this analysis to accurately represent the environmental justice population. Under this criterion, 3 of the 5 block groups within the study area consist of environmental justice communities based on race. As displayed in **Table 2.2-11**, the environmental justice communities are all located in Dublin. Census block groups and their respective percentages of minority population area shown on **Figure 2.2-2**. As shown in **Table 2.2-12**, the study area does not include block groups whose low-income populations are greater than 25 percent.



Minority Population Figure 2.2-2

Source: Geographic Information System

Table 2.2-11 Environmental Justice Communities – Minority

Study Area Block Group	Jurisdiction	Percent Minority	Greater than 50 Percent?
Block Group 2, Census Tract 4507442	Pleasanton	49%	No
Block Group 1, Census Tract 4507501	Dublin	65%	Yes
Block Group 1, Census Tract 4507511	Dublin	79%	Yes
Block Group 1, Census Tract 4507521	Dublin	83%	Yes
Block Group 3, Census Tract 4513003	Livermore	50%	No

Source: ACS, 2016

Table 2.2-12 Environmental Justice Communities - Poverty

Study Area Block Group	Percent Poverty
Block Group 2, Census Tract 4507442, Pleasanton, California	2.9%
Block Group 1, Census Tract 4507501, Dublin, California	7.8%
Block Group 1, Census Tract 4507511, Dublin, California	3.1%
Block Group 1, Census Tract 4507521, Dublin, California	1.1%
Block Group 3, Census Tract 4513003, Livermore, California	6.6%

Source: ACS, 2016

Given the minority and poverty demographic data, three block groups within the study area would be considered environmental justice communities based on race. The Project site is fully within these census block groups.

Environmental Consequences

Build Alternative

The Build Alternative would be constructed entirely within census block groups that meet the environmental justice community criteria for race. However, these block groups extend well beyond the Project site (by up to 1.5 miles, as shown in **Figure 2.2-2**) and encompass larger housing developments in Dublin. In looking at the regional context for community impacts, the Build Alternative's purpose as an improvement to east-west local roadway connectivity and congestion reliever would benefit both environmental and non-environmental justice communities equally, with primary benefit to those communities immediately surrounding the Project site. The Build Alternative would enable access to jobs and community services by providing a new route between Dublin and Livermore.

As previously discussed in this chapter, the areas immediately surrounding the Project site are largely vacant grazing ranchlands, and the Build Alternative would not result in localized adverse effects on existing communities. The Build Alternative would not disproportionately affect environmental justice communities. See sections **2.2.6, Traffic and Transportation/Pedestrian and Bicycle Facilities**; **2.3.5, Air Quality**; and **2.3.6, Noise and Vibration**, for discussions on the beneficial and adverse impacts related to these topics on the study area as a whole.

All avoidance, minimization, and mitigation measures identified in this Draft EA would be applied equally in both environmental justice communities and non-environmental justice communities. The majority of mitigation measures would be applied within Dublin, where all block groups in the study area qualify as environmental justice communities. Mitigation for traffic impacts would be applied in Dublin and Livermore and would avoid any adverse effects. This demonstrates that mitigation is be applied equally to these communities, and further demonstrates that environmental justice communities would receive the majority of the benefit from avoidance, minimization, and mitigation measures. No adverse effects would result from implementation of the Build Alternative once avoidance, minimization, and mitigation measures are applied. Therefore, environmental justice communities would not be adversely affected by the Build Alternative.

No-Build Alternative

Under the No-Build Alternative, no improvements would occur, and the roadway extension would not be implemented. The No-Build Alternative would have no effect on environmental justice communities.

Avoidance, Minimization, and/or Mitigation Measures

The Build Alternative would not cause disproportionately high or adverse effects on any minority or low-income populations in accordance with the provisions of Executive Order 12898. No further environmental justice analysis is required.

2.2.5 UTILITIES/EMERGENCY SERVICES

AFFECTED ENVIRONMENT

The utility study area encompasses parcels traversed by the Project, as well as the service areas of local utility providers. The study area is serviced by a variety of utility providers such as the Dublin San Ramon Services District (DSRSD), Livermore Municipal Water, Amador Valley Industries, and Livermore Sanitation. The Project would include new service extensions from DSRSD, Pacific Gas and Electric (PG&E), and communication services. The Project would include new connections to existing infrastructure in Livermore (see **Table 2.2-13**).

This section also presents information on public services in the study area. The public services study area includes the Project site, as well as the entire service district for each public service provider.

Table 2.2-13 Public Utility Providers

Utility Type	Provider	Description
Water Wastewater Storm Water	Dublin San Ramon Services District (DSRSD)	Would provide domestic water, wastewater, and storm water services
Electricity	Pacific Gas & Electric (PG&E)	Provides electricity service and natural gas
Communication Services	AT&T, Verizon, and Comcast	High-speed internet, voice

Source: BKF, 2018

City of Dublin

According to the 2015 UWMP, the DSRSD was formed in 1953 and entered into an agreement with Zone 7 in 1963 to acquire additional treated water supplies. Commercial and residential growth in the region has since triggered increases in the capacity of Zone 7's treatment, pumping, storage, and distribution facilities, along with the expansion of DSRSD's water service area and water distribution system. In response to projected growth of the region, additional water supplies have been acquired to satisfy projected growth in the region. The contract between DSRSD and Zone 7 is in effect until the year 2024.

Stormwater Drainage

Dublin's municipal stormwater system consists of ditches, inlets, and basins. Dublin's Public Works Department is responsible for maintaining storm drains and drainage ditches within public areas and along city streets before they drain into Zone 7 maintained facilities. Dublin's Stormwater Program is administered by the Dublin's Public Works Department and is designed to eliminate pollutants such as motor oil, dirt, pesticides, and other contaminants from entering the storm drain

system as mandated under the CWA. Such pollutants flow from landscaped areas and roadways in contaminated water, also referred to as urban runoff. The stormwater discussion in this section focuses on the need to construction off-site stormwater treatment facilities. Dublin is a co-permittee under the Municipal Regional Stormwater NPDES Permit.

Electricity

PG&E was incorporated in 1905 and is one of the largest combined natural gas and electric energy companies in the United States. PG&E provides electric services to approximately 5.4 million customer accounts statewide, including those located in Dublin. PG&E's electricity system consists of 106,681 circuit miles of electric distribution lines and 18,466 circuit miles of interconnected transmission lines.

Natural Gas

PG&E provides natural gas services to approximately 4.3 million customer accounts statewide, including those located within Dublin. PG&E's natural gas system consists of 42,141 miles of distribution pipeline and 6,438 miles of transmission pipelines.

Communication Services

Residents and businesses located within Dublin are serviced by a variety of telephone and internet service providers such as AT&T, Verizon, and Comcast. Existing underground and overhead infrastructure within the study area includes AT&T and Verizon telecommunication connections between Fallon Road and Doolan Road.

Solid Waste

Solid Waste and recycling services in Dublin are provided by Amador Valley Industries on a contractual basis for residential and commercial uses.

Police Services

The Alameda County Sheriff's Office provides law enforcement to the City of Dublin on a contract basis, known locally as Dublin Police Services. Dublin Police Services have 60 sworn officers and four Sheriff's technicians assigned to the duty station at Dublin Civic Center. Four Dublin civilian employees provide additional support services for Dublin Police Services. The average response time to an emergency call from the time of dispatch to a life-or-death emergency averages 3.5 minutes. The Dublin Police Services responded to 38,551 calls for service in 2018with an average response time to priority calls in 3.5 minutes. This response time meets the Alameda County Sheriff's Office standards and the industry average of five minutes.[20]

Fire Protection and Emergency Response Services

Fire protection services within Dublin are provided by the Dublin Fire Prevention Bureau (DFPB), under The Alameda County Fire Department (ACFD). The ACFD provides Dublin with 36 personnel and operates 3 firehouses.[21] Fire Station 18 is the closest fire station to the Project site, located at 4800 Fallon Road, about 0.25 miles northwest of the western terminus of the Project site.

[20]Alameda County Sherriff's Office. Emergency Services Dispatch. Available: https://www.alamedacountysheriff.org/les_dispatch.php. Accessed: December 4, 2018.

[21] Alameda County, 2018. Alameda County Fire Department, Fire Stations/Facilities. Available: https://www.acgov.org/fire/about/statistics.htm. Accessed: December 4, 2018.

Alameda County

Utilities

Unincorporated portions of the County within the study area consist of large parcels of agriculture and resource management land uses. Existing development includes scattered agricultural operations and sparse residences. As unincorporated portions of the study area are largely undeveloped, existing utilities within these areas feature very limited utility infrastructure. Water, recycled water, and wastewater services are provided by Zone 7 within the study area. The unincorporated portions of the County along Collier Canyon Road and Doolan Road are serviced by Livermore Sanitation, Inc. Livermore Sanitation, Inc, provides collection of solid waste, compostables, and recyclables to customers in these areas.

Police Services

The Alameda County Sheriff's Office, in addition to providing police services to Dublin, provides patrol and investigation services to unincorporated areas of the County. The Alameda County Sheriff's Office serves out of locations throughout the County. Criminal investigations, crime prevention, and some business office functions are performed at Dublin Civic Center (100 Civic Center), while dispatch and some data processing functions are handled at Sheriff's Office facilities in Oakland and San Leandro. The Sheriff's Office has over 1,500 authorized positions, including in excess of 1,000 sworn personnel. In addition to the Sheriff's Office, the California Highway Patrol has jurisdiction over public roadways in unincorporated areas of the County.

Fire Protection and Emergency Response Services

The ACFD would provide fire protection to the Project site in unincorporated areas of the County. The ACFD serves approximately 508 square miles and operates 29 fire stations and 35 companies serving a population of 394,000.[22] ACFD serves densely populated urban areas, waterways, industrialized centers, extensive urban interface, agricultural and wildland regions. With over 400 personnel and 100 Reserve Firefighters, ACFD provides a wide variety of services, including three specialized response teams: Hazardous Materials Unit, Urban Search and Rescue Unit, and Water Rescue Team Unit.

The ACFD has mutual aid agreements with the Livermore-Pleasanton Fire Department (LPFD), the San Ramon Valley Fire Department, and the Camp Parks Fire Department.[23] These agreements help to ensure service is sent based on shortest response times and may result in a mix of different

[22] Alameda County, 2018. Alameda County Fire Department, About Us. Available: https://www.acgov.org/fire/about/statistics.htm. Accessed: December 4, 2018.

[23] Alameda County, 2013. *Alameda County General Plan, Safety Element*. Amended 2014. Available: https://www.acgov.org/cda/planning/generalplans/documents/SafetyElementAmendmentFinal.pdf. Accessed: December 4, 2018.

agencies responding to a particular call. In the case of a wildland fire within the SRA of the County, CAL FIRE's ground and air resources are available to provide support and fire suppression.

The Alameda County Emergency Operations Plan identifies Emergency Operation Centers (EOCs) responsible for providing extended emergency response operations across the County. Extended emergency operations involve the coordination and management of personnel and resources to mitigate an emergency and facilitate the transition to recovery operations. Alameda County's Primary EOC is in Dublin at 4985 Broder Boulevard, approximately 1-mile northwest of the western terminus of the Project site. The EOC is equipped with emergency power generators, radios, telephones, maps, and is staffed 24-hours per day.[24]

City of Livermore

Potable Water and Wastewater

According to the Livermore General Plan, potable and non-potable water is provided by California Water Service Company (Cal Water) and the Livermore Water Resources Division sourced from Zone 7. Cal Water supplies the downtown area and southern portion of Livermore, while Livermore Municipal Water serves the northwest, northeast, and eastern portions of Livermore, including the easternmost portion which is adjacent to the Project site.

Stormwater Drainage

Livermore Water Resources Division is responsible for maintaining storm drains and drainage ditches within public areas and along city streets. Livermore's municipal storm drainage system consists of inlets or catch basins, open channels and ditches, underground pipelines, and detention ponds. Livermore's Public Works Department is responsible for maintaining storm drains and drainage ditches within public areas and along city streets before they drain into facilities maintained by Zone 7. Livermore's Stormwater Management Program is designed to eliminate pollutants such as motor oil, dirt, pesticides, and other contaminants from entering the storm drain system as mandated under the CWA. Stormwater runoff within the study area flows southerly (downslope) towards flatter terrain near I-580. The stormwater discussion in this section focuses on the need to construction off-site stormwater treatment facilities.

Solid Waste

Collection of solid waste, recycling, and compostables in Livermore is provided by Livermore Sanitation, Inc. for residential and commercial uses.

[24] Alameda County Sheriff's Office of Homeland Security and Emergency Services. 2012. *Alameda County Emergency Operations Plan*. Available: https://www.acgov.org/ready/documents/EmergencyOperationsPlan.pdf. Accessed: December 3, 2018.

Police Services

The Livermore Police Department (LPD) has 90 officers and 45 full-time personnel. LPD headquarters is located at 1110 South Livermore Avenue, approximately 8 miles southeast of the study area. The average response time to an emergency call is about 4.5 minutes.[25]

Fire Protection and Emergency Response Services

The LPFD is the fire, emergency response, and community service organization serving Livermore. The LPFD operates 10 fire stations, 8 engines, and has 121 employees. The average fire response time is just over 6 minutes as of 2017. The closest fire station to the Project site is Station 10, approximately 4 miles east at 330 Airway Boulevard.[26]

ENVIRONMENTAL CONSEQUENCES

Build Alternative

As discussed in **Chapter 1, Proposed Project**, the Build Alternative would include the following utility improvements/enhancements within the Project area:

- The extension of underground utility lines within the Project site
- New street lighting on both sides of the roadway extension (200-foot internals) and at all intersections
- Installation of DSRSD water lines (domestic, wastewater, and sewer lines)
- Removal of existing overhead utility lines running from Fallon Road to Croak Road

Public Utilities

The Build Alternative would entail the construction and operation of a 1.5-mile roadway extension of Dublin Boulevard through eastern Dublin and the County to North Canyons Parkway in Livermore. The Build Alternative would include installation of new potable water, recycled water, and wastewater lines within the construction and operational footprints to support planned development in Dublin and avoid or minimize additional, future utility trenching within the operational footprint. Water, recycled water, and wastewater utilities would be extended from existing DSRSD lines at Fallon Road. The water line would be extended from the Dublin Boulevard/Fallon Road intersection eastward to the future Doolan Road/North Canyons Parkway

[25] City of Livermore. Livermore Police Department. Available: http://www.cityoflivermore.net/citygov/police/. Accessed: December 5, 2018.

[26] Livermore-Pleasanton Fire Department. Available: http://www.cityoflivermore.net/citygov/fire/about/default.htm. Accessed: December 5, 2018.

intersection. Wastewater and recycled water lines, however, would be extended only from the Dublin Boulevard/Fallon Road intersection to the eastern edge of Dublin. Aside from landscape irrigation, the Project would not include connections to new water lines or utility lines.

Construction of the Build Alternative would not entail the regular use of water. Similarly, construction activities would not regularly generate wastewater. As a roadway project, operation of the Build Alternative would not include the regular use of water or recycled water services. Water may be used intermittently at the Project site for maintenance purposes such as street sweeping and landscape irrigation. This would not require water or water services to the extent that new or expanded treatment facilities would be required. Similarly, operation of the Build Alternative would not generate wastewater, as no habitable structures or other facilities such as restrooms are proposed.

Permanent utility easements would be required on seven private properties. The exact location and area of utility easements has not yet been determined but is anticipated to coincide with the permanent right-of-way acquisitions discussed in **Chapter 1, Proposed Project**.

The Build Alternative would include the relocation of existing overhead electrical transmission lines that run diagonally from Fallon Road to Croak Road. Overhead power lines would be removed and undergrounding of the relocated facilities within the new right-of-way. Existing power poles would be removed or abandoned (contingent upon the utility easement language between PG&E and the property owner).

Operation of the Build Alternative, a transportation facility, would not generate a substantial demand for increased utility services. Electrical utility lines would provide service to new streetlights and traffic signals.

Emergency Services

Construction of the Build Alternative may require temporary detouring at the Dublin Boulevard/Fallon Road intersection and Doolan Road/North Canyons Parkway intersection, and temporary closures at the new intersection of Dublin Boulevard and Croak Road. This could result in interference with emergency vehicle access. This impact would be addressed through **Measure TRAF-1**, as described in **Section 2.2.6, Traffic and Transportation/Pedestrian and Bicycle Facilities**. This measure requires preparation of a traffic management plan (TMP), which would include press releases to notify and inform emergency services of upcoming road closures and detours, and coordination with emergency service providers to ensure that adequate service to the entire service area would be maintained during construction.

The Build Alternative would provide improved local access and an alternate travel route, thereby reducing traffic congestion and potentially improving access and response times for emergency services traveling within the vicinity of the Project. As such, long-term operational effects of the Build Alternative would benefit police, fire, and emergency service providers traveling in the area.

No Build Alternative

Under the No Build Alternative, Dublin Boulevard and North Canyons Parkway would continue to operate unconnected in their current configurations. Given this, the No Build Alternative would have no effect on utilities or emergency services.

AVOIDANCE, MINIMIZATION, AND/OR MITIGATION MEASURES

The Build Alternative would not result in adverse effects related to utilities. Temporary effects to emergency vehicle access during construction would be avoided through **Measure TRAF-1**, as described in **Section 2.2.6, Traffic and Transportation/Pedestrian and Bicycle Facilities.**

2.2.6 TRAFFIC AND TRANSPORTATION/PEDESTRIAN AND BICYCLE FACILITIES

This section discusses the Project's effect on traffic and circulation, both during construction and operation. Both direct and indirect effects are considered, such as intersections within the Project site and in the communities surrounding the Project.

REGULATORY SETTING

Federal and State

The Department, as assigned by the Federal Highway Administration (FHWA), directs that full consideration should be given to the safe accommodation of pedestrians and bicyclists during the development of Federal-aid highway projects (see 23 Code of Federal Regulations [CFR] 652). It further directs that the special needs of the elderly and the disabled must be considered in all Federal-aid projects that include pedestrian facilities. When current or anticipated pedestrian and/or bicycle traffic presents a potential conflict with motor vehicle traffic, every effort must be made to minimize the detrimental effects on all highway users who share the facility.

In July 1999, the US Department of Transportation (USDOT) issued an Accessibility Policy Statement pledging a fully accessible multimodal transportation system. Accessibility in federally assisted programs is governed by the USDOT regulations (49 CFR 27) implementing Section 504 of the Rehabilitation Act (29 United States Code [USC] 794). The FHWA has enacted regulations for the implementation of the 1990 Americans with Disabilities Act (ADA), including a commitment to build transportation facilities that provide equal access for all persons. These regulations require application of the ADA requirements to Federal-aid projects, including Transportation Enhancement Activities.

Regional

Alameda County Transportation Commission Congestion Management Program

The Alameda County Transportation Commission (Alameda CTC) manages the county's transportation sales tax and services as the county's congestion management agency. ACTC

requires projects that generate more than 100 PM peak hour trips to analyze Project impacts to the Metropolitan Transportation System (MTS) roadways.

Local

City of Dublin

City of Dublin General Plan

The City of Dublin General Plan establishes the following guiding and implementing policies associated with transportation that are relevant to the Project:

Guiding Policy 5.2.2.A.1:	Design streets to (1) include sufficient capacity for projected traffic, (2) minimize congested conditions during peak hours of operation at intersections, (3) serve a variety of transportation modes including vehicles, bicycles, pedestrians and transit, and variety of users including people with disabilities, children, and seniors, (4) provide continuity with existing streets, and (5) allow convenient access to planned land uses.
Guiding Policy 5.2.2.A.3:	The goals, policies, and implementation measures for street design in Section 10.8 of the Community Design and Sustainability Element should be consulted when new streets are being designed and/or existing streets are being modified.
Guiding Policy 5.2.2.A.4:	Reserve right-of-way and construct improvements necessary to allow streets to accommodate projected vehicular traffic with the least friction.
Guiding Policy 5.2.2.A.5:	The City shall consider the Tri-Valley Transportation Plan and Action Plan and the City of Dublin Complete Streets Policy when adopting or amending the Circulation Element of the General Plan, Specific Plans, Zoning Ordinances or the Capital Improvement Program.
Guiding Policy 5.2.2.A.6:	The City shall strive to phase development and roadway improvements so that the operating Level of Service (LOS) for intersections in Dublin does not exceed LOS D. However, intersections within the Downtown Dublin Specific Plan area (including the intersections of Dublin Boulevard/San Ramon Road and Village Parkway/Interstate 680 onramp) are excluded from this requirement and may operate at LOS E or worse as long as the safety for pedestrians and bicyclists is

	maintained and impacts to transit travel speeds are minimized.
Guiding Policy 5.2.2.A.7:	The City will comply with all provisions of the Alameda County Congestion Management Program and will review proposed development projects to ensure compliance with this Program.
Implementing Policy 5.2.2.B.1:	Design streets according to the forecasted demand and maximum design speeds listed above, and to the detailed standards set forth in the City of Dublin's Street Design Standards and Standard Plans which are maintained by the Public Works Department, as well as the listed Additional Policies.
Implementing Policy 5.2.2.B.2:	Design and construct all roads in the City's circulation network as defined in Figure 5-1 [Exhibit 3.6-4a] as well as bicycle and pedestrian networks as defined in the City of Dublin Bicycle and Pedestrian Master Plan.
Guiding Policy 5.2.3.A.1:	Provide an integrated multi-modal circulation system that provides efficient vehicular circulation while providing a design that allows safe and convenient travel along and across streets for all users, including pedestrians, bicyclists, persons with disabilities, seniors, children, youth, and families; and encourages pedestrian, bicycle, transit, and other non-automobile transportation alternatives.
Implementing Policy 5.2.3.B.1:	Provide continuity with existing streets, include sufficient capacity for projected traffic, and allow convenient access to planned land uses.
Implementing Policy 5.2.3.B.2:	Require the following major circulation improvements in the Eastern Extended Planning Area: a. Provide for the extension of Dublin Boulevard from Fallon Road to North Canyons Parkway and for the construction of other streets designed in accordance with the City of Dublin's Designs Standards and Standard Plans and in compliance with Figure 5-1.
Implementing Policy 5.2.3.B.3:	Provide potential for additional future roadway connections linking existing Dublin to the Eastern Extended Planning Area.
Guiding Policy 5.3.1.A.1:	Support improved local transit as essential to a quality urban environment, particularly for residents who do not drive.

Guiding Policy 5.3.1.A.2:	Support the development of a community that facilitates and encourages the use of local and regional transit systems.
Implementing Policy 5.3.1.B.2:	Require dedication of land and the construction of improvements to support the use of public transit in the community. Improvements could consist of bus turnouts, shelters, benches, real time arrival information, and other facilities that may be appropriate.
Implementing Policy 5.3.1.B.4:	Capitalize on opportunities to connect into and enhance ridership on regional transit systems including BART, LAVTA and any future light rail systems.
Guiding Policy 5.4.3.A.1:	Plan for all users by creating and maintaining Complete Streets that provide safe, comfortable, and convenient travel along and across streets (including streets, roads, highways, bridges, and other portions of the transportation system) through a comprehensive, integrated transportation network that meets the requirements of currently adopted transportation plans and serves all categories of users.
Guiding Policy 5.4.3.A.3:	Make Complete Streets practices a routine part of everyday operations, approach every relevant project, program, and practice as an opportunity to improve streets and the transportation network for all categories of users in accordance with the City of Dublin's Complete Streets Policy.
Guiding Policy 5.4.3.A.4:	Complete Streets infrastructure sufficient to enable reasonably safe travel along and across the right of way for each category of users adhering to local conditions and needs will be incorporated into all planning, funding, design, approval, and implementation processes for all projects.
Guiding Policy 5.4.3.A.5:	Work with other jurisdictions in partnering to create a truly multi-modal transportation infrastructure within and across the City.
Guiding Policy 5.5.1.A.1:	Provide safe, continuous, comfortable and convenient bikeways throughout the City.
Guiding Policy 5.5.1.A.3:	Enhance the multi-modal circulation network to better accommodate alternative transportation choices including BART, bus, bicycle, and pedestrian transportation.
Implementing Policy 5.5.1.B.1:	Complete the bikeways systems illustrated on Figures 5-3a and 5-3b.

Implementing Policy 5.7.1.B.2: Implement the Eastern Dublin Scenic Corridors Policies and Standards for projects within the Eastern Extended Planning Area.

Eastern Dublin Specific Plan

The Eastern Dublin Specific Plan (EDSP) contains the following goals and policies relevant to the Project:

Goal: To provide a circulation system for eastern Dublin that is convenient and efficient and encourages the use of alternative modes of transportation as a means of improving community character and reducing environmental impacts.

Policy 5-2: Require all development to provide a balanced orientation toward pedestrian, bicycle, and automobile circulation.

Policy 5-3: Plan development in eastern Dublin to maintain Level of Service D or better as the average intersection level of service at all intersections within the Specific Plan area during AM, PM and midday peak periods. The average intersection level of service is defined as the hourly average.

Goal: To establish a vehicle circulation system which provides sufficient capacity for projected traffic and allows convenient access to land uses, while maintaining a neighborhood scale to the residential street system.

Policy 5-4: Provide four, six and eight lane arterial streets to carry major community and sub-regional traffic through the Specific Plan area.

Goal: To maximize opportunities for travel by public transit.

Goal: To provide a safe and convenient pedestrian circulation system in eastern Dublin, designed for functional and recreational needs.

Goal: To provide opportunities for safe, continuous, comfortable and convenient bikeways in eastern Dublin.

Policy 5-17: Establish a bicycle circulation system which helps to serve the need for non-motorized transportation and recreation in eastern Dublin that is consistent with the Dublin Bicycle and Pedestrian Master Plan.

2014 City of Dublin Bicycle and Pedestrian Master Plan

The *2014 City of Dublin Bicycle and Pedestrian Master Plan* combines an update to the *2007 Dublin Bikeways Master Plan* and Dublin's first pedestrian master plan into a comprehensive document. The plan includes policies, network plans, prioritized project lists, support programs, and best

practice design guidelines for bicycling and walking in Dublin.[27] This document identifies the Dublin Boulevard Corridor as providing Class II Bicycle Lanes[28] along the extension of Dublin Boulevard between Fallon Road and North Canyons Parkway.

Alameda County

Alameda County General Plan, East County Area Plan

The East County Area Plan includes the future extension of Dublin Boulevard from eastern Dublin to Livermore at North Canyons Parkway. The Transportation section of the East County Area Plan includes goals and policies relevant to the Project. These include:

Policy 176: The County shall allow development and expansion of transportation facilities (e.g., streets and highways, public transit, bicycle and pedestrian paths, airports, etc.) in appropriate locations inside and outside the Urban Growth Boundary consistent with the policies and Land Use Diagram of the East County Area Plan.

Policy 188: The County shall promote the use of transit, ridesharing, bicycling, and walking, through land use planning as well as transportation funding decisions.

Policy 195: The County shall design and locate intercity arterials to minimize impacts on adjacent uses and provide adequate local access to encourage local trips and reduce dependence on freeways. The County shall provide for street rights-of-way that are large enough to accommodate landscaping and street furniture such as bus shelters and light standards to maximize attractiveness to pedestrians, and where appropriate, to accommodate transit corridors.

Policy 201: The County shall promote (1) trunkline transit service to serve local trips between regional job centers, major shopping areas, Las Positas College, major recreational destinations, South Livermore Wine Country, the North Livermore Intensive Agriculture Area, and East Dublin BART, and (2) feeder transit service between East Dublin BART stations and major East County job centers to facilitate commuting from west Alameda County.

Policy 211: The County shall create and maintain a safe, convenient, and effective bicycle system that maximizes bicycle use.

Policy 212: The County shall create and maintain a safe and convenient pedestrian system that links residential, commercial, and recreational uses and encourages walking as an alternative to driving.

[27]City of Dublin. 2014. Bicycle and Pedestrian Master Plan.

[28] Class II bicycle lanes provide a striped lane for one-way bike travel on a street or highway.

Alameda County Bicycle and Pedestrian Master Plan for Unincorporated Areas

The *2012 Alameda County Bicycle and Pedestrian Master Plan for Unincorporated Areas* provides a vision for bicycling and walking in the County as important alternative transportation modes.[29] The plan also identifies implementable projects that will contribute to a more bicycle- and pedestrian-friendly environment in unincorporated areas. This document identifies Class II bike lanes on Dublin Boulevard between Tassajara and Fallon Roads (partially completed), with a proposed extension of Dublin Boulevard between Fallon Road and Doolan Road, connecting in Livermore to Class II bike lanes on North Canyon Parkway.

As of December 2018, the Alameda County Public Works Agency is updating the *Bicycle and Pedestrian Master Plan*.[30] This updated plan will develop strategies to improve bicycle and pedestrian safety; increase access to work, school, shopping, recreation, and transit; and facilitate more walking and biking in unincorporated areas.

City of Livermore

City of Livermore General Plan

The Circulation element of Livermore's General Plan provides the policy framework for regulation and development of transportation systems in Livermore. It includes goals and policies for increasing multi-modal infrastructure, such as Complete Streets, throughout Livermore. The Circulation element includes policies focused on coordination across local jurisdictions, other agencies, and transit service providers to increase connectivity and multi-modal infrastructure across jurisdictions. The Circulation element also lists the Project as a planned roadway extension.

City of Livermore Bicycle, Pedestrian, and Trails Active Transportation Plan

The Livermore Bicycle, Pedestrian, and Trails Active Transportation Plan contains policies and strategies to help Livermore realize a safer, more comfortable active transportation environment with a thriving walking and biking culture. Livermore's major arterial streets carry multiple lanes of high-speed vehicle traffic, creating high stress corridors and crossings for bicyclists and pedestrians. The Active Transportation Plan prioritizes projects that will create safer and more convenient routes for bicyclists and pedestrians. This document reflects the City of Dublin's planned extension of Dublin Boulevard and identifies proposed bicycle, pedestrian, and trail network improvements. The following policies are relevant to the Project:

[29]Alameda County Public Works Agency. 2012. Bicycle and Pedestrian Master Plan.

[30]Alameda County Public Works Agency. 2018. Bicycle and Pedestrian Master Plan. https://www.acpwa.org/pas/bicycle-and-pedestrian-master-plan. Accessed: December 6, 2018.

Policy 1.1 Develop and implement projects and improvements to address bicycle and pedestrian safety

Policy 1.5 Establish safe crossings of barriers including high volume roadways, freeway interchanges, railroads, arroyos, and other barriers

AFFECTED ENVIRONMENT

Information in this section is based on the Transportation Impact Analysis (TIA) prepared for the Project and approved in August 2018.

Study Area

The transportation study area, determined in consultation with Dublin, Livermore, and Alameda County, includes thirteen intersections that exist today and one intersection that would exist once the Project is implemented (**Figure 2.2-3**). The TIA does not include any freeway analyses since the Project is a transportation improvement for arterial streets rather than a change in land uses which may attract new trips. Similarly, this study does not include the analysis of any Congestion Management Program (CMP) facilities since the Project would not generate more than 100 PM peak hour trips. The study intersections include:

1. Hacienda Drive and Dublin Boulevard (Dublin, CA)
2. Tassajara Road & Dublin Boulevard (Dublin, CA)
3. Fallon Road & Dublin Boulevard (Dublin, CA)
4. Fallon Road and I-580 WB Ramps (Dublin, CA)
5. El Charro Road & I-580 EB Ramps (Pleasanton, CA)
6. Airway Boulevard & I-580 EB Ramps (Livermore, CA)
7. Airway Boulevard and I-580 WB Ramps (Livermore, CA)
8. Airway Boulevard & N. Canyons Parkway (Livermore, CA)
9. Doolan Road & N. Canyons Parkway (Livermore, CA)
10. Isabel Avenue & Portola Avenue (Livermore, CA)
11. Isabel Avenue & I-580 WB Ramps (Livermore, CA)
12. Isabel Avenue & I-580 EB Ramps (Livermore, CA)
13. Murrieta Boulevard & Portola Avenue (Livermore, CA)
14. Croak Road & Dublin Boulevard Extension (Future) (Dublin, CA)

Roadway System

The Project site is located north of I-580 between Fallon Road and Doolan Road. Roadway facilities of note in the study area include:

- **I-580.** I-580 is part of the interstate freeway system and extends in an east/west direction from San Rafael in the west to Tracy in the east. Near Dublin, I-580 forms the southern city boundary with four to five lanes in each direction. Express Lanes are available in the Project vicinity Monday through Friday 5:00 a.m. to 8:00 p.m. in both the eastbound and westbound directions. There are two eastbound express lanes from Hacienda Drive to Greenville Road and one westbound lane from Greenville Road to west of the I-580/Interstate 680 (I-680) interchange. Carpools can use the lanes for free while solo drivers are able to use them by paying a toll. All drivers, even carpools, motorcycles, and clean-air vehicles, must use a FasTrak toll tag. I-580 is most directly accessible to the Project via the Fallon Road and Airway Boulevard interchanges.

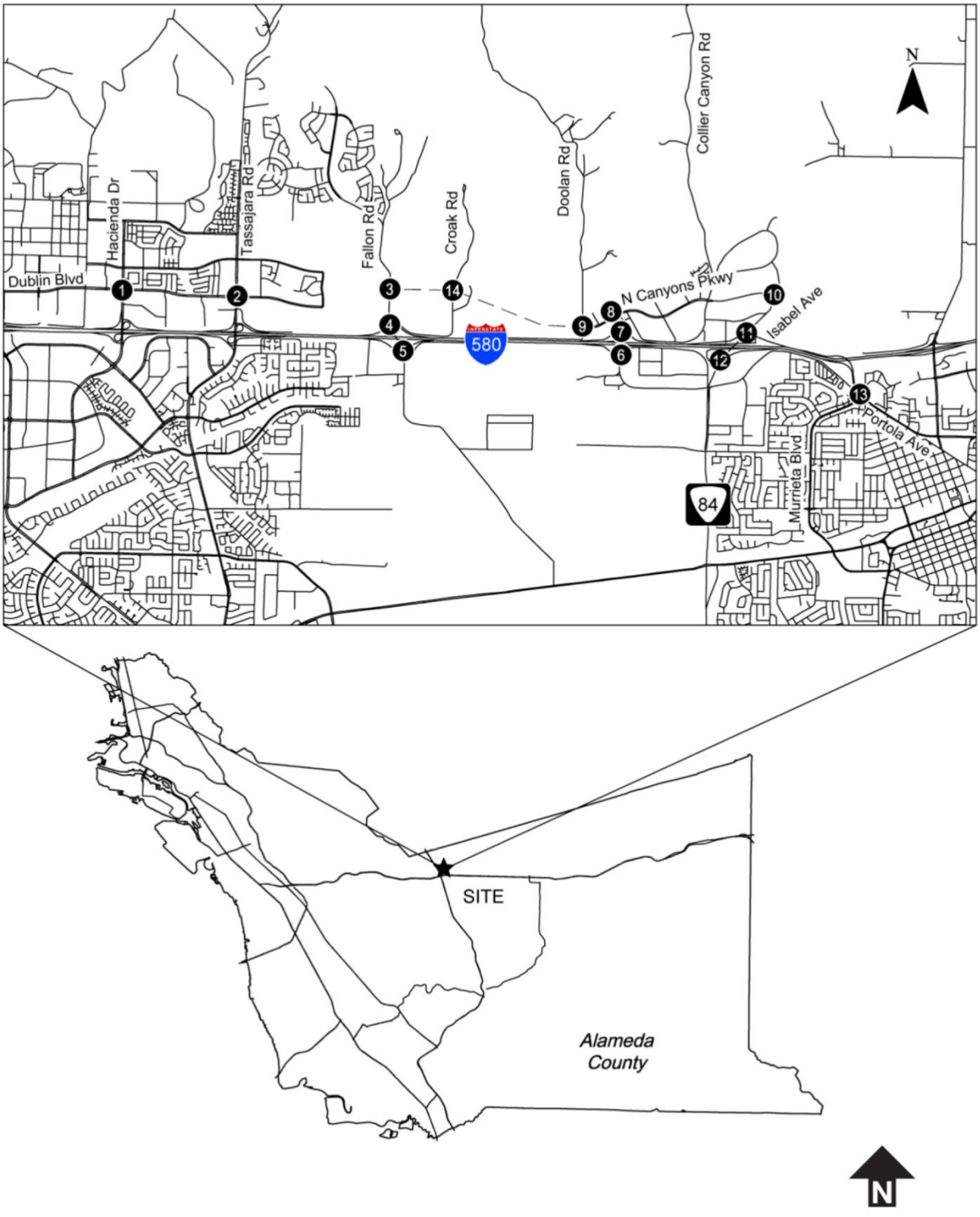
- **I-680.** I-680 is a north/south designated scenic highway that is part of the interstate freeway system connecting San José to Interstate 80 (I-80) near Fairfield. This facility traverses Dublin with an interchange at I-580 in western Dublin, as well as on- and off-ramps near Dublin Boulevard. South of I-580 it is a six-lane freeway, and north of I-580 it generally provides eight lanes, including Express Lanes that were completed in Fall 2017, which adhere to the same hours and rules as those on I-580. The northbound express lane begins at Alcosta Boulevard and ends at Livorna Road near the State Route 24 interchange. The southbound lane begins at Rudgear Road and ends at Alcosta Boulevard.

- **Dublin Boulevard.** Dublin Boulevard is an east-west principal arterial roadway that extends from west of San Ramon Road to its current terminus at Fallon Road. Dublin's General Plan envisions the Project by extending Dublin Boulevard to North Canyons Parkway in Livermore. Existing Dublin Boulevard is generally a four- to six-lane facility with a landscaped median. No on-street parking is permitted. Bicycle lanes and sidewalks are provided on portions of Dublin Boulevard.

- **Fallon Road.** Fallon Road is a north-south minor arterial roadway that connects I-580 to Tassajara Road. It currently provides two travel lanes in each direction between I-580 and Central Parkway. This segment is ultimately planned to provide three lanes in each direction. Fallon Road is being upgraded as development occurs on parcels fronting the roadway and will ultimately provide sidewalks and bicycle facilities along its length.

- **North Canyons Parkway.** North Canyons Parkway is an east-west arterial roadway north of I-580. This arterial is primarily a four-lane divided roadway with left turn pockets where applicable. The street currently terminates at Doolan Road to the west and connects to Portola Avenue to the east.

- **Portola Avenue.** Portola Avenue is a major east-west arterial roadway in Livermore that operates north of downtown. South of I-580, this arterial is primarily a four-lane divided roadway with left turn pockets where applicable. North of I-580, this roadway varies from two lanes to six lanes. Portola Avenue connects several neighborhoods and businesses and provides direct connection to other major arterial roadways throughout northern Livermore. In 2012, as the final component of the Isabel/I-580 Interchange project, Portola Avenue was extended over I-580 to connect with North Canyons Parkway near Las Positas College, north of the Isabel Station site.



Study Intersections Figure **2.2-3**

Source: Kittelson & Associates, 2018

- **Isabel Avenue.** Isabel Avenue is a north-south arterial roadway, a portion of which is also designated as State Route 84 (SR-84). Isabel Avenue typically carries heavy commuter traffic along western Livermore. The arterial roadway traverses the entire length of Livermore, provides direct access to I-580, and connects several neighborhoods and commercial areas in western Livermore. Isabel Avenue provides two travel lanes in each direction near I-580 and reduces to one travel lane in each direction south of Jack London Boulevard, with left turn pockets at key locations. The roadway has two lanes with a painted median at major intersection locations. The SR-84 Expressway Widening project, currently under construction and due for completion in 2018, will upgrade Isabel Avenue to expressway standards. Upon completion, Isabel Avenue will feature three lanes in each direction between Jack London Boulevard and Stanley Boulevard and two lanes in each direction between Stanley Boulevard and Ruby Hill Drive. Isabel Avenue would provide access to the proposed Isabel transit station facilities north and south of I-580.

- **Murrieta Boulevard.** Murrieta Boulevard a north-south arterial roadway in western Livermore, and includes two lanes in each direction, with a raised median and left turn pockets at most intersections. The street connects to Portola Avenue in the north and Fourth Street in the south. The roadway provides access to I-580 from western Livermore.

Transit Services

Transit service in the area is provided by Wheels (Livermore-Amador Valley Transit Authority), The County Connection, the BART, and Altamont Commuter Express (ACE).

- Wheels provides fixed-route and paratransit service throughout Dublin, Pleasanton, and Livermore, and provides connections to other transit service providers. Wheels buses connect major destinations within the Dublin, Pleasanton and Livermore, including downtown areas, employment centers, and transit hubs such as BART and ACE stations. Wheels provides shuttle services between the ACE stations and major employment and residential areas in Pleasanton and Livermore. Wheels bus schedules are also coordinated with ACE and BART trains during peak commute hours.

- The County Connection provides transit service connecting destinations in Contra Costa County to the Tri-Valley area, including service from the East Dublin/Pleasanton BART station to the San Ramon Transit Center and Bishop Ranch Business Park. There is also a route that connects the Walnut Creek BART station to the Downtown Pleasanton ACE station.

- BART provides regional transportation connections to much of the Bay Area and the Dublin/Pleasanton line provides direct access to San Francisco, with several stops in Oakland where connections may be made to other lines. The closest BART station is the Dublin/Pleasanton Station located approximately 3.5 miles west of the intersection of Fallon Road and Dublin Boulevard. BART train frequency ranges between 15 and 20 minutes from approximately 5:00 a.m. to 12:00 a.m. Based on 2015 data from BART, approximately 8,000 passengers per day enter and exit the BART system at the Dublin/Pleasanton station.

- ACE operates weekday train service between Stockton and San José with Tri-Valley stops in downtown Pleasanton and Livermore. During the morning commute period, only westbound service from San Joaquin County to San José is provided, while only eastbound service is provided in the evening commute period. There are four morning trains through Pleasanton between 5:33 a.m. and 8:18 a.m., and four evening trains between 4:28 p.m. and 7:31 p.m. Travel time from Stockton to Pleasanton is approximately one hour and fifteen minutes, while travel time from the Tri-Valley to San José is approximately one hour. ACE trains carry approximately 4,000 passengers on a typical weekday, with approximately 600 passengers boarding the ACE system at the downtown Pleasanton Station on a typical weekday.

Bicycle and Pedestrian Facilities

City of Dublin

While Dublin Boulevard and Fallon Road are designated as streets with bike lanes on Dublin's Bike Lanes and Trails Map, no striping or dedicated bike lanes currently exist on these roadways near the Project. Pedestrian facilities include sidewalks, pathways, crosswalks, and pedestrian signals. Sidewalks are provided along most roadways in Dublin where land uses have been developed adjacent to the roadway. Roadways near the Project with undeveloped parcels do not currently provide sidewalks.

Alameda County

The County portions of the transportation study area are generally undeveloped, and Collier Canyon Road is the only roadway within the County in this area. This segment of Collier Canyon Road does not provide formal bicycle or pedestrian facilities.

City of Livermore

According to the Livermore General Plan Circulation element, Livermore provides or plans to provide Class I Bike Lanes on North Canyons Parkway and Doolan Road. Sidewalks are also provided on the north side of this roadway segment.

Methodology

The Project's effect on traffic were evaluated by comparing the findings of the delay and LOS under the following scenarios:

- Existing and Existing Plus Project (2017)
- Opening Year and Opening Year Plus Project (2025)
- Cumulative Year and Cumulative Year Plus Project (2040)

Level of Service and Measures of Effectiveness

LOS describes the operating conditions experienced by users of a transportation facility, measured best to worst from A to F. LOS is a qualitative measure that considers roadway speed, travel time, traffic interruptions, freedom to maneuver, driving comfort, and convenience. LOS A through LOS E represents traffic volumes below roadway capacity, while LOS F represents traffic volumes that exceed roadway capacity. However, LOS E through F represents roadway congestion where delays are substantial. The TIA includes intersection analyses using the following methodologies, summarized in **Table 2.2-14.**

- **Signalized intersection.** The TIA calculates a weighted average control delay in seconds per vehicle at a signalized intersection and assigns a LOS designation based upon the delay.
- **Unsignalized intersection.** The TIA calculates a weighted average control delay in seconds per vehicle for each controlled intersection leg and for the intersection. A LOS designation for all-way stop-controlled intersections is based upon the weighted average control delay for all intersection legs, like the LOS designation for signalized intersections. For two-way stop-controlled intersections, the LOS for the worst approach is used as the LOS performance measure.

Table 2.2-14 Intersections Level of Service Definitions

Signalized Intersection			Unsignalized Intersection
Average Delay Per Vehicle (Seconds)	**LOS**	**Description of Traffic Conditions**	**Average Delay Per Vehicle (Seconds)**
≤10.0	A	Free flowing. Most vehicles do not have to stop.	≤10.0
>10.0 and ≤20.0	B	Minimal delays. Some vehicles must stop, although waits are not bothersome.	>10.0 and ≤15.0
>20.0 and ≤35.0	C	Acceptable delays. Significant numbers of vehicles must stop because of steady, high traffic volumes. Still, many pass without stopping.	>15.0 and ≤25.0
>35.0 and ≤55.0	D	Tolerable delays. Many vehicles must stop. Drivers are aware of heavier traffic. Cars may have to wait through more than one red light. Queues begin to form, often on more than one approach.	>25.0 and ≤35.0
>55.0 and ≤80.0	E	Significant delays. Cars may have to wait through more than one red light. Long queues form, sometimes on several approaches.	>35.0 and ≤50.0
>80.0	F	Excessive delays. Intersection is jammed. Many cars must wait through more than one red light, or more than 60 seconds. Traffic may back up into "up-stream" intersections.	>50.0

Source: Kittelson& Associates, Inc., 2018.

Forecasted Traffic Modeling

As the Project is anticipated to have a regional impact, the TIA utilized the ACTC Countywide traffic model, accounting for specific updates within the transportation study area from the EDSP. The most recent version of the ACTC countywide model uses land use assumptions from the Association of Bay Area Governments (ABAG) Plan Bay Area projections, which uses a 2013 base year, a 2025 interim year, and a 2040 long-range (cumulative) year. However, 2017 represents the existing year at the writing of the TIA. Interpolating the land use projections between the 2013 base year model and the interim 2025 model derived the 2017 scenario. Interpolating the land use to 2017 makes the land use consistent with the existing conditions counts collected in 2017. The TIA used the 2017, 2025, and 2040 conditions to conduct the Project's transportation analysis.

Existing Conditions (2017)

Land uses for 2017 are based on an interpolation of the land uses found in the 2013 model representing Plan Bay Area and the 2025 interim year model land uses described below. There are minimal land uses in the immediate study corridor, reflective of existing rural conditions.

2025 Conditions

Year 2025 represents the Project's projected opening year. Land uses for the 2025 modeling include Plan Bay Area up to 2025 for all regional areas. Dublin planned development for 2025 was confirmed with the Dublin and is consistent with Plan Bay Area. In addition, Phase 1 of the recently approved Kaiser Medical Center adjacent to Dublin Boulevard was assumed to be developed by 2025. Livermore assumptions were consistent with Livermore General Plan land uses for the Isabel Neighborhood area (phased to 2025 level) and Plan Bay Area elsewhere in Livermore. County land uses were consistent with Plan Bay Area for 2025 and assumed no growth in the immediate study area by 2025.

The 2025 No Project scenario estimates future traffic conditions for the Project's opening year (2025) without Project implementation, accounting for background traffic growth between 2017 and 2025 plus approved but not yet constructed changes to local land uses. This model also assumes no implementation of BART to Livermore Extension, thus providing a conservative traffic assumption with the highest amount of projected vehicle trips in the transportation study area. The 2025 Plus Project scenario adds the traffic circulation assumptions to the 2025 No Project traffic growth conditions.

2040 (Cumulative) Conditions

2040 represents the cumulative year for the Project. The following changes to the transportation network between existing (2017) and 2040 conditions were assumed implemented prior to the Project, based on planning documents and input from each jurisdiction:

- Widening of the Portola Avenue bridge over I-580 from one lane in each direction to two lanes in each direction.

- Tassajara Road and Dublin Boulevard improvements consistent with the Eastern Dublin Traffic Impact Fee (TIF).
- Fallon Road and Dublin Boulevard intersection improvements to be consistent with the EDSP.
- Fallon Road and I-580 Ramps Phase II interchange improvements, which will include three through lanes in the northbound and southbound directions.

The 2040 No Project scenario estimates future cumulative traffic conditions for the Project's design year (2040) without the Project, accounting for background traffic growth between existing conditions and 2040, plus approved but not yet constructed and occupied changes to local land uses. This model also assumes no implementation of BART to Livermore Extension, thus providing a conservative traffic assumption with the highest amount of projected vehicle trips in the transportation study area. The 2040 Plus Project scenario adds the traffic circulation assumptions to the 2040 No Project traffic growth conditions. A detailed discussion of 2040 land use assumptions are provided in the TIA.

Intersection Operations

Intersection Volumes and Lane Configurations

The TIA evaluated existing intersection operations for the highest one-hour volume during the weekday morning and evening peak periods. Intersection turn movement counts for the study intersections were collected for a typical weekday during the morning (AM) and evening (PM) peak periods. AM and PM peak-hour intersection turning movement counts were conducted on January 26, 2017 and February 14, 2017. Most of the counts were obtained from recent nearby traffic impact studies. The TIA includes the data collected during intersection turn movement counts. **Figure 2.2-4** depicts the existing AM and PM peak-hour turning movement volumes, lane configurations, and traffic control devices at the study intersections. **Figure 2.2-5** and **Figure 2.2-6** depict the forecasted turning movement volumes, modeled lane configurations, and anticipated traffic control devices at study intersections in 2025 and 2040 without the Project.

Intersection Level of Service

Intersection turning movement volumes, lane configurations, and traffic control were used to calculate the levels of service at the study intersections for the AM and PM peak hours. **Table 2.2-15** shows the study intersection LOS results for Existing Conditions, 2025 No Project Conditions, and 2040 No Project Conditions, as summarized below:

- Existing Conditions - no intersections operate below the applicable LOS standard.
- 2025 No Project Conditions - no intersections would operate below the applicable LOS standard.
- 2040 No Project Conditions – The Airway Boulevard/North Canyons Parkway intersection would operate below the applicable LOS standard in the PM peak hour.

Table 2.2-15 Intersection Level of Service: Existing, 2025 No Project, 2040 No Project

ID#	Location	Hour	LOS Standard	Existing (2017)			2025 No Project			2040 No Project		
				V/C	Delay	LOS	V/C	Delay	LOS	V/C	Delay	LOS
1	Hacienda Drive & Dublin Boulevard	AM	D	0.52	24.3	C	0.54	25.2	C	0.56	26.3	C
		PM	D	0.58	29.0	C	0.59	30.4	C	0.64	33.0	C
2	Tassajara Road & Dublin Boulevard	AM	D	0.58	28.7	C	0.60	29.0	C	0.55	28.1	C
		PM	D	0.68	32.5	C	0.72	37.7	D	0.55	31.9	C
3	Fallon Road & Dublin Boulevard	AM	D	0.65	34.4	C	0.66	10.0	A	0.48	21.9	C
		PM	D	0.49	20.4	C	0.62	28.1	C	0.70	37.1	D
4	Fallon Road & I-580 WB Ramps	AM	D	0.54	10.8	B	0.66	10.0	A	0.66	9.8	A
		PM	D	0.57	10.2	B	0.64	10.6	B	0.65	10.2	B
5	El Charro Road & I-580 EB Ramps	AM	D	0.37	5.6	A	0.41	6.2	A	0.63	10.0	A
		PM	D	0.49	6.8	A	0.59	8.1	A	0.65	8.9	A
6	Airway Boulevard & I-580 EB Ramps	AM	E	0.5	32.1	C	0.54	32.2	C	0.54	31.7	C
		PM	E	0.42	32.9	C	0.46	32.8	C	0.62	34.9	C
7	Airway Boulevard & I-580 WB Ramps	AM	E	0.37	5.7	A	0.39	5.3	A	0.43	5.4	A
		PM	E	0.25	9.4	A	0.28	9.3	A	0.37	12.7	B
8	Airway Boulevard & N. Canyons Parkway	AM	E	0.37	45.7	D	0.37	48.6	D	0.41	57.3	E
		PM	E	0.47	59.2	E	0.48	73.6	E	0.58	94.2	**F**
9	Doolan Road & N. Canyons Parkway	AM	Mid-D	0.03	8.8	A	0.03	8.7	A	0.03	8.8	A
		PM	Mid-D	0.06	9.0	A	0.06	9.0	A	0.06	9.0	A

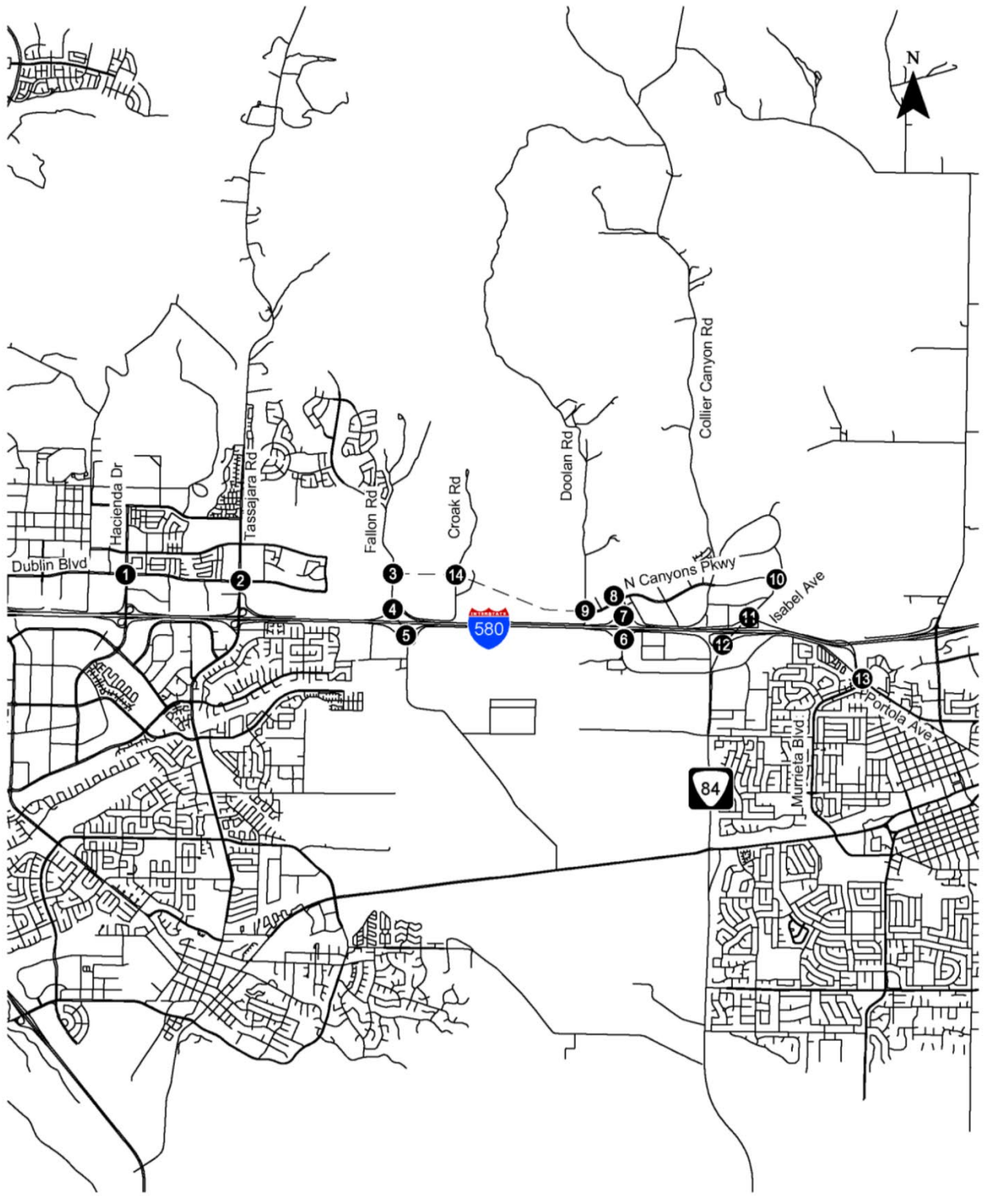
ID#	Location	Hour	LOS Standard	Existing (2017)			2025 No Project			2040 No Project		
				V/C	Delay	LOS	V/C	Delay	LOS	V/C	Delay	LOS
10	Isabel Avenue & Portola Avenue	AM	E	0.68	29.4	C	0.77	37.9	D	0.79	37.7	D
		PM	E	0.51	25.7	C	0.47	25.2	C	0.55	30.4	C
11	Isabel Avenue & I-580 WB Ramps	AM	E	0.81	18.3	B	0.83	18.7	B	0.94	31.6	C
		PM	E	0.61	11.9	B	0.73	17.9	B	0.70	12.2	B
12	Isabel Avenue & I-580 EB Ramps	AM	E	0.72	16.2	B	0.83	21.7	C	0.85	27.2	C
		PM	E	0.60	11.7	B	0.75	16.4	B	0.61	12.5	B
13	Murrieta Boulevard & Portola Avenue	AM	Mid-D	0.53	23.0	C	0.53	23.1	C	0.64	25.1	C
		PM	Mid-D	0.58	30.2	C	0.58	30.7	C	0.92	51.2	D
14	Dublin Boulevard Extension & Croak Road[1]	AM	D	-	-	-	-	-	-	-	-	-
		PM	D	-	-	-	-	-	-	-	-	-

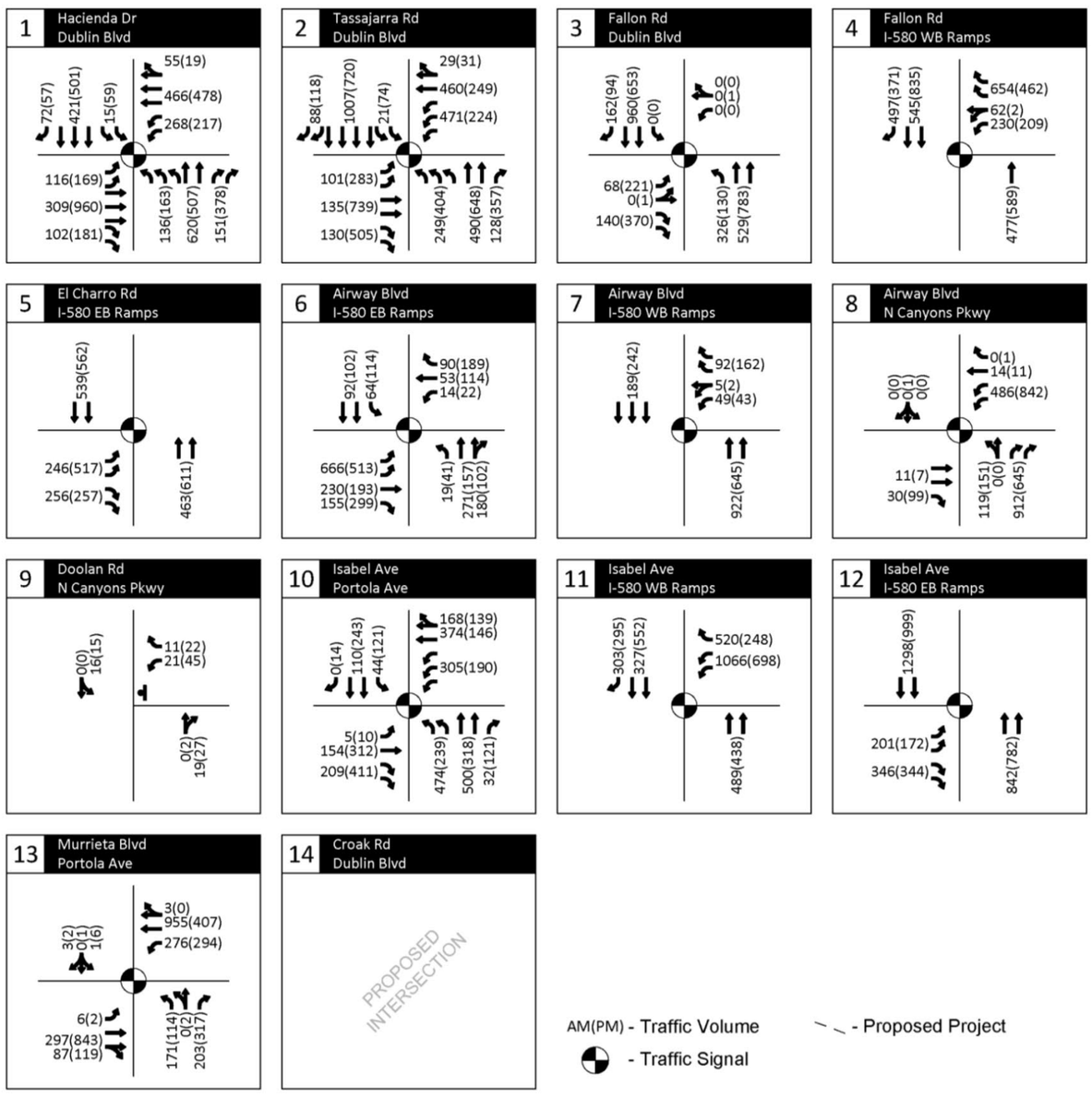
Source: Kittelson& Associates, Inc. 2018

LOS findings in ***BOLD*** represent intersections operating below the applicable LOS standard

[1]This intersection is a direct result of the Project and would not exist under No Project scenarios.

Dublin Boulevard – North Canyons Parkway Extension

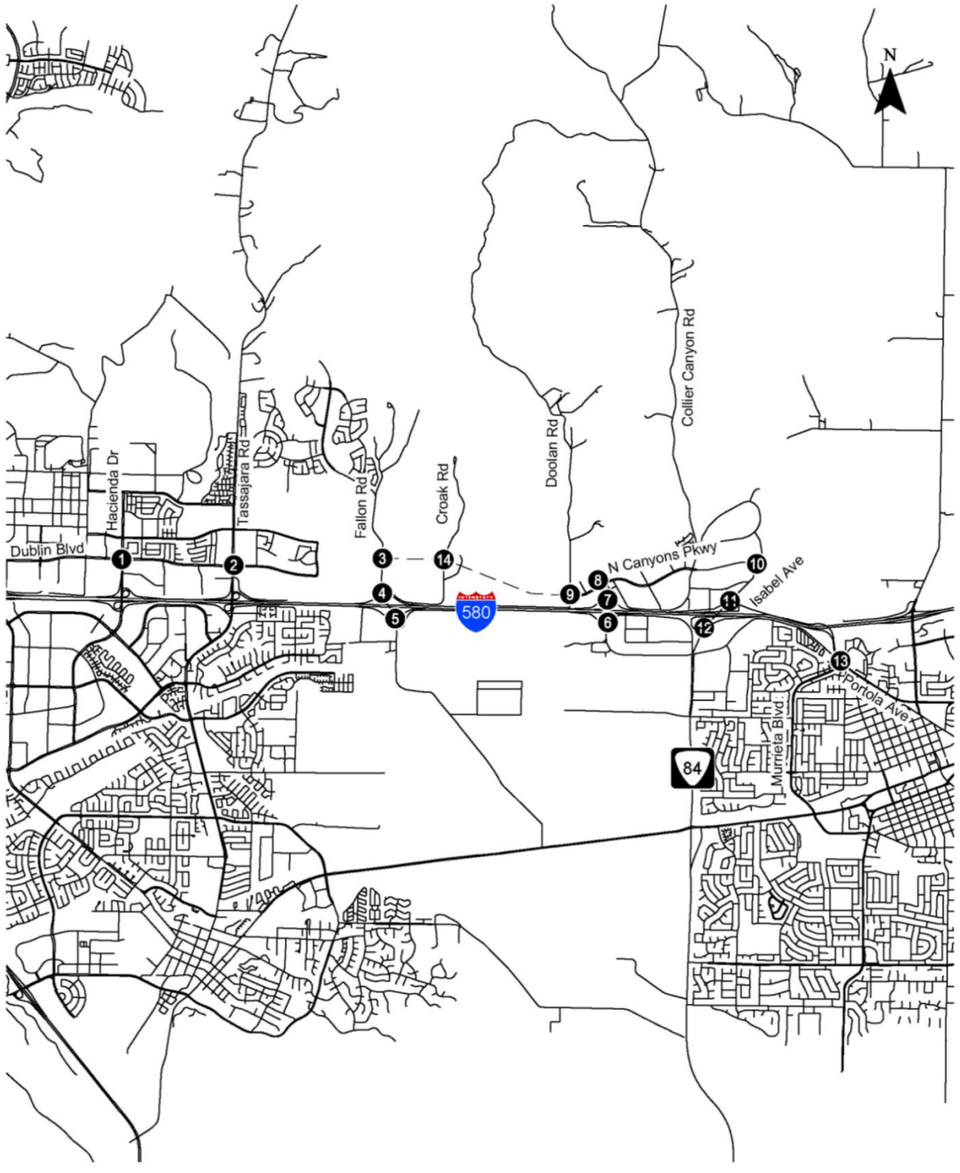


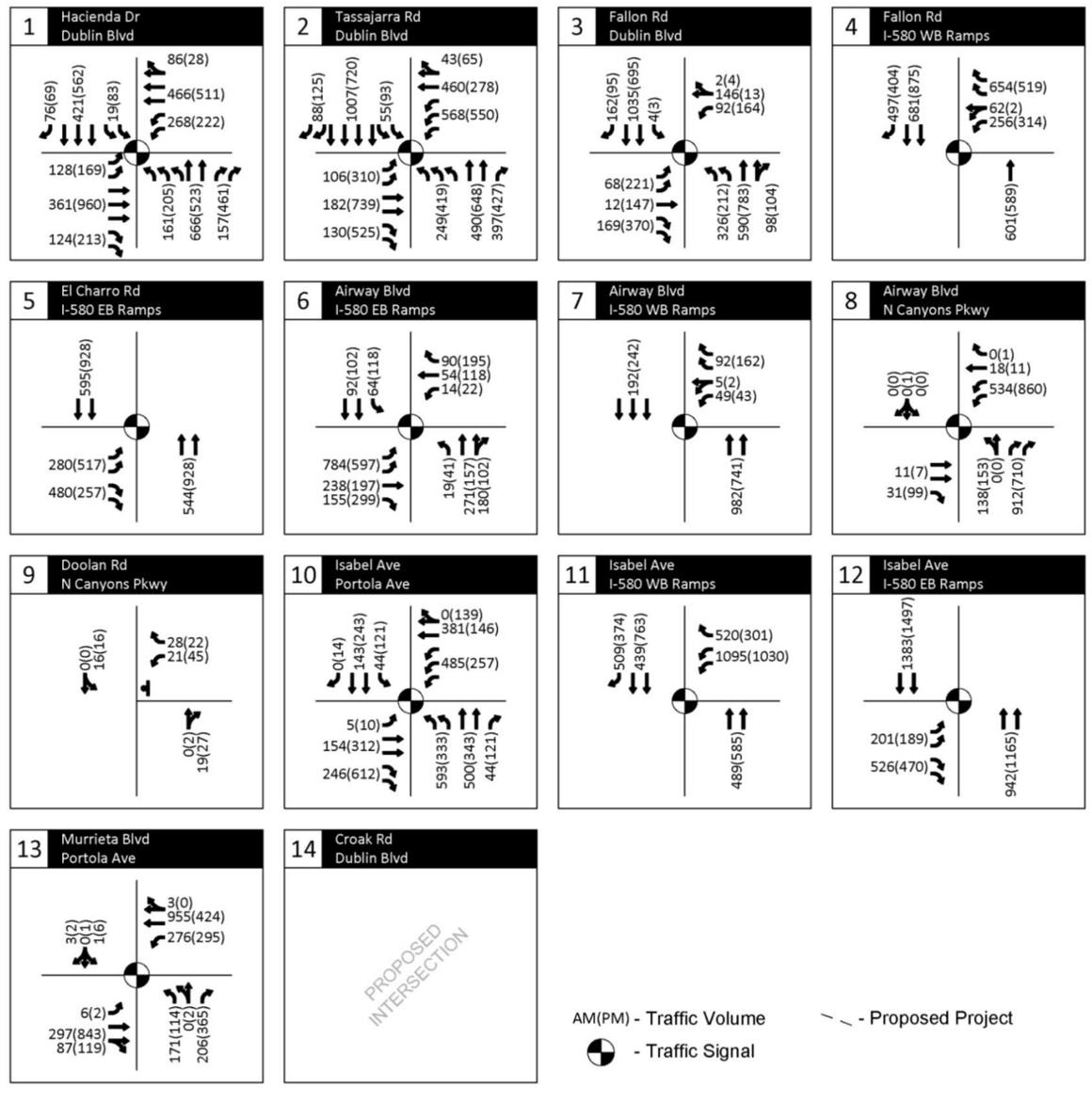


Existing Turn Volumes and Intersection Configurations (2017) Figure **2.2-4**

Source: Kittelson & Associates, 2018

Dublin Boulevard – North Canyons Parkway Extension

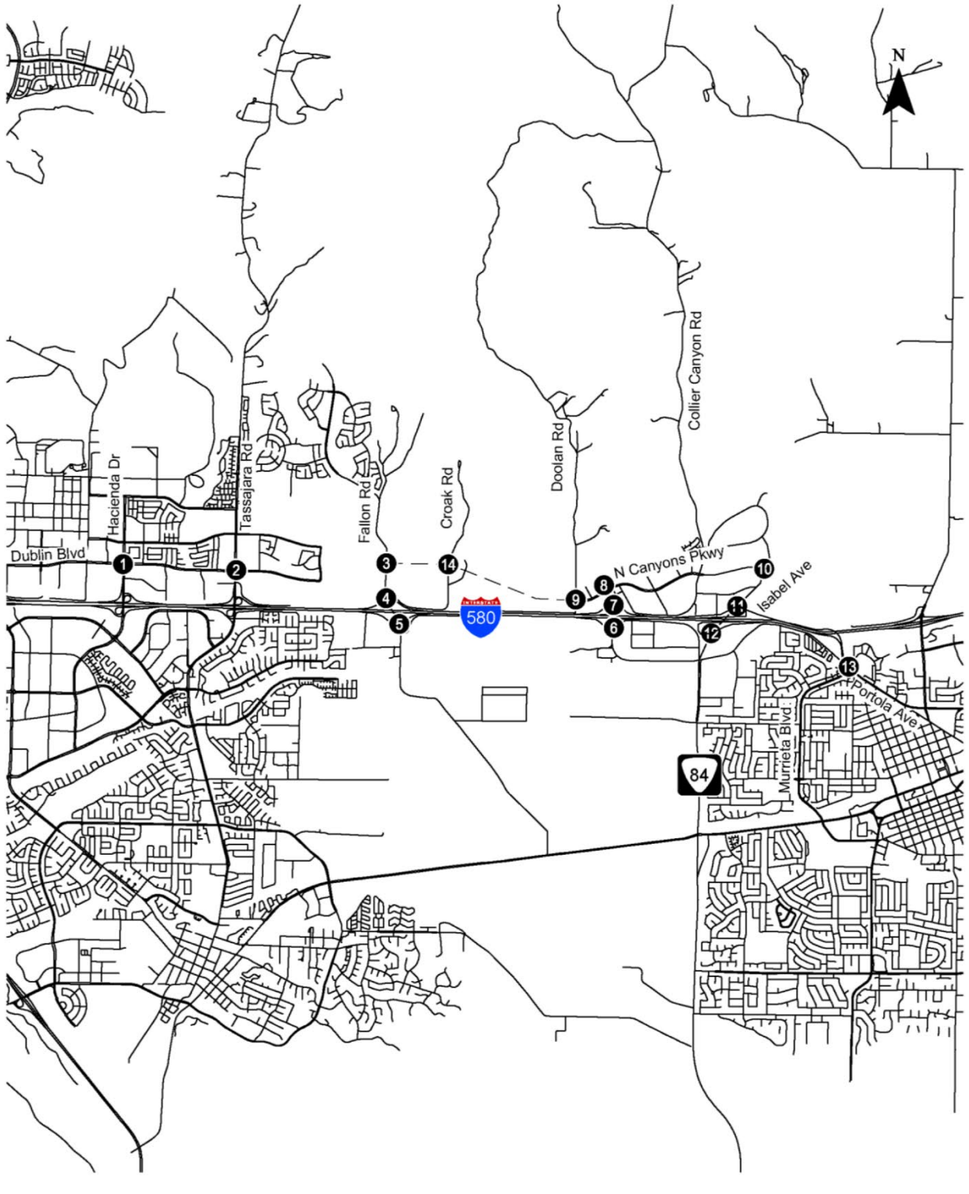


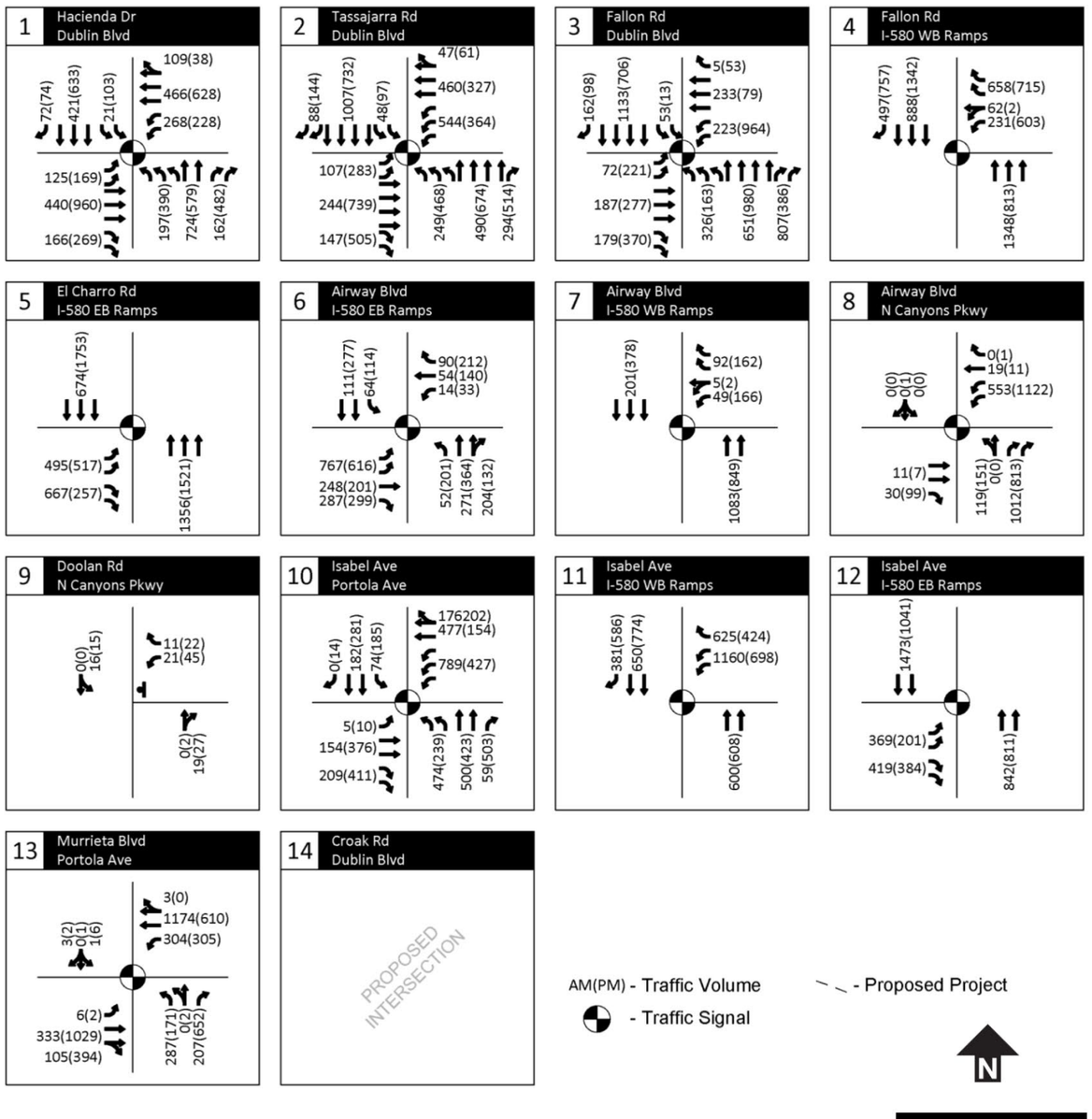


2025 Turn Volumes and Intersection Configurations Figure **2.2-5**

Source: Kittelson & Associates, 2018

Dublin Boulevard – North Canyons Parkway Extension





2040 Turn Volumes and Intersection Configurations Figure **2.2-6**

Source: Kittelson & Associates, 2018

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Queuing Analysis

Queuing analysis determines if intersection turn lane vehicle queues would affect traffic flow along the roadway segment leading to the turn lane. The 95th-percentile queue is the queue length (i.e. the length of a line of vehicles) that has only a 5 percent probability of exceeding the storage capacity of the turning lane during the analysis period. It is a useful parameter for determining the appropriate length of turn pockets and evaluating turn lane storage. An impact would be significant if the queue exceeds the storage capacity at the turn lane, causing vehicles to extend back into the through-lanes of the roadway segment. Field observations confirmed the extent of existing vehicle queues within the transportation study area. Queues within the transportation study area were contained within the available storage except at the following locations:

- Fallon Road and Dublin Boulevard – the estimated 95th percentile queue for the northbound left-turn is anticipated to exceed the available storage by about 39 feet or approximately two vehicles
- Murrieta Boulevard and Portola Avenue – the 95th percentile queue for the eastbound through movement is expected to exceed the available storage between Murrieta Boulevard and East Airway Boulevard on Portola Avenue by 197 feet or about eight vehicles.

Queuing Analysis

Queueing analysis determines if intersection turn lane vehicle queues would affect traffic flow along the roadway segment leading to the turn lane. The 95th-percentile queue is the queue length (i.e. the length of a line of vehicles) that has only a 5-percent probability of exceedance during the analysis period. It is a useful parameter for determining the appropriate length of turn pockets and evaluating turn lane storage. An impact would be significant if the queue exceeds the storage capacity at the turn lane (i.e., would extend back to the roadway segment).

Field observations confirmed the extent of existing vehicle queues within the transportation study area.[31] Queues within the transportation study area were contained within the available storage except at the following locations:

- Fallon Road and Dublin Boulevard – the estimated 95th percentile queue for the northbound left-turn is anticipated to exceed the available storage by about 39 feet or approximately two vehicles.
- Murrieta Boulevard and Portola Avenue – the 95th percentile queue for the eastbound through movement is expected to exceed the available storage between Murrieta Boulevard and E. Airway Boulevard on Portola Avenue by 197 feet or about eight vehicles.

[31]The TIA calculates the existing 95th percentile vehicle queue results at the transportation study area intersections**.**

ENVIRONMENTAL CONSEQUENCES

Build Alternative

A pubic scoping meeting was held on Wednesday, May 31, 2017, providing the public an opportunity to comment on the Project. The meeting was held at Dublin City Hall at 6:00 PM and the public submitted written comments via a comment card distributed during the meeting. General concerns of the Project included the potential for impacts to the nearby BART station, right-of-way issues with property owners, the bike and pedestrian facilities, and the four-lane versus six-lane options. Other attendees commented on the need for the additional transportation connection between Dublin and Pleasanton.

In addition to this scoping meeting, the Draft Environmental Impact Report was circulated for public comment on March 6, 2019. A second public meeting was held on April 3, 2019, to encourage public comment on the Project. Additional public hearings were held on May 28 (City of Dublin Planning Commission) and August 20 (City of Dublin City Council), where members of the public could provide input on the Project.

Because the corridor between Dublin Boulevard and Fallon Road has not yet been constructed, there is no existing corridor travel time to measure affects. The Project design would comply with ADA requirements as necessary.

Construction

Project construction would require construction vehicles and equipment to travel to and from the Project site using local roadways and highways. Additionally, Project construction would require the removal of up to 100,000 cubic yards of excavated soil. Soil would be removed using dump truck-style vehicles, which would travel along designated local truck routes in Dublin and Livermore before reaching I-580. These additional trips on the local roadway system could temporarily increase congestion at local intersections.

During construction of the Project, temporary closures may be required at the Dublin Boulevard/Fallon Road and Doolan Road/North Canyons Parkway intersections, along with the new Dublin Boulevard/Croak Road intersection. Given that Fallon Road and Doolan Road are both well-traveled local roadways that provide important north-south access in Dublin, Pleasanton, and Livermore, temporary intersection closure could result in congestion at these intersections or others in the local vicinity, as drivers divert onto other roadways to complete their trip. Similarly, Croak Road is an important local roadway used to access residential development north of the Project site. This could also present an issue for emergency vehicles and local delivery trucks.

Measure TRAF-1 requires preparation of a traffic management plan (TMP) that would be coordinated between all three jurisdictions (Dublin, the County, and Livermore) and Caltrans, as construction and detour traffic may require use of I-580. The TMP would delineate appropriate traffic management during construction to minimize intersection congestion, detour routes, notification plans for the public and emergency service providers, and the continuation of existing pedestrian and bicycle access at detour locations where it would be feasible and safe to do so. With

implementation of this measure, temporary congestion at local intersections would be reduced and no adverse effect would occur.

Operation

The discussion of operational effects is divided into the following categories:

- Existing Plus Project (2017) LOS
- 2025 Plus Project LOS
- 2040 Plus Project LOS (Cumulative)
- Vehicle Queuing
- Transit
- Pedestrian Facilities
- Bicycle Circulation

Existing Plus Project (2017)

Existing Plus Project conditions were analyzed to provide an estimation of transportation conditions if the Project were opened at the time of the existing counts (2017). Levels of service calculations were conducted to evaluate intersection operations under existing conditions with the addition of the Project. **Figure 2.2-7** shows the estimated Existing Plus Project traffic volumes and lane configurations without mitigation. The lane configurations depicted in this scenario show the existing condition plus the Project for each intersection before mitigation has been incorporated. As shown in **Table 2.2-16**, the findings of the analysis indicate that the following intersections would degrade below the LOS standard for the intersection as a result of the Project:

- Fallon Road & Dublin Boulevard (#3)
- Airway Boulevard & N. Canyons Parkway (#8)

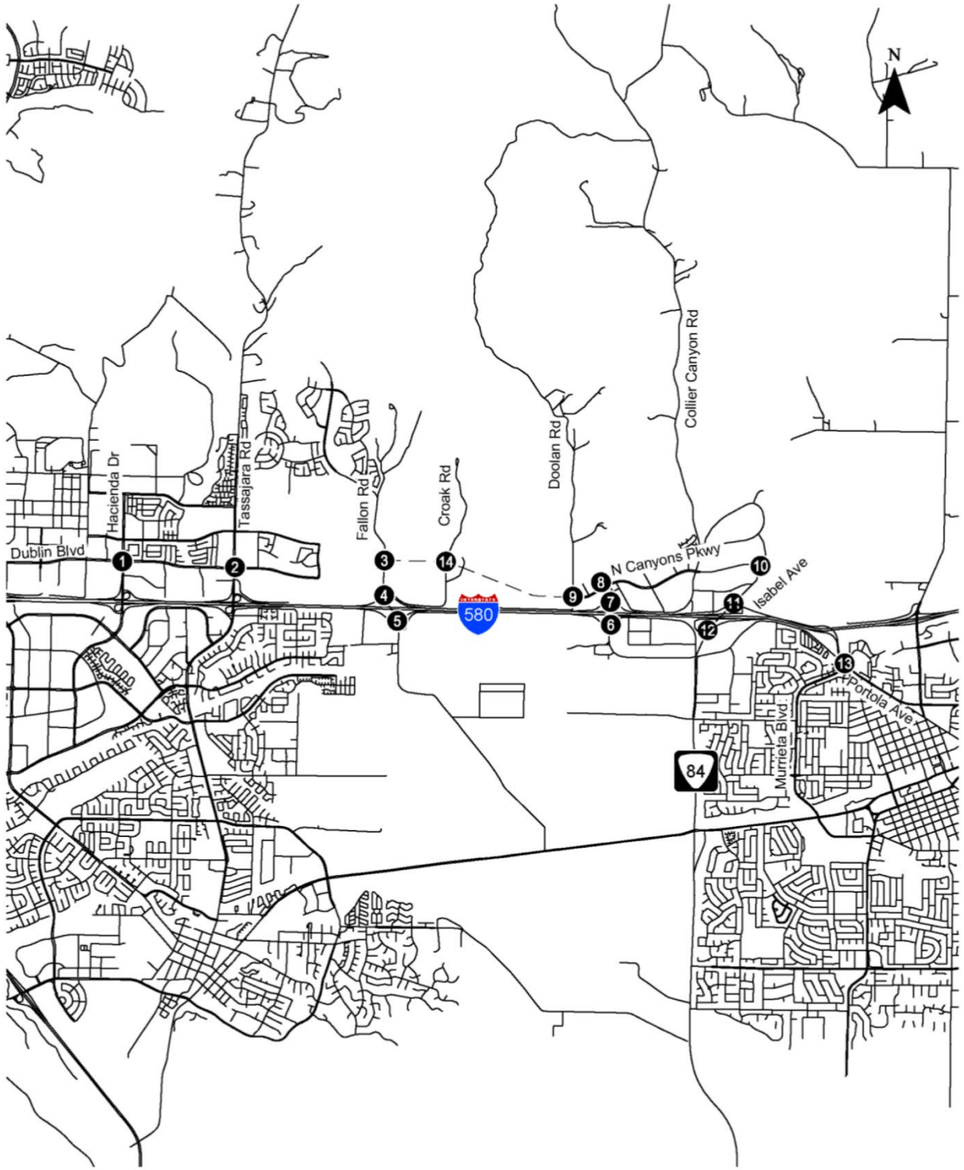
Table 2.2-16 Existing Plus Project Intersection Level of Service

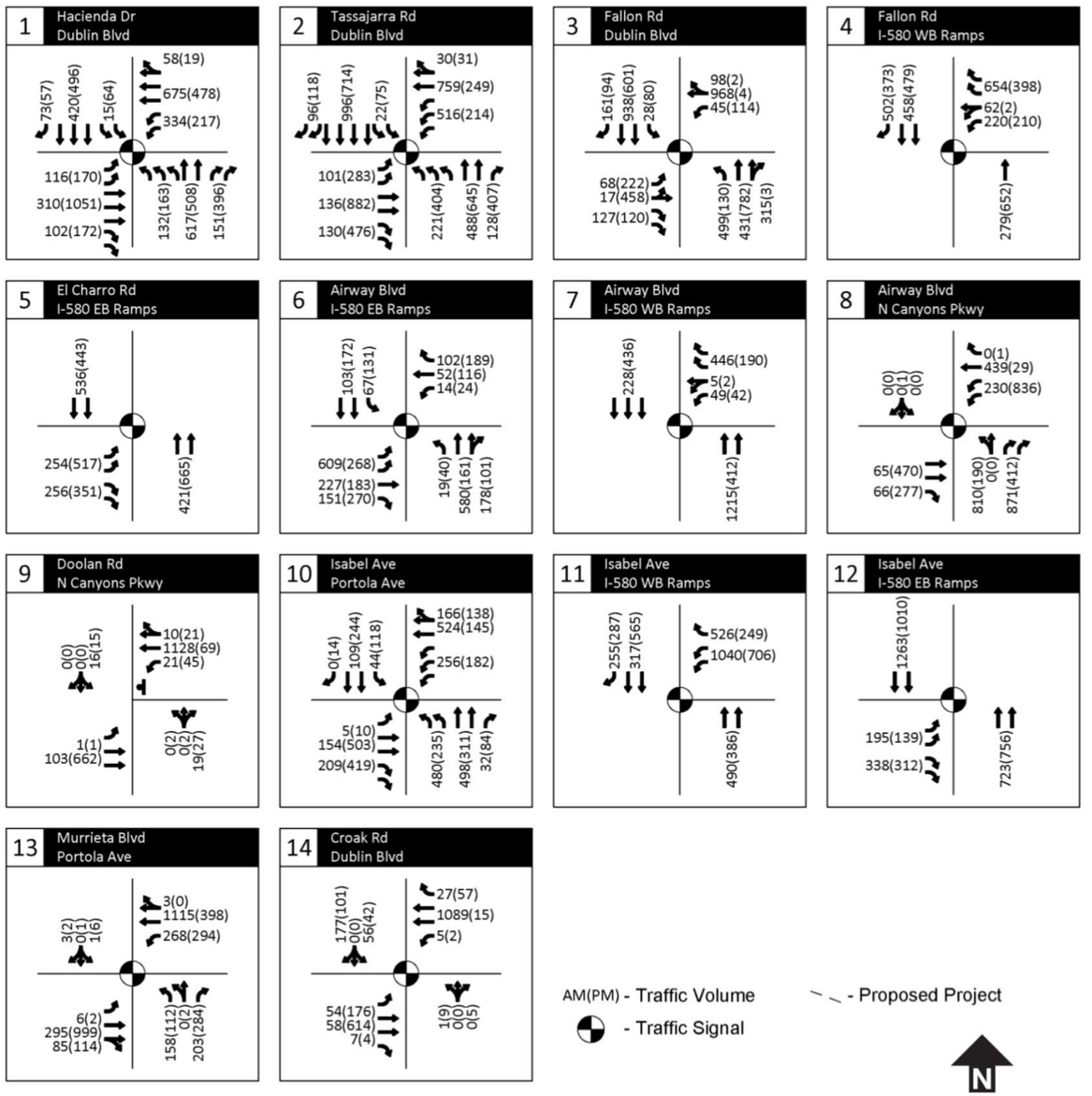
ID#	Location	Hour	LOS Standard	Existing Plus Project		
				V/C	Delay	LOS
1	Hacienda Drive & Dublin Boulevard	AM	D	0.59	26.0	C
		PM	D	0.60	29.6	C
2	Tassajara Road & Dublin Boulevard	AM	D	0.67	33.1	C
		PM	D	0.72	34.1	C

ID#	Location	Hour	LOS Standard	Existing Plus Project		
				V/C	Delay	LOS
3	Fallon Road & Dublin Boulevard	AM	D	*1.49*	*261.5*	*F*
		PM	D	0.74	33.5	C
4	Fallon Road & I-580 WB Ramps	AM	D	0.42	7.3	A
		PM	D	0.63	11.8	B
5	El Charro Road & I-580 EB Ramps	AM	D	0.37	5.6	A
		PM	D	0.50	7.0	A
6	Airway Boulevard & I-580 EB Ramps	AM	E	0.63	34.1	C
		PM	E	0.37	32.8	C
7	Airway Boulevard & I-580 WB Ramps	AM	E	0.64	19.0	B
		PM	E	0.17	9.8	A
8	Airway Boulevard & N. Canyons Parkway	AM	E	*1.01*	*88.9*	*F*
		PM	E	0.68	35.7	D
9	Doolan Road & N. Canyons Parkway	AM	Mid-D	0.48	12.5	B
		PM	Mid-D	0.34	14.9	B
10	Isabel Avenue & Portola Avenue	AM	E	0.73	29.5	C
		PM	E	0.47	24.7	C
11	Isabel Avenue & I-580 WB Ramps	AM	E	0.88	18.3	B
		PM	E	0.61	11.9	B
12	Isabel Avenue & I-580 EB Ramps	AM	E	0.71	16.2	B
		PM	E	0.59	11.2	B
13	Murrieta Boulevard & Portola Avenue	AM	Mid-D	0.57	21.8	C
		PM	Mid-D	0.63	29.9	C
14	Dublin Boulevard Extension & Croak Road[1]	AM	D	0.52	11.4	B
		PM	D	0.37	7.1	A

Source: Kittelson & Associates, Inc. 2018
LOS findings in ***BOLD*** represent intersections operating below the applicable LOS standard
[1]This intersection is a direct result of the Project and would not exist under No Project scenarios.

Dublin Boulevard – North Canyons Parkway Extension





Existing Plus Project (2017) Turn Volumes and Intersection Configurations Figure **2.2-7**

Source: Kittelson & Associates, 2018

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With implementation of the Project, the intersection of Fallon Road and Dublin Boulevard would experience vehicles coming from and going to the new eastern leg of the intersection. The existing lane configurations do not provide enough capacity to handle the increased demand coming from the new westbound approach. The Project would cause the intersection to degrade from LOS C to LOS F in the AM peak hour as a result of increases in the number of vehicles using the new eastern leg of the intersection to access the Project. Implementation of **Measure TRAF-2** would improve the operation of this intersection to LOS D during the AM peak hour.

With implementation of the Project, the intersection of Airway Boulevard and North Canyons Parkway would experience significant growth to the northbound left turn with the demand exceeding 800 vehicles per hour during the AM peak hour. The existing lane configuration of a single shared left and through lane for the northbound approach is insufficient to handle this demand. The Project would cause the LOS at this intersection to degrade from LOS D to LOS F in the AM peak hour due to an increase in northbound left turn traffic volumes. An intersection operation of LOS F would be below the LOS E standard for this intersection.

Implementation of **Measure TRAF-3** would improve the operation of this intersection to LOS D during the AM peak hour. Dublin, the County, and Livermore are coordinating on the Project to meet their General Plan's objectives including the planned extension of Dublin Boulevard. Dublin and Livermore currently have a funding Memorandum of Understanding (MOU) and are exploring a new cooperative agreement with Alameda County and the Alameda CTC to continue to work together to identify the funding and timing for implementation of this measure.

2025 Plus Project LOS

2025 Plus Project conditions were analyzed to provide an estimation of anticipated conditions when the Project is operational (projected opening day). One local transportation network alteration is anticipated to occur between existing and 2025 conditions: construction of a second eastbound and a second northbound left turn lane at the intersection of Dublin Boulevard and Fallon Road, consistent with the improvements being implemented as a part of the Kaiser project. This improvement was also assumed to result in optimization of the signal timing plans to accommodate the new lanes. **Figure 2.2-8** shows the estimated 2025 Plus Project traffic volumes and lane configurations without mitigation. The lane configurations depicted in this scenario show the existing condition plus the Project for each intersection before mitigation has been incorporated. As shown in **Table 2.2-17**, two intersections would degrade below the applicable LOS standard under 2025 Plus Project conditions:

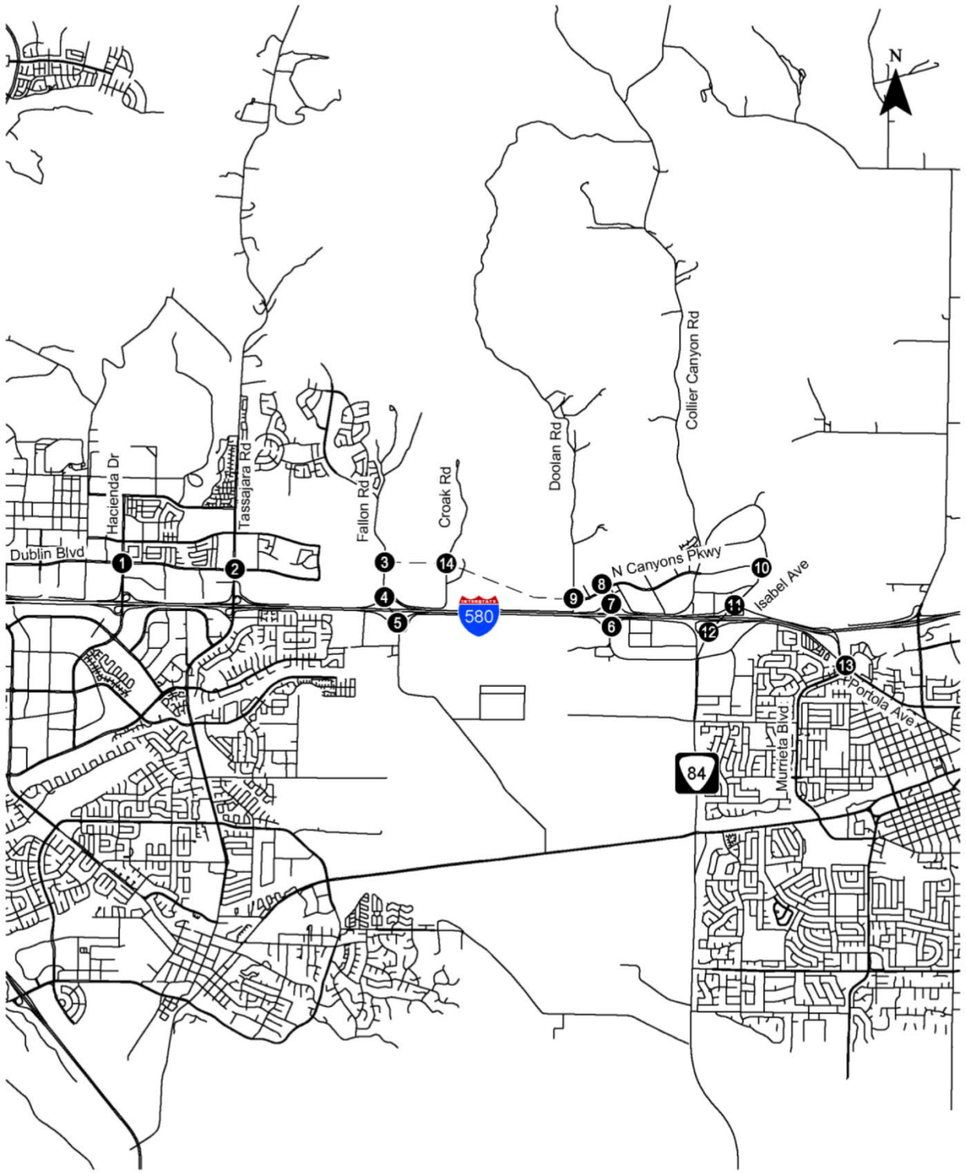
- Fallon Road and Dublin Boulevard (#3)
- Airway Boulevard and North Canyons Parkway (#8)

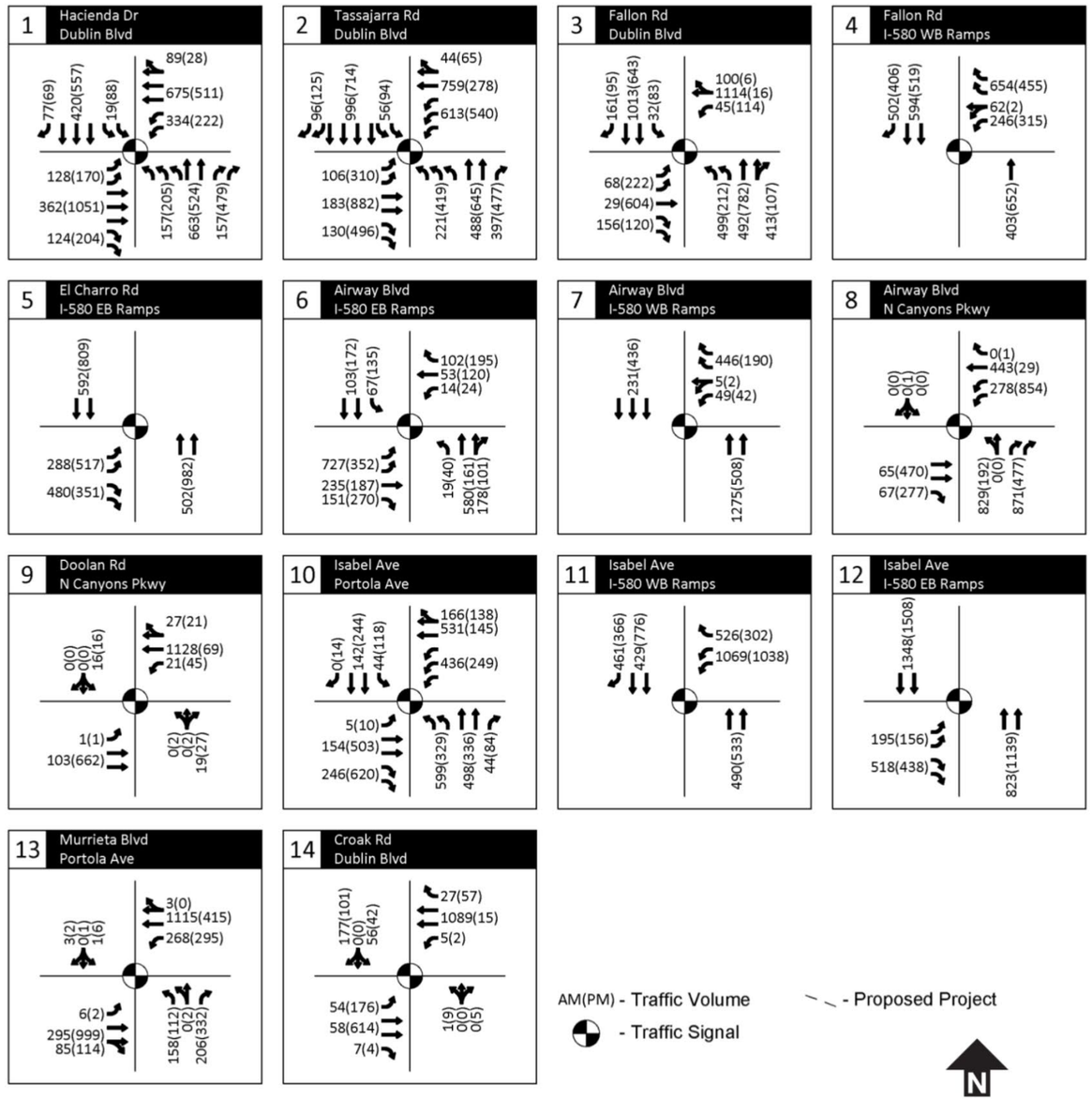
Table 2.2-17 2025 Plus Project Intersection Level of Service

ID#	Location	Hour	LOS Standard	2025 Plus Project		
				V/C	Delay	LOS
1	Hacienda Drive & Dublin Boulevard	AM	D	0.61	27.0	C
		PM	D	0.62	31.1	C
2	Tassajara Road & Dublin Boulevard	AM	D	0.68	33.3	C
		PM	D	0.76	39.7	D
3	Fallon Road & Dublin Boulevard	AM	D	***1.43***	***241.8***	***F***
		PM	D	***0.92***	***58.0***	***E***
4	Fallon Road & I-580 WB Ramps	AM	D	0.51	8.2	A
		PM	D	0.67	12.4	B
5	El Charro Road & I-580 EB Ramps	AM	D	0.41	6.2	A
		PM	D	0.59	8.1	A
6	Airway Boulevard & I-580 EB Ramps	AM	E	0.67	36.1	D
		PM	E	0.39	32.8	C
7	Airway Boulevard & I-580 WB Ramps	AM	E	0.67	19.1	B
		PM	E	0.20	9.2	A
8	Airway Boulevard & N. Canyons Parkway	AM	E	***1.03***	***93.8***	***F***
		PM	E	0.69	38.0	D
9	Doolan Road & N. Canyons Parkway	AM	Mid-D	0.49	12.4	B
		PM	Mid-D	0.34	14.9	B
10	Isabel Avenue & Portola Avenue	AM	E	0.81	38.1	D
		PM	E	0.53	26.1	C
11	Isabel Avenue & I-580 WB Ramps	AM	E	0.82	18.6	B
		PM	E	0.74	17.5	B
12	Isabel Avenue & I-580 EB Ramps	AM	E	0.81	21.2	C
		PM	E	0.75	15.3	B
13	Murrieta Boulevard & Portola Avenue	AM	Mid-D	0.57	21.9	C
		PM	Mid-D	0.63	30.3	C
14	Dublin Boulevard Extension & Croak Road[1]	AM	D	0.57	12.2	B
		PM	D	0.39	7.8	A

Source: Kittelson & Associates, Inc. 2018
LOS findings in ***BOLD*** represent intersections operating below the applicable LOS standard
[1]This intersection is a direct result of the Project and would not exist under No Project scenarios.

Dublin Boulevard – North Canyons Parkway Extension

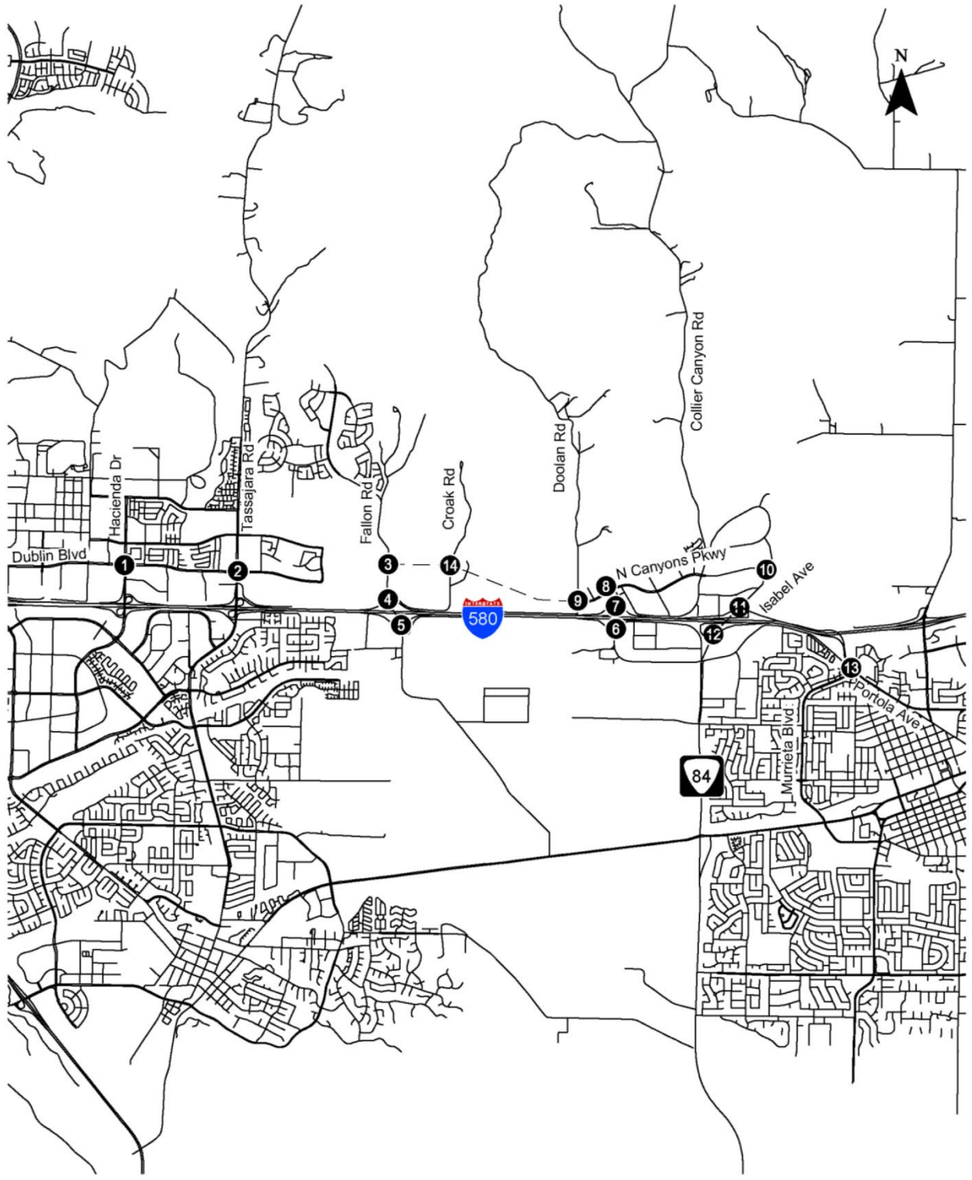


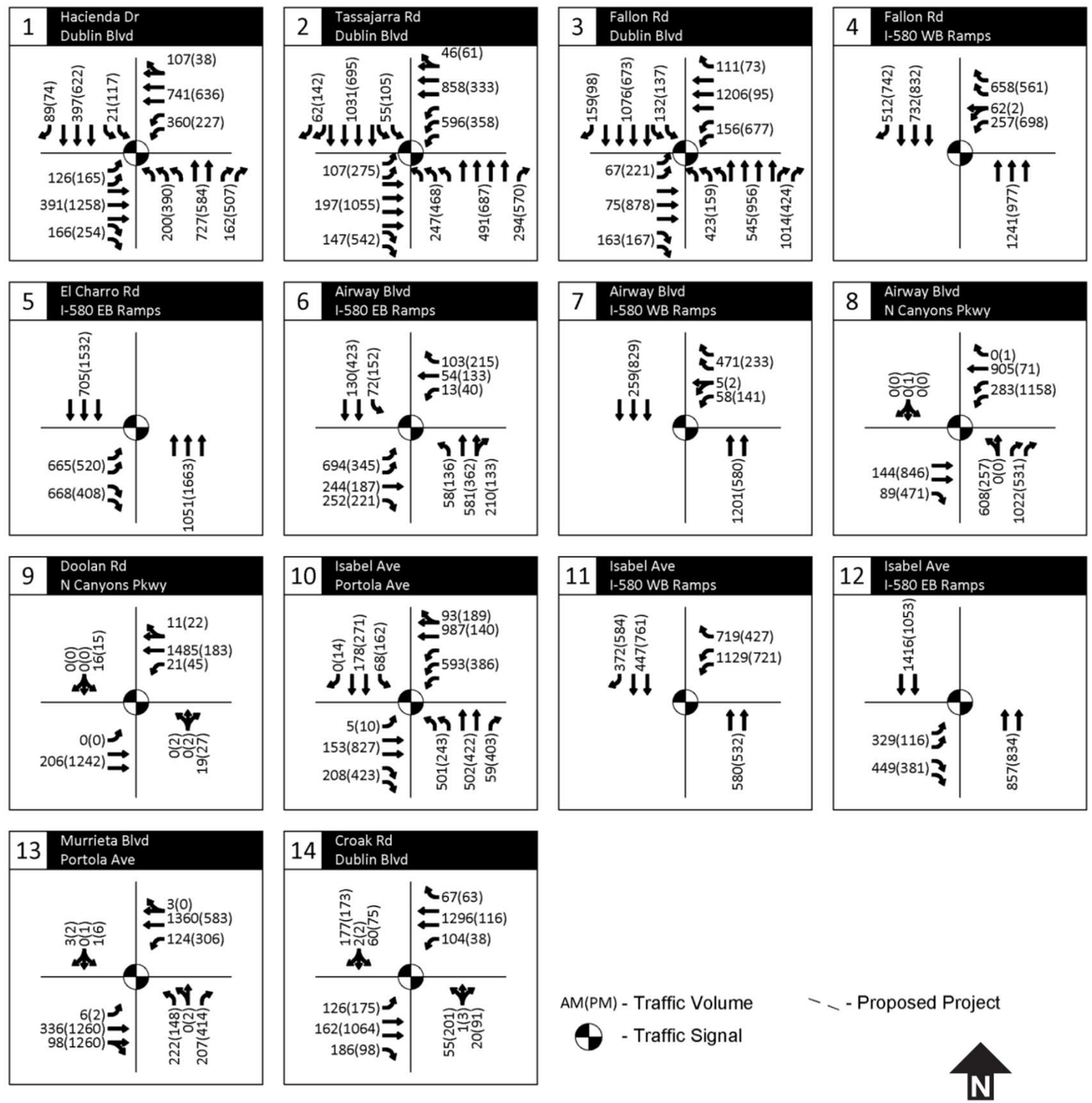


2025 Plus Project Turn Volumes and Intersection Configurations Figure **2.2-8**

Source: Kittelson & Associates, 2018

Dublin Boulevard – North Canyons Parkway Extension





2040 Plus Project (Cumulative) Turn Volumes and Intersection Configurations Figure **2.2-9**

Source: Kittelson & Associates, 2018

Table 2.2-18 2040 Plus Project Intersection Level of Service

ID#	Location	Hour	LOS Standard	2040 Plus Project		
				V/C	Delay	LOS
1	Hacienda Drive & Dublin Boulevard	AM	D	0.66	28.7	C
		PM	D	0.71	34.8	C
2	Tassajara Road & Dublin Boulevard	AM	D	0.63	31.2	C
		PM	D	0.65	34.2	C
3	Fallon Road & Dublin Boulevard	AM	D	0.70	28.5	C
		PM	D	0.74	41.0	D
4	Fallon Road & I-580 WB Ramps	AM	D	0.63	9.8	A
		PM	D	0.66	11.6	B
5	El Charro Road & I-580 EB Ramps	AM	D	0.58	9.3	A
		PM	D	0.62	9.1	A
6	Airway Boulevard & I-580 EB Ramps	AM	E	0.67	35.9	D
		PM	E	0.50	33.0	C
7	Airway Boulevard & I-580 WB Ramps	AM	E	0.65	17.8	B
		PM	E	0.27	10.5	B
8	Airway Boulevard & N. Canyons Parkway	AM	E	***1.20***	***85.3***	***F***
		PM	E	***1.02***	***105.9***	***F***
9	Doolan Road & N. Canyons Parkway	AM	Mid-D	0.59	3.8	A
		PM	Mid-D	0.55	7.5	A
10	Isabel Avenue & Portola Avenue	AM	E	0.93	44.0	D
		PM	E	0.68	33.3	C
11	Isabel Avenue & I-580 WB Ramps	AM	E	0.99	46.4	D
		PM	E	0.69	12.0	B
12	Isabel Avenue & I-580 EB Ramps	AM	E	0.83	24.5	C
		PM	E	0.61	11.5	B
13	Murrieta Boulevard & Portola Avenue	AM	Mid-D	0.62	19.3	B
		PM	Mid-D	0.78	32.9	C

ID#	Location	Hour	LOS Standard	2040 Plus Project		
				V/C	Delay	LOS
14	Dublin Boulevard Extension & Croak Road[1]	AM	D	0.71	16.3	B
		PM	D	0.78	14.1	B

Source: Kittelson & Associates, Inc. 2018
LOS findings in ***BOLD*** represent intersections operating below the applicable LOS standard
[1]This intersection is a direct result of the Project and would not exist under No Project scenarios.

With implementation of the Project, the intersection of Fallon Road and Dublin Boulevard would experience vehicles coming from and going to the new eastern leg of the intersection. The existing lane configurations do not provide enough capacity to handle the increased demand. The Project would cause the intersection to degrade from LOS C to LOS F in the AM peak hour and LOS C to LOS E in the PM peak hour. Implementation of **Measure TRAF-2** would improve the operation of this intersection to LOS D during both the AM and PM peak hours.

With implementation of the Project, the intersection of Airway Boulevard and North Canyons Parkway would experience significant growth in the northbound left turn, with the demand exceeding 800 vehicles per hour during the AM peak hour. The existing lane configuration of a single shared lane for both left and through movements for the northbound approach is insufficient to handle this demand. The Project would cause the LOS to degrade from LOS D to LOS F in the AM peak hour, which is below the LOS E standard for this intersection. Implementation of **Measure TRAF-3** would improve the operation of this intersection to LOS D during the AM peak hour. However, as described above, the implementation and timing of this measure cannot be guaranteed as it is outside the control and jurisdiction of the City of Dublin.

2040 Plus Project LOS (Cumulative)

Cumulative conditions were analyzed to provide an estimation of anticipated conditions for the Project's design year of 2040. **Figure 2.2-9** shows the estimated 2040 Plus Project (Cumulative) traffic volumes and lane configurations without mitigation. The lane configurations depicted in this scenario show the existing condition plus the Project for each intersection before mitigation has been incorporated. As shown in **Table 2.2-17**, the following intersection would degrade below the LOS standard for the intersection for 2040 Plus Project (Cumulative) conditions:

- Airway Boulevard and North Canyons Parkway (#8)

With implementation of the Project, this intersection would experience significant growth to the northbound left turn and westbound through movements in the cumulative scenario. The existing lane configuration of a single shared lane for both left and through movements for the northbound approach is insufficient to handle this demand. The Project would cause the LOS to degrade from LOS E to LOS F in the AM peak hour, which is below the LOS E standard for this intersection. The PM peak hour is also impacted with the Project causing the delay for this intersection already operating at a substandard LOS to increase the average vehicle delay by 5 seconds or more.

Implementation of **Measure TRAF-3** would improve the operation of this intersection to LOS C during the AM peak hour and LOS D during the PM peak hour. However, as described above, the implementation and timing of this measure cannot be guaranteed as it is outside the control and jurisdiction of the City of Dublin.

Vehicle Queuing

Existing Plus Project (2017)

To determine if the Project would result in vehicle queueing that would exceed the capacity of existing or planned turning lanes, 95th percentile queue lengths were estimated for Existing Plus Project conditions. The findings for the 95th percentile queue length in the AM and PM peak hours for all intersections are detailed in the TIA. Intersection movements where the Project would cause a turn pocket to exceed its available storage by more than 25 feet or increase a queue already exceeding the available turn pocket storage by more than 25 feet include:

- Fallon Road and Dublin Boulevard (#3)

The existing lane configurations and signal timing at the northbound left turn queue at the intersection of Fallon Road and Dublin Boulevard do not provide enough capacity to serve the increased vehicle demand. This would result in 95th percentile queue lengths for high demand movements. With implementation of the Project, the vehicle demand would increase at all approaches for this intersection. During the AM peak hour, the Project would cause the queue for the northbound left turn movement to increase from 419 feet to 808 feet resulting in the queue exceeding the available storage of 380 feet. Implementation of **Measure TRAF-2** would reduce the queue to 330 feet during the AM peak hour, allowing it to be contained within the available storage. This would be accomplished through the implementation of two left turn lanes at this approach, and moreover by increasing the capacity of the intersection to allow more vehicles to travel through efficiently.

2025 Plus Project

To determine if the Project would result in vehicle queueing that would exceed the capacity of existing or planned turning lanes during the opening year, 95th percentile queue lengths were estimated for 2025 Plus Project conditions. The findings for the 95th percentile queue length in the AM and PM peak hours for all intersections are detailed in the TIA. Intersection movements where the Project would cause a turn pocket to exceed its available storage by more than 25 feet or increase a queue already exceeding the available turn pocket storage by more than 25 feet include:

- Fallon Road and Dublin Boulevard (#3)

The existing lane configurations and signal timing at the southbound left turn queue at the intersection of Fallon Road and Dublin Boulevard do not provide enough capacity to keep the 95th percentile queue from exceeding the available storage at this intersection. With implementation of the Project, the southbound left turn demand to access the Project would increase substantially. During the PM peak hour, the Project would cause the queue for the southbound left turn movement to increase from 13 feet to 197 feet, resulting in the queue exceeding the available storage of 130 feet. Implementation of **Measure TRAF-2** would add additional lanes in the northbound, westbound, and eastbound directions at this intersection, resulting in more capacity at

the intersection. This would allow for green lights in these directions to be shorter, as the intersection would allow more vehicles to pass through in a shorter amount of time. Lane modifications included in **Measure TRAF-2** would in turn allow the southbound left turn signal to have a longer green light, allowing more vehicles time to move through the intersection. This would indirectly relieve the excessive queueing by allowing the intersections to have more throughout. The queue would be reduced to 105 feet, allowing it to be contained within the available storage.

2040 Plus Project (Cumulative)

Based on detailed information provided in the TIA, the addition of Project traffic under the 2040 Plus Project (Cumulative) conditions would potentially result in vehicle queues exceeding the available storage, or would increase vehicle queues by more than 25 feet for movements where the queue already exceeds the available storage. Queuing impacts have been identified for the following intersections:

- Airway Boulevard and North Canyons Parkway (#8)
- Isabel Avenue and I-580 Westbound Ramps (#11)

With implementation of the Project, the westbound queue at Airway Boulevard and North Canyons Parkway would experience significant growth in demand. The Project would cause the westbound left turn queue, which already exceeds the available turn pocket storage under existing conditions, to increase by more than 25 feet (29 feet) during the PM peak hour. The existing signal timing and lane configuration is inadequate to provide enough capacity to meet the demand for this movement in the 2040 Plus Project (Cumulative) scenario. Implementation of **Measure TRAF-3** would reduce the westbound left turn queue to fit within the available turning storage. This would be accomplished by increasing the capacity of the intersection to allow more vehicles to travel through efficiently. However, as described above, the implementation and timing of this measure cannot be guaranteed as it is outside the control and jurisdiction of the City of Dublin.

With implementation of the Project, increased demand from vehicles exiting the freeway to access the Project would exceed the intersection's capacity at the westbound right turn at the intersection of Isabel Avenue and I-580 Westbound off-ramps. This would result in the right turn queue exceeding the available storage by 58 feet during the AM peak hour. Implementation of **Measure TRAF-4** would reduce the queue to 439 feet, allowing it to be contained within the available storage. However, this intersection is under the jurisdiction of Caltrans, and therefore Dublin cannot guarantee the implementation and timing of the mitigation measure, as it is outside the control and jurisdiction of the City.

Transit

The primary goals of transit service in the study area are to increase ridership, improve access to BART, and reduce system inefficiencies. The Project would provide a multimodal roadway connection between Dublin and Livermore on the north side of I-580. The extension of bus transit service along the Project from the current terminus of Dublin Boulevard at Fallon Road eastward to developable areas of eastern Dublin is planned for in the EDSP. The Project would allow for future bus transit access to BART from eastern Dublin land uses and would encourage transit ridership in

eastern Dublin by accommodating extension of existing bus service to a new area. The Project would also provide transit operators an alternative route and local connection between the two municipalities that avoids I-580, which is heavily congested during the peak commute periods. This may improve transit travel times on routes utilizing the new connection, which may indirectly increase ridership through improved travel time (which would make transit more appealing to riders).

Pedestrian Facilities

Under existing conditions, there is no pedestrian connectivity between Dublin and Livermore north of I-580. To travel between these municipalities, pedestrians must travel down Isabel Avenue and along Jack London Boulevard. The Project would provide a more direct and appealing pedestrian connection along the north side of I-580 connecting the Dublin Boulevard/Fallon Road intersection with the Doolan Road/North Canyons Parkway intersection in Livermore.

The Project design includes a dedicated sidewalk for pedestrians on one side and a multiuse trail on the other, where both bicyclists and pedestrians would share the pathway. By providing this connection, the Project would improve pedestrian circulation and access. The new sidewalk and multiuse trail have been designed to the latest applicable standards ensuring adequate separation between pedestrians and vehicle traffic. Pedestrian access to the new roadway facilities would be from the Dublin Boulevard/Fallon Road intersection and the Doolan Road/North Canyons Parkway intersection. These intersections do not currently include pedestrian crosswalks eastward across Fallon Road or westward across Doolan Road. However, the Project would include the addition of pedestrian signals and crosswalks, providing pedestrian access to the Project.

Bicycle Circulation

The new connection would improve bicycle connectivity north of I-580 where there are no bicycle facilities today. The Project would implement a multiuse path along with bicycle lanes to facilitate the connection between eastern Dublin and Livermore. Access to these new facilities would occur via signalized intersections at Fallon Road and Doolan Road. As part of the Project, the signal timing at these intersections would be improved to provide enough green time to accommodate bicycle movements. Bicycle safety along the Project is addressed through the design of the bike lanes and multiuse path, which meets current standards providing enough separation between bicyclists and motor vehicle traffic. The Project is also consistent with the *2014 City of Dublin Bicycle and Pedestrian Master Plan*, the *2012 Alameda County Bicycle and Pedestrian Master Plan for Unincorporated Areas*, and the *2018 City of Livermore Bicycle, Pedestrian, and Trails Active Transportation Master Plan* as it includes Class II bike lanes along the Project length.

No-Build Alternative

Level of Service (LOS)

Under the No-Build Alternative, Dublin Boulevard would continue to terminate at Fallon Road in Dublin, and North Canyons Parkway would continue to terminate at Fallon Road. No local roadway connection would be implemented between the two. As shown in **Tables 2.2-16** through **2.2-18**, all intersections would operate at an acceptable level of service under the No-Build Alternative.

Vehicle Queuing

As described under Affected Environment, traffic queues exceed the available storage at two locations under existing conditions:

- Fallon Road and Dublin Boulevard – the estimated 95th percentile queue for the northbound left-turn is anticipated to exceed the available storage by about 39 feet or approximately two vehicles.
- Murrieta Boulevard and Portola Avenue – the 95th percentile queue for the eastbound through movement is expected to exceed the available storage between Murrieta Boulevard and East Airway Boulevard on Portola Avenue by 197 feet or about eight vehicles.

Under the No-Build Alternative, this condition would remain. No intersection improvements would be implemented.

Transit, Pedestrian, and Bicycle Facilities

Under the No-Build Alternative, Dublin Boulevard would continue to terminate at Fallon Road in Dublin, and North Canyons Parkway would continue to terminate at Fallon Road. No local roadway connection would be implemented between the two. Therefore, no new bicycle or pedestrian facilities would be created, and there would be no change to the existing transit network.

AVOIDANCE, MINIMIZATION, AND/OR MITIGATION MEASURES

The following measures would be implemented as described above and would ensure the Project does not result in adverse effects to traffic or transportation.

Measure TRAF-1: A TMP shall be prepared during the design phase for the Project, in accordance with all local requirements. The TMP should address traffic impacts from staged construction, detours, and specific traffic handling concerns during construction of the Project, including multi-modal access. The objective of the TMP is to minimize the impacts that construction activities would have on the traveling public. Traffic management strategies that require action by the construction contractor should be presented in detail in the technical specifications of the bid contract and should be considered part of the Project.

In implementing the TMP, each jurisdiction should produce and disseminate press releases and other documents, as necessary, to adequately notify and inform motorists, pedestrians and cyclists, business community groups, local entities, emergency services, and elected officials of upcoming road closures and detours. This responsibility includes advance notification to local newspapers, television and radio stations, and emergency response providers. If agreed upon by Dublin, the County, and Livermore, Dublin may lead preparation and implementation of the TMP.

Measure TRAF-2: Dublin is to implement the following geometric and signal timing improvements at the intersection of Dublin Boulevard/Fallon Road prior to the opening of the Dublin Boulevard Extension:

- Implement the mitigation measures described in the Kaiser Environmental Impact Report (EIR) which includes the construction of an additional left turn lane for both the northbound and eastbound approaches. This improvement is the obligation of Kaiser and the City shall build and seek reimbursement from Kaiser if not built by the time the Dublin Boulevard – North Canyons Parkway Extension Project is built.

- In addition to the mitigations proposed for the Kaiser EIR, Dublin shall implement the following improvements:

    - Northbound – construct at least one northbound right turn lane resulting in the following final lane configuration: 2 left turns, 2 through, and one right turn lane
    - Eastbound – construct at least one more through lane resulting in the following final lane configuration: 2 left turns, 2 through, and 2 rights
    - Westbound – construct at least two additional through lanes resulting in the following lane configuration: 1 left turn, 2 through, and a shared through/right
    - Optimize the signal timing

Measure TRAF-3: The City of Livermore is requested to implement the following geometric and signal timing improvements at the intersection of Airway Boulevard and North Canyons Parkway prior to Project completion:

- Shift the median of Airway Boulevard one lane to the west reducing the southbound lanes from three to two and increasing the northbound lanes from three to four

- With the extra northbound lane, convert the northbound approach to Airway Boulevard and North Canyons Parkway to have an exclusive left, shared left/through, and two right turn lanes

- Add an additional westbound through lane resulting in two left turns, one exclusive through, and a shared through/right

- Optimize the signal timing

Measure TRAF-4: Caltrans is to optimize the traffic signal timing at Isabel Avenue and I-580 Westbound Ramps by the year 2035 to increase the green time for the westbound right turn movement.

CUMULATIVE IMPACTS

The cumulative setting for traffic is equivalent to the transportation study area evaluated above. The TIA utilized traffic volumes based on the Alameda CTC Countywide Model (as modified to ensure that the model accurately reflected planned and funded land-use development and transportation projects expected to be in place by 2020 and 2040). As such, the TIA analyzed cumulative conditions within the transportation study area. The future year CCTA Model used in

the above analysis reflects regional land use projections consistent with ABAG Projections, as well as roadway network improvements contained in Plan Bay Area 2040.

2.2.7 VISUAL/AESTHETICS

REGULATORY SETTING

Federal

The National Environmental Policy Act (NEPA) of 1969, as amended, establishes that the federal government use all practicable means to ensure all Americans safe, healthful, productive, and *aesthetically* (emphasis added) and culturally pleasing surroundings (42 United States Code [USC] 4331[b][2]). To further emphasize this point, the Federal Highway Administration (FHWA), in its implementation of NEPA (23 USC 109[h]), directs that final decisions on projects are to be made in the best overall public interest taking into account adverse environmental impacts, including among others, the destruction or disruption of aesthetic values.

State

State Scenic Highway Program

The Caltrans Scenic Highway Program is intended to protect and enhance the natural scenic beauty of California's highways and adjacent corridors, through special conservation treatment. The program protects against encroachment of incompatible land uses, mitigates and minimizes development activities along scenic corridors, prohibits billboards, and regulates grading activity. Once a scenic highway designation is granted, a wide range of protections apply to the designated corridor, including a prohibition on off-premise advertising displays, colloquially known as billboards.

Classified Landscaped Freeways

Caltrans-classified "Landscaped Freeways" are landscaped freeways with plantings that meet the State Outdoor Advertising Regulations criteria. These regulations are used in the control and regulation of outdoor advertising displays and are not an indication of an area that should be protected as a scenic corridor. Criteria for Landscaped Freeways include freeways with plantings on at least one side within the state right-of-way that are continuous (no gaps greater than 200 feet), ornamental, at least 1000 feet long, and require reasonable maintenance.

Local

City of Dublin

<u>City of Dublin General Plan</u>

Scenic resources are addressed in the Land Use Element and Scenic Highways Element of the City's General Plan. The following designated scenic resources and policies are relevant to the Project:

Policy 2.8.13.C	Development shall be subordinate to and blend harmoniously with the natural and open space qualities of the area where located, in order not to impair those qualities and to be as unobtrusive as possible. In all cases, appropriate landscaping, preservation of vegetation, screening, building materials, design, and limits on surface alternations shall be required by the City to reduce as much as practicable the visibility of development.
Policy 2.8.13.D	Exterior lighting, including roadway lighting, shall be designed and placed, to the maximum extent practicable, to confine direct rays to the parcel or roadway where the lighting is located and to protect the darkness of the night sky.
Guiding Policy 5.7.1A.1	Incorporate County-designated scenic routes, and the Fallon Road extension, in the General Plan as adopted City-designated scenic routes, and work to enhance a positive image of Dublin as seen by through travelers.
Implementing Policy 5.7.1.B.1	Exercise design review of all projects visible from a designated scenic route.
Implementing Policy 5.7.1.B.2	Implement the Eastern Dublin Scenic Corridors Policies and Standards for projects within the Eastern Extended Planning Area.

Eastern Dublin Specific Plan

The Eastern Dublin Specific Plan (EDSP) discusses several goals, policies, and programs dedicated to preserving visual resources within the City of Dublin (Dublin). Such resources include the open hills, creeks, major stands of vegetation and general open space. The following designated scenic resources and policies are relevant to the Project:

Policy 6-4	Preserve views of designated open space areas.
Policy 6-28	Preserve the natural open beauty of the hills and other important visual resources, such as creeks and major stands of vegetation.
Policy 6-31	High quality design and visual character will be required for all development visible from designated scenic corridors.
Policy 6-32	Visual impacts of extensive grading shall be reduced by sensitive engineering design, by using gradual transitions from graded areas to natural slopes and by revegetation.
Policy 6-33	Site grading and access roads shall maintain the natural appearance of the upper ridgelands or foreground hills within the viewshed of travelers along I-580, Tassajara Road, and the future extension of Fallon Road. Streets should be aligned to

follow the natural contours of the hillsides. Straight, linear rows of streets across the face of hillsides shall be avoided.

Policy 6-34 Alterations of existing natural contours shall be minimized. Grading shall maintain the natural topographic contours as much as possible. Grading beyond actual development areas shall be for remedial purposes only.

Policy 6-35 Extensive areas of flat grading are not appropriate in hillside areas, and should be avoided. Building pads should be graded individually or stepped, wherever possible. Structures and roadways should be designed in response to the topographical and geotechnical conditions.

Policy 6-37 Graded slopes shall be re-contoured to resemble existing landforms in the immediate area. Cut and graded slopes shall be revegetated with native vegetation suitable to hillside environments.

Policy 6-38 The height of cut and fill slopes shall be minimized to the greatest degree possible. Grades for cut and fill slopes should be 3:1 or less whenever feasible.

Policy 6-39 Tassajara Creek and other stream corridors, as shown on Figure 4.1, are visual features that have special scenic value for the planning area. The visual character of these corridors should be protected from unnecessary alteration or disturbance, and adjoining development should be sited to maintain visual access to the stream corridors.

Alameda County

Alameda County General Plan

The Alameda County General Plan defines and discusses three types of scenic routes: scenic freeways and expressways, scenic thoroughfares, and scenic rural-recreation routes. Scenic resources are also discussed in the Scenic Route Element and East County Area Plan, both of which are part of the larger Alameda County General Plan, and include I-580, the ridgelines above Doolan and Collier Canyon, and the resource management area separating eastern Dublin and northern Livermore. The following designated scenic route element objectives and policies are relevant to the Project:

- To establish a continuous system of routes, that will be convenient to all persons in Alameda County, and that will increase the enjoyment of, and opportunities for, recreational and cultural pursuits and tourism in Alameda County and adjacent counties by providing for scenic pleasure drives and scenic routes to all major recreation areas and cultural centers throughout the country and adjacent areas.
- To conserve, enhance, and protect scenic views observable from scenic routes.
- On downslope scenic corridors along routes with outstanding scenic views, no building structure of more than one story should project above the highest point of the paved road directly in front of the building structure, and no wall, fence, solid

row of trees or other plants should project above the building structure or above the roadbed, whichever is higher. Where single story building structures are higher than the roadbed, there should be no wall, fence, or plant material that is not located directly between the main building structure and the roadbed that will obstruct the view from automobiles on the scenic route.

Alameda County General Plan, East County Area Plan

The East Alameda County Area Plan includes several policies and goals meant to preserve visual resources. Such policies discuss scenic ridgelines, open space, viewsheds, landscaping, utility lines, and grading techniques. The following policies are relevant to the Project:

Ridgelines

Policy 105 The County shall preserve the following major visually-sensitive ridgelines largely in open space use:

2. The ridgelines of Schafer, Shell, Skyline, Oak and Divide Ridges west of Dublin and the ridgelines above Doolan Canyon east of Dublin

3. The ridgelines above Collier Canyon and Vasco Road and the ridgelines surrounding Brushy Peak north of Livermore

Community Separators

Policy 109 The County shall preserve community separators largely in open space in the following locations:

1. The Resource Management area of approximately 7,400 acres separating East Dublin and North Livermore

Viewsheds

Policy 112 The County shall require development to maximize views of the following prominent visual features:

1. The major ridgelines listed in Policy 105

2. Brushy Peak, Donlan Peak, and Mount Diablo; and

3. Cresta Blanca, near Arroyo Road South of Livermore.

Landscaping

Policy 114 The County shall require the use of landscaping in both rural and urban areas to enhance the scenic quality of the area and to screen undesirable views. Choice of plants should be based on compatibility with surrounding vegetation, drought-tolerance, and suitability to site conditions; and in rural areas, habitat value and fire retardance.

Policy 115 In all cases appropriate building materials, landscaping and screening shall be required to minimize the visual impact of development. Development shall blend with and be subordinate to the environment and character of the area where located, so as to be as unobtrusive as possible and not detract from the natural, open space or visual qualities of the area. To the maximum extent practicable, all exterior lighting must be located, designed and shielded so as to confine direct rays to the parcel where the lighting is located.

Alteration of Landforms

Policy 116 To the maximum extent possible, development shall be located and designed to conform with rather than change natural landforms. The alteration of natural topography, vegetation, and other characteristics by grading, excavating, filling or other development activity shall be minimized. To the extent feasible, access roads shall be consolidated and located where they are least visible from public viewpoints.

Grading

Policy 117 The County shall require that where grading is necessary, the off-site visibility of cut and fill slopes and drainage improvements is minimized. Graded slopes shall be designed to simulate natural contours and support vegetation to blend with surrounding undisturbed slopes.

Policy 118 The County shall require that grading avoid areas containing large stands of mature, healthy vegetation, scenic natural formations, or natural watercourses.

Utilities

Policy 120 The County shall require that utility lines be placed underground whenever feasible. When located above ground, utility lines and supporting structures shall be sited to minimize their visual impact.

City of Livermore

City of Livermore General Plan

Although most of the Project activities and planned improvements would occur outside of Livermore's jurisdiction, scenic views from public areas of Livermore could be impacted. Livermore residents and visitors on the western edge of town looking toward the hills would see the roadway extension.

Scenic resources are addressed in the Community Character Element and the Land Use Element of Livermore's General Plan. Policies in the Land Use Element generally focus on the construction of new buildings, and therefore would not apply to the Project. The following policies are relevant to the Project:

CC-4.1.P1 Development shall not be allowed to obscure, detract from, or negatively affect the quality of the views from designated scenic routes.

CC-4.1.P2 The City shall maintain in open space that portion of the hills which is seen from the freeway and which is within the I-580 Scenic Corridor as shown in Figure 4-1. Any development within the I-580 Scenic Corridor is subject to the policies set forth under Goal CC-4 and the conditions set forth in Section C, I-580 Scenic Corridor Implementation.

CC-4.1.P3 The City shall permit no development to wholly obstruct or significantly detract from views of any scenic area as viewed from a scenic route.

CC-4.2.P3 The I-580 Scenic Corridor development shall include provision for cycling, hiking, and riding trails within or adjacent to street rights-of-way, where feasible.

CC-4.7.P2 New, relocated, or existing utility distribution lines should be placed underground.

CC-4.9.P1 Alteration of natural or artificial land contours should not be permitted without a grading permit as a means of preserving and enhancing the natural topography and vegetation in developable areas.

CC-4.9.P2 Mass grading should not be permitted in the I-580 Scenic Corridor.

CC-4.10.P1 As a means of preserving natural "ridge skylines," no major ridgeline shall be altered to the extent that an artificial ridgeline results. Minor grading below the skylines, ridgelines, or silhouettes may be authorized to accommodate development or activities otherwise consistent with these policies.

CC-4.10.P3 The I-580 Scenic Corridor is defined as the area which is within 3,500 feet on each side of the centerline of I-580, and visible from the I-580 roadway. Development in the I-580 Scenic Corridor must preserve, to the largest degree feasible, the view of the ridgelines as seen from the I-580 Scenic Corridor roadway. To that end, no development, structures or man-made objects except plantings erected for landscaping purposes may obscure any portion of the ridgeline as seen from the I-580 Scenic Corridor roadway, except as provided in Community Character Element Section IV.C (I-580 Scenic Corridor Implementation). Landscaping, including trees, shall be planted in a manner such that when mature, it does not create a wall-like effect that substantially obscures views of the ridgeline.

CC-4.16:P2 Development of lands adjacent to scenic routes should not obstruct views of scenic areas, and development should be visually compatible with the natural scenic qualities.

AFFECTED ENVIRONMENT

Information on this section is primarily drawn from the *Visual Impact Assessment* (VIA), prepared for the Project and completed in November 2018. The VIA identified visual resources within the visual study area (VSA) and included visual analysis as well as effect determinations. Key viewpoints within the VSA were selected, photographed, and assessed in order to determine the current condition of scenic resources. The visual impact study area is shown on **Figure 2.2-10** and visual assessment units and key viewpoints are shown on **Figure 2.2-11**.

Regional Setting

City of Dublin

The VSA in Dublin includes undeveloped grazing ranchland; public roads; I-580; open space; and commercial, residential, and industrial land uses. Man-made development is primarily around the periphery of the VSA and includes two- to three-story mid-rise commercial development such as big box stores and shopping centers; parking lots; single family homes; low to medium-rise industrial development; and the I-580 corridor. To the west and northwest of the Project site, the VSA includes single-family residential and medium-density residential development. A large shopping center is directly across Fallon Road to the west of the Project site. Operating businesses include Target, Panera Bread, Guitar Center, and BJ's Restaurant & Brew House, among others. There are public views of the Project site from portions of Fallon Road, public roads associated with residences north of the Project site, the I-580 scenic corridor, and Croak Road. Residences to the north of the Project site have partially obstructed views of the Project site between the rolling hills. I-580 affords drivers views of the Project site to the north, and travelers along Croak Road have direct views of the Project site. Key viewpoints within Dublin are depicted in **Viewpoint 1** through **Viewpoint 5**.

Alameda County

The VSA in Alameda County (County) consists of primarily undeveloped grazing ranchland and open space, with intermittent residences and outbuildings. Land uses in this area consist of resource management and large parcel agricultural (**Viewpoint 6**).

There are public views of the Project site from portions of Collier Canyon Road to the south of the Project site (**Viewpoint 7**). Views of the Project site from Collier Canyon Road may be obstructed at some angles by scattered agricultural development and vegetation, particularly near Cottonwood Creek.

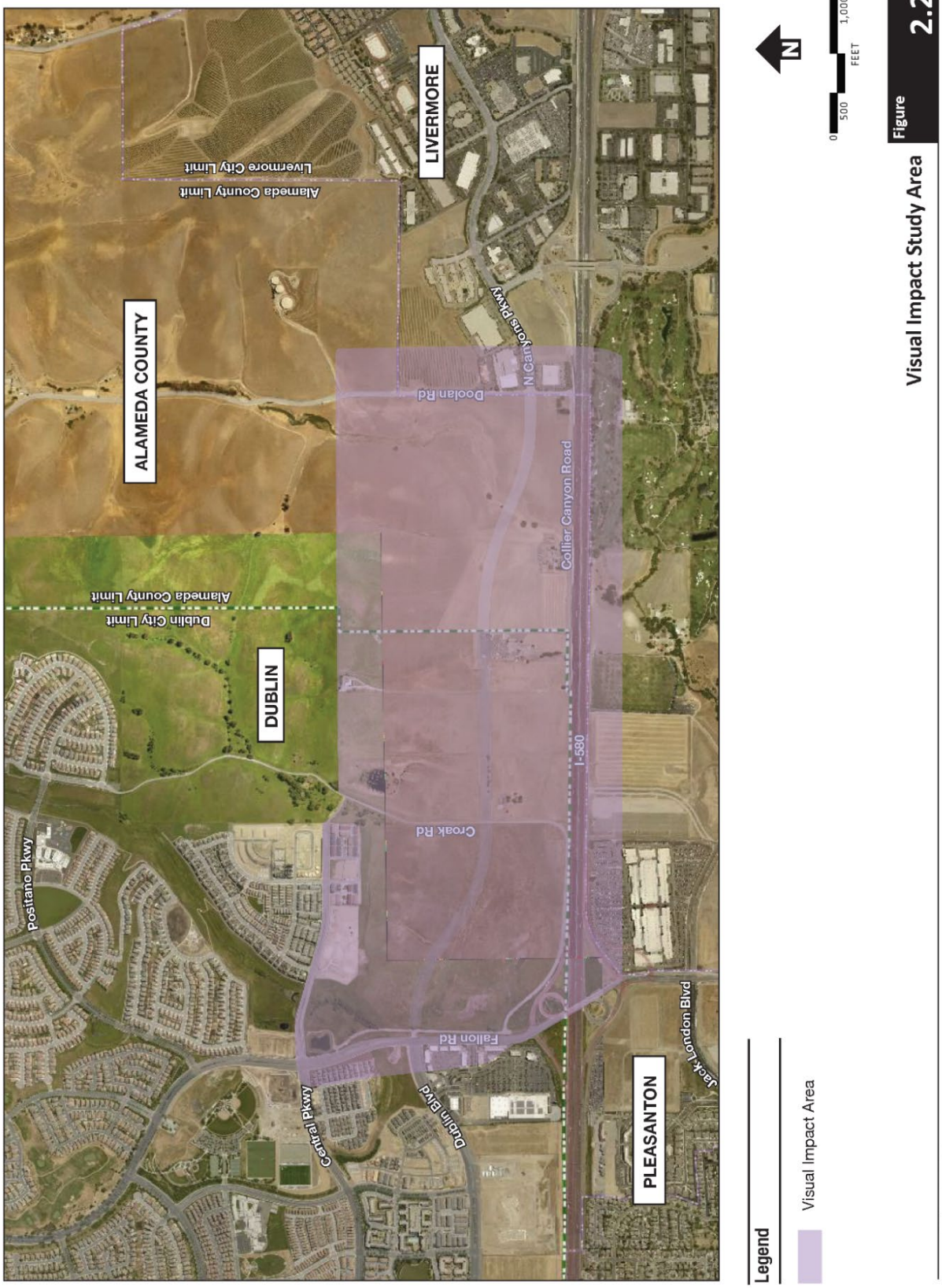


Figure 2.2-10
Visual Impact Study Area

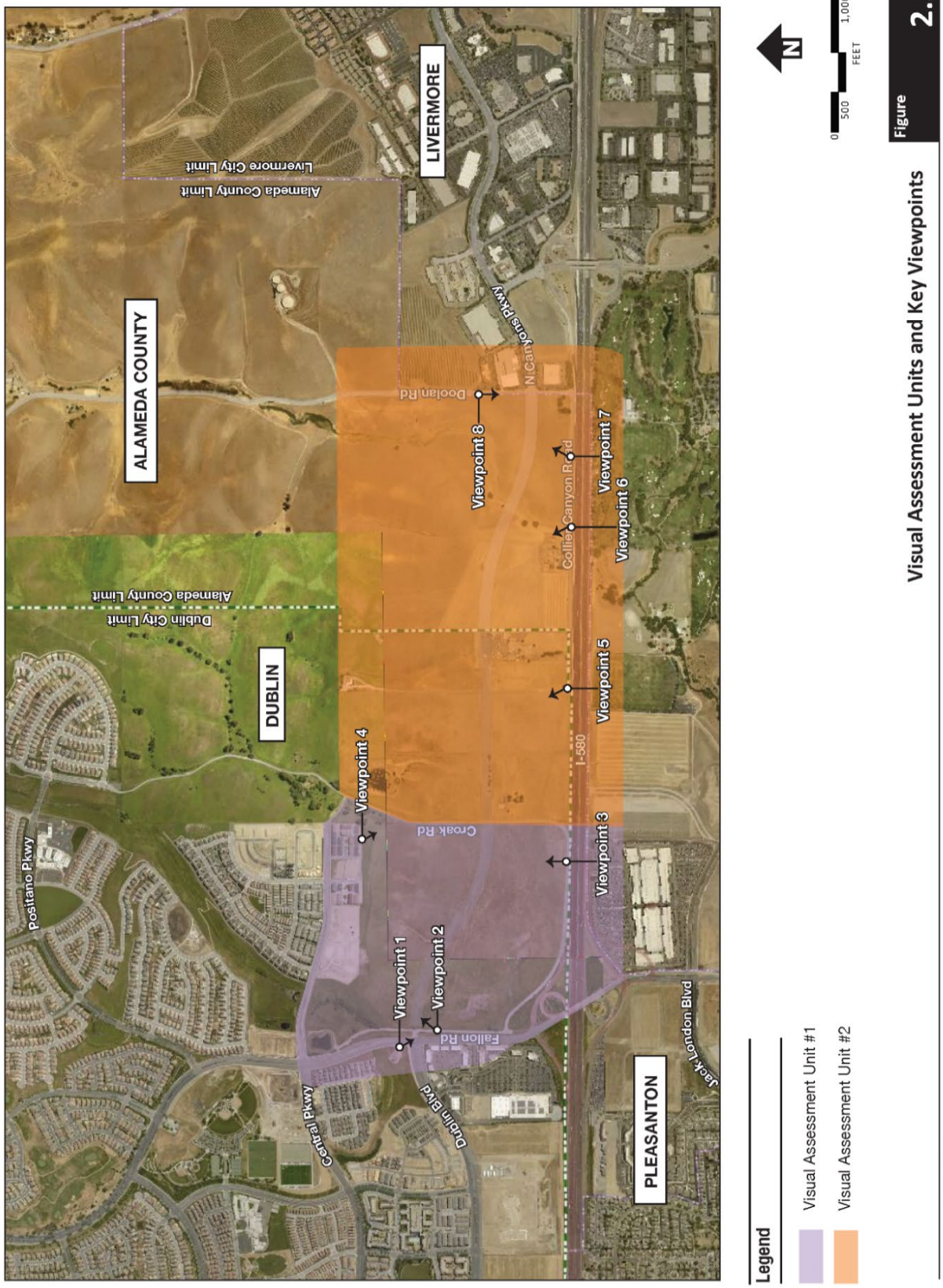


Figure 2.2-11

Visual Assessment Units and Key Viewpoints

City of Livermore

The VSA in Livermore includes business commercial parks along North Canyons Parkway. Land dedicated to Hillside Conservation is located north of North Canyons Parkway. General commercial and commercial/campus office land uses are southeast of the Project site, adjacent to eastbound I-580.

There are public views of the Project site from the I-580 scenic corridor, Doolan Road, and the area immediately around the intersection of Doolan Road and North Canyons Parkway. I-580 offers drivers peripheral views of the Project site to the north. Doolan Road has generally unobstructed views of the Project site, except for the southern portion of the roadway where views are obscured by trees and other vegetation (**Viewpoint 8**).

Viewpoint 1: Fallon Road (Dublin)

Viewpoint 2: Fallon Road (Dublin)

Viewpoint 3: Croak Road (Dublin)

Viewpoint 4: Central Parkway (Dublin)

Viewpoint 5: Collier Canyon Road (Dublin)

Viewpoint 6: Collier Canyon Road (Alameda County)

Viewpoint 7: Collier Canyon Road (Alameda County)

Viewpoint 8: Doolan Road (Livermore)

Visual Assessment Units

The VSA was divided into two "outdoor rooms" or visual assessment units. Each visual assessment unit has its own visual character and visual quality. Various methods are acceptable for identifying visual units, such as utilizing the limits of a particular viewshed or by an area of similar visual character. Visual assessment units are geographically discrete portions of a larger project area that are often separated by natural and built features. The two visual assessment units identified for the Project are discussed below and depicted in **Figure 2.2-11**.

Visual Assessment Unit 1

Visual Assessment Unit 1 begins at the western edge of the VSA and is defined by Fallon Road as well as portions of the residential and commercial development located just west of the roadway, Central Parkway to the north, and Croak Road to the east. The southern portion of the visual assessment unit includes I-580 as well as a portion of the San Francisco Premium Outlet parking lot. The visual assessment unit encompasses portions of Central Parkway and the residential development located just south of the parkway.

Distinctive visual attributes of the unit include intermixed residential development and the rolling hills, various roadway elements such as travel lanes and roadside landscaping, remnant agricultural fencing, overhead utility lines, traffic on I-580, and low- to mid-rise commercial development west of Fallon Road and south of I-580.

Visual Assessment Unit 2

Visual Assessment Unit 2 encompasses the eastern portion of the VSA and is defined by Croak Road to the west, the intersection of Central Parkway and Croak Road to the north, I-580 and portions of the San Francisco Premium Outlet parking lot to the south, and Doolan Road to the east. Visual Assessment Unit 2 also encompasses some areas of developed and undeveloped land just east of Doolan Road.

Distinctive visual attributes of the unit include views of the rolling hills, open space and natural land cover, Cottonwood Creek, scattered agricultural development, commercial development along North Canyons Parkway, and traffic along I-580.

Project Site

The Project site is used primarily as undeveloped grazing ranchland and open space. The landscape in and around the Project site is characterized by a mix of grasslands surrounded by rolling hills and agricultural uses. Natural land cover in the Project site and VSA includes trees, shrubs, and grassland vegetation. Trees are primarily willows and valley oaks (*Quercus lobata*) along Cottonwood Creek, which flows generally north to southwest across the Project site in the County.

Improvements to areas adjacent to the Project site generally consist of paved and unpaved roads used to access private property and scattered fences, barns, corrals, wells, water tanks, and various outbuildings. Views through the Project site from public roads along the western, southern, and eastern edges of the VSA are generally unobstructed, and views of the Project site from the north are intermittent, broken up by the rolling hills.

Scenic Resources

The VSA encompasses several scenic resources, including man made routes and corridors as well as natural open space and scenic features. I-580 is an Eligible State Scenic Highway from the Alameda/San Joaquin County Line to Interstate 80 (I-80) in Alameda County (postmile (PM) 0.0/47.4). Within the VSA, I-580 is considered eligible for listing as a State Scenic Highway. The I-580 scenic corridor is defined as the area which is both within 3,500 feet on each side of the centerline of I-580 and visible from I-580. This section of I-580 is not an officially designated scenic highway. Additionally, I-580 is classified as a Landscaped Freeway (PM 14.97-15.63). No other roadways within the VSA are considered scenic highways.

The Circulation and Scenic Highways Element of the Dublin General Plan identifies I-580 and Fallon Road as scenic routes within the VSA. The EDSP identifies several natural scenic resources within the VSA, such as the open hills, creeks, and general open space. The Alameda County General Plan also identifies I-580, the ridgelines above the Doolan and Collier Canyon, and the resource management area separating eastern Dublin and northern Livermore as scenic resources within the VSA. Similarly, the Livermore General Plan recognizes the open space and hills visible from I-580 scenic corridor as scenic resources within the VSA.

Light and Glare

There are no existing sources of light or glare on the Project site. Sources of light and glare within the VSA include streetlights on nearby roadways, and commercial and residential land uses which have both exterior lighting and windows which allow interior lighting to be seen in the VSA. There is also illuminated signage within the VSA in Dublin and Livermore.

Viewers and Viewer Response

The population that would be affected by the Project is composed of viewers. Viewers are people whose views of the landscape may be altered by implementation of the Project—either because the landscape itself has changed or their perception of the landscape has changed.

Viewers, or more specifically the response viewers have to changes in their visual environment, are one of two variables that determine the extent of visual impacts that will be caused by the construction and operation of the Project. The other variable is the change to visual resources.

Types of Viewers

There are two major types of viewer groups for roadway projects: roadway neighbors and roadway users. Each viewer group has their own level of viewer exposure and viewer sensitivity, resulting in distinct and predictable visual concerns for each group that help to predict their responses to visual changes.

Roadway neighbors are people who would have views of the Project. They can be divided into different viewer groups by land use type. For example, residential, commercial, industrial, educational, recreational and agricultural land uses may each generate roadway neighbors or viewer groups with distinct reasons for being in the VSA, and therefore having distinct responses to changes in visual resources. Roadway neighbors in the VSA are listed below:

> **Commercial/Industrial:** Several commercial business including retailers are within the VSA, specifically west of Fallon Road, east of Doolan Road, and south of the Project site. The west side of Fallon Road is dominated by low- to mid-rise retail buildings, restaurants, and box stores. South of the Project site north of I-580 there is a small landscaping services company with views of the Project site. South of I-580, the San Francisco Premium Outlet shopping district has views of the Project site. Views are somewhat intermittent and are broken up by existing vegetation and topography. On the eastern side of Doolan Road, there are three commercial buildings with views of the Project site – a casino, janitorial equipment supplier, and dialysis clinic.
>
> **Residential:** Single-family and multi-family residential development to the west and northwest affords views of the Project site, broken up by the rolling hills. Fallon Road, Central Parkway, Croak Road, and residential streets such as Positano Parkway, Panorama Drive, and Sunset View Drive offer access to residential neighborhoods and views of the Project site.

Agricultural: Undeveloped grazing ranchland and open space with intermittent outbuildings is located throughout the VSA, between Fallon Road and North Canyons Parkway north of I-580. Croak Road, Collier Canyon Road, Doolan Road, and a network of paved and unpaved roads provided access to agricultural land and views of the Project site.

Highway and Local Roadway Users: Within the VSA, I-580 runs east to west between Fallon Road and North Canyons Parkway and provides direct and indirect access to a variety of land uses, including those described above. Highway users are anticipated to include drivers of personal vehicles and haul travelers and would have views of the Project to the north. Additionally, travelers along Fallon Road, Croak Road, Central Parkway, and other local roads would have views of the Project site.

Roadway users are people who would have views from the Project while using the road. They can be divided into different viewer groups. For example, dividing roadway users by mode of travel may yield transit riders, car drivers and passengers, truck drivers, bicyclists and pedestrians. Dividing roadway users by reason for travel creates categories like tourists, commuters, and long-haul travelers. Both approaches allow for consideration of the duration of views by travelers in the VSA; however, analysis of mode only does not lend itself to consideration of the frequency with which viewers would pass through the area. To provide a more robust analysis, roadway users are divided by "reasons for travel" for this assessment, and common modes of travel for each "reason" are discussed as well.

Commuter Travelers: The Project is anticipated to be used as an alternative commute route for residents of Dublin, the County, and Livermore to travel between Dublin and Livermore for work. Commuters are likely to include drivers and may also include bicyclists. Due to the distance between Dublin and Livermore, pedestrian commuters are likely to be infrequent.

Local Travelers: Local travelers are residents from nearby communities that would use the new roadway often to meet daily needs, but not necessarily to commute to and from work. It is anticipated local travelers would use the Project as an alternative to I-580 for short trips. Local travelers are likely to include drivers, bicyclists, and pedestrians.

Long-Haul Travelers: Long haul travelers include drivers of semi-trucks and other vehicles moving through the Tri-Valley and are not anticipated to divert from I-580 to use the Project.

Viewer Response

This section examines the exposure and viewer sensitivity of roadway neighbors and users to the Project. Viewer response is a measure or prediction of the viewer's reaction to changes in the visual environment and has two dimensions: *viewer exposure* and *viewer sensitivity*.

Viewer exposure is a measure of the viewer's ability to see an object. Viewer exposure has three attributes: location, quantity, and duration. *Location* relates to the position of the viewer in

relationship to the object being viewed. The closer the viewer is to the object, the more exposure. *Quantity* refers to how many people see the object. *Duration* refers to how long a viewer can keep an object in view. High viewer exposure helps predict that viewers will have a response to a visual change.

Viewer sensitivity is a measure of the viewer's recognition of an object. It has three attributes: *activity, awareness,* and *local values*. Activity relates to the preoccupation of viewers—the more viewers are actively observing their surroundings, the more sensitivity viewers will have of changes to visual resources. Awareness relates to the focus of view—the more specific the awareness, the more sensitive a viewer is to change. Local values and attitudes also affect viewer sensitivity. If the viewer group values aesthetics in general or if a specific visual resource has been protected by local, state, or national designation, it is likely that viewers will be more sensitive to visible changes. High viewer sensitivity helps predict that viewers will have a high concern for any visual change.

The results of the viewer response are summarized in **Table 2.2-19** below. Additional detail on the viewer response evaluation is provided in the VIA. As shown in the table, viewer exposure, sensitivity, and averaged viewer response would be moderate in the VSA.

Table 2.2-19 Viewer Response

Group	Viewer Exposure	Viewer Sensitivity	Averaged Viewer Response
Roadway Neighbors			
Commercial/Industrial	Moderate-low	Moderate-low	Moderate-low
Residential	Moderate-high	Moderate-high	Moderate-high
Agricultural	Moderate-high	Moderate-high	Moderate-high
Highway and Roadway	Moderate	Moderate	Moderate
Average for all Neighbors	**Moderate**	**Moderate**	**Moderate**
Roadway Users			
Commuter and Local Travelers:			
Vehicular Travelers	Moderate	Moderate	Moderate
Bicyclists and Pedestrians	Moderate-high	Moderate-high	Moderate-high
Hauler Travelers	Not Applicable	Not Applicable	Not Applicable
Average for all Users	**Moderate**	**Moderate**	**Moderate**

Source: Circlepoint, 2018

ENVIRONMENTAL CONSEQUENCES

Build Alternative

Construction

Construction activities required for implementation of the Build Alternative would include but are not limited to earthwork, paving, pile driving for the bridge structure, concrete/rebar/formwork, utility trenching, and roadway striping. To construct the Build Alternative, an area larger than the Project footprint would be used for temporary access, construction staging, and equipment laydown. Additionally, grading work would within the area of disturbance which occurs beyond the limits of the Project footprint.

Grading outside of the permanent, paved Project footprint would be required to provide a safe roadbed with a vertical geometry that meets Dublin and the County's engineering and safety standards. Under existing conditions, the grade changes along the proposed alignment – small hills and valleys – are too steep to safely and comfortably accommodate the roadway extension. Therefore, both cut and fill areas have been identified to create a generally more level area for the roadway extension.

All viewer groups in the VSA can expect temporary visual effects as a result of construction activities. Short-term construction work would introduce visual disturbances to the continuous open space that would slightly reduce the intactness and unity of the VSA. However, construction of the Build Alternative would comply with all applicable construction regulation, standards, and procedures including best management practices. Visual effects during construction would be temporary in nature. Therefore, construction of the Build Alternative would result in a moderate resource change within the VSA and would not result in an adverse effect.

Operation

Visual Assessment Unit 1

Figure 2.2-12 provides a visual simulation depicting the before and after views of the Build Alternative, as visible from Fallon Road (**Viewpoint 2**). The existing view of open space and the rolling hills from Fallon Road offers a natural scenic landscape with overhead utility lines running parallel to the rolling hills. Although commercial development and I-580 are visible on the right-hand side, this view is moderate in visual quality based on vividness, intactness, and unity.

The most notable visual component of the Build Alternative is the tree canopy which would alter views of the rolling hills during the day. This visual change would be low. Additionally, street lighting may result in a new source of glare that was not previously present. This visual change would be moderate. However, the introduction of new glare from street lighting would only occur at night, when streetlights would be in use.

Figure 2.2-12

Visual Simulations - Visual Assessment Unit 1

Source: Field of Vision, 2018

The Build Alternative would utilize typical light shielding or the usage of directional devices, as required by the City of Dublin, to reduce potential light pollution and night-time glare within the visual impact study area. While the Build Alternative would include the introduction of new man-made elements along an alignment that is generally undeveloped, the Build Alternative features would generally be flat (pavement, curbs, bike lanes) and landscaping is proposed to soften the man-made elements. Additionally, the Build Alternative would include removal of existing overhead utility lines (**Figure 1-13**), resulting in a beneficial visual change. With implementation of the Build Alternative, scenic resources would not be altered in such a way that their quality would be diminished.

Although resource changes would be noticeable to motorists and passengers, they would not be sensitive to such changes because they travel on local roads on a regular basis. While the Build Alternative would result in more man-made features, the open space and rolling hills would continue to be the dominant visual feature. Therefore, the Build Alternative would generally be consistent with the existing urban and open setting and would not adversely affect the key elements of visual character of the area.

Overall, roadway viewers in the VSA would experience a noticeable visual change through implementation of the Build Alternative; however, the main elements of visual character and quality of the area would remain intact. The visual quality of Visual Assessment Unit 1 would continue to be moderate. The overall resource change for Visual Assessment Unit 1 would be moderate under the Build Alternative.

Visual Assessment Unit 2

Figure 2.2-13 provides a visual simulation depicting the before and after views of the Build Alternative, from Collier Canyon Road looking north toward Cottonwood Creek and the Alameda County Hills (**Viewpoint 6**). The existing view of Alameda County open space, Cottonwood Creek, rural development, and associated outbuildings offers a diverse natural and man-made scenic landscape. Recognized scenic resources within the viewshed include the rolling hills and Cottonwood Creek. The scene also includes several large willows and valley oaks (*Quercus lobata*) along Cottonwood Creek, which contributes continuity to the scene. This view is moderate in visual quality based on vividness, intactness, and unity.

The placement of the new roadway would introduce a new line in the landscape and the addition of the tree canopy would alter daytime views through the Project site. This visual change would be low. The addition of streetlighting may result in a new source of nighttime glare that was not previously present. This visual change would be moderate.

The Build Alternative resource changes include the Dublin Boulevard roadway extension, modifications to the existing Dublin Boulevard/North Canyons Parkway intersection, and the addition of a bridge structure crossing Cottonwood creek. Local motorists would continue to experience peripheral views of the rolling hills and commercial development along Doolan Road and North Canyons Parkway.

Figure 2.2-13

Visual Simulations - Visual Assessment Unit 2

Source: Field of Vision, 2018

Although resource changes would be noticeable to motorists and passengers, they would not be sensitive to such changes because they travel on local roads on a regular basis. While the Build Alternative would result in more man-made features, the open space and rolling hills would continue to be the dominant visual feature. Therefore, the Build Alternative would generally be consistent with the existing open setting and would not adversely affect the key elements of visual character of the area.

Overall, roadway viewers in the visual impact study area would experience a noticeable visual change through implementation of the Build Alternative; however, the main elements of visual character and quality of the area would remain intact. The visual quality of Visual Assessment Unit 2 would continue to be moderate. Based on the above, the overall visual change would be moderate.

No-Build Alternative

Under the No-Build Alternative, none of the Project features described under the Build Alternative would be constructed. If the Project were not constructed, no immediate changes would be made to the Dublin Boulevard or North Canyon Parkway termini, or the surrounding roads within the overall VSA. No construction activities would occur, and there would be no change in the operations of the existing route.

Summary of Visual Effects

Table 2.2-20 summarizes the visual effects for the Build Alternative and the No-Build Alternative and summarizes and compares the narrative ratings for visual resource change and viewer response between alternatives for each Visual Assessment Unit.

Table 2.2-20 Summary of Key View Narrative Ratings

Visual Unit	Key Viewpoints	Build Alternative			No Build Alternative		
		Resource Change	Viewer Response	Visual Impact	Resource Change	Viewer Response	Visual Impact
1	1, 2, 3, 4	Moderate -low	Moderate	Moderate	N/A	N/A	N/A
2	5, 6, 7, 8	Moderate -low	Moderate	Moderate	N/A	N/A	N/A

Source: Circlepoint, 2018

AVOIDANCE, MINIMIZATION, AND/OR MITIGATION MEASURES

Avoidance and minimization measures have been identified to lessen visual changes and viewer response caused by the Project. The inclusion of aesthetic features in the Project design and

consistency with applicable policies (discussed in **Chapter1, Proposed Project**) would minimize the changes caused by the Project. This section describes additional avoidance and minimization measures. The following measures to avoid or minimize visual effects will be incorporated into the Project:

VIS-1: Revegetation Planting Measures

Avoidance of Effects to Classified Landscaped Freeway and Eligible State Scenic Highway during Operation

All landscaping and new plantings along the Dublin Boulevard Extension must be selected and implemented to maintain the eligibility of I-580 as a State Scenic Highway. The final selection of plantings must ensure that new planting would not impede views of memorable landscape that showcase the natural beauty or agricultural of California. Landscaping plans will be coordinated with Caltrans to ensure compatibility.

Avoidance of Effects to Scenic Hillsides

Construction areas disturbed for equipment access and staging will be returned to their pre-Project condition. This may include minor regrading or sweeping and revegetation. Graded areas to the north of the permanent Project footprint will be vegetated to minimize the visual change to the hillside and ensure that the graded areas blend with the surrounding natural hillside environment to the extent feasible. Where retaining walls are used, the measures listed under "VIS-2: Retaining Wall Measures" will be implemented.

VIS-2: Retaining Wall Measures

Avoidance and Minimization of aesthetic effects to viewers during operation

Retaining walls constructed on behalf of the Project, if deemed necessary, would adhere to the following design components:

- To reduce the visual impact of new retaining walls, aesthetic treatments consisting of color, texture and/or patterning will be applied to reduce visual impacts. The aesthetic treatment shall be context sensitive to the location. If concrete drainage ditches are required along the top of and behind the retaining walls, the ditch shall be stained to match the overall color of the wall. Aesthetic treatments will also reduce glare and deter graffiti and shall be developed during the final design phases and be approved by Caltrans.

- Where required, retaining wall cable safety railing should have black or brown vinyl cladding to make them less visually obtrusive and help them blend with the setting.

- Concrete safety-shaped barriers should be sand blasted to a medium finish to minimize glare and deter graffiti. Barriers at the bottom of retaining walls are required to be stained or are required to match the overall wall color through techniques such as staining.

VIS-3:Light and Glare Measures

Appropriate light and glare screening measures, including the use of downward cast lighting, will be used at the construction staging and laydown areas along Doolan Road.

2.2.8 CULTURAL RESOURCES

REGULATORY SETTING

The term "cultural resources," as used in this document, refers to the "built environment" (e.g., structures, bridges, railroads, water conveyance systems, etc.), places of traditional or cultural importance, and archaeological sites (both prehistoric and historic), regardless of significance. Under federal law, cultural resources that meet certain criteria of significance are referred to by various terms including "historic properties," "historic sites," and "traditional cultural properties."

Federal and State

Federal and State laws and regulations dealing with cultural resources include:

The National Historic Preservation Act (NHPA) of 1966, as amended, sets forth national policy and procedures for historic properties, defined as districts, sites, buildings, structures, and objects included in or eligible for listing in the National Register of Historic Places (NRHP). Section 106 of the NHPA requires federal agencies to take into account the effects of their undertakings on historic properties and to allow the Advisory Council on Historic Preservation (ACHP) the opportunity to comment on those undertakings, following regulations issued by the ACHP (36 Code of Federal Regulations [CFR] 800). On January 1, 2014, the First Amended Section 106 Programmatic Agreement (PA) among the Federal Highway Administration (FHWA), the ACHP, the California State Historic Preservation Officer (SHPO), and the Department went into effect for Department projects, both state and local, with FHWA involvement. The PA implements the ACHP's regulations, 36 CFR 800, streamlining the Section 106 process and delegating certain responsibilities to the Department. The FHWA's responsibilities under the PA have been assigned to the Department as part of the Surface Transportation Project Delivery Program (23 United States Code [USC] 327).

Local

City of Dublin

<u>City of Dublin General Plan</u>

The City of Dublin's General Plan contains the following policy related to cultural and tribal resources:

Guiding Policy 7.7.1.A.2: Follow State regulations as set forth in Public Resources Code Section 21083.2 regarding discovery of archaeological sites, and Historical Resources, as defined in Section 5020.1 of the Public Resources Code.

Eastern Dublin Specific Plan

The City of Dublin's Eastern Dublin Specific Plan (EDSP) contains the following policies and programs related to cultural and tribal resources:

Policy 6-24: The presence and significance of archaeological or historic resources will be determined, and necessary mitigation programs formulated, prior to development approvals for any of the sites identified in the cultural resource survey prepared for this plan.

Policy 6-25: The discovery of historic or prehistoric remains during grading and construction will result in the cessation of such activities until the significance and extent of those remains can be ascertained by a certified archaeologist.

Policy 6-26: All properties with historic resources which may be impacted by future development shall be subjected to in-depth archival research to determine the significance of the resource prior to any alteration.

Policy 6-27: Where the disruption of historic resources is unavoidable, encourage the adaptive re-use or restoration of historic structures (such as the old schoolhouse, several barns, and Victorian residences currently in the area) whenever feasible.

Action Program: Cultural Resources

Program 6P: The City of Dublin shall require the following actions as part of the application process for development within eastern Dublin:

- Site Sensitivity: Based on the first stage cultural resource survey of the area conducted as background for the Plan, the City will make a determination of whether the subject site has been identified as having prehistoric or historic resources potentially located on it.
- Research: For those sites with potential resources, a second level of detailed research and field reconnaissance will be required to determine the level of archaeological or historical significance. This research will be the responsibility of the development applicant and be conducted by a qualified archaeologist. The research will be consistent with the guidelines for prehistoric and historic resources provided in the cultural resources survey prepared for eastern Dublin.
- Mitigation: For those sites that contain significant resources, a mitigation plan must be developed which is consistent with the policies in this Specific Plan and current CEQA guidelines concerning cultural resources.

City of Dublin Municipal Code

Section 8.48.020 Archaeology Regulations of the Dublin Municipal Code states that if archaeological resources, prehistoric or historic artifacts are discovered during any construction or excavation, the following regulations shall apply:

A. Cessation of construction activities. Construction and/or excavation activities shall cease immediately, and the Department of Community Development shall be notified.
B. Procedure. A qualified archaeologist shall be consulted to determine whether any such materials are significant prior to resuming groundbreaking construction activities. Standardized procedures for evaluating accidental finds and discovery of human remains shall be followed as prescribed in Appendix G of the California Environmental Quality Act Guidelines.

Alameda County

Alameda County General Plan, East County Area Plan

The East Alameda County Area Plan includes policies and goals meant to protect cultural resources. The following goal, program, and policies are relevant to the Project:

Goal: To protect cultural resources from development

Policy 136: The County shall identify and preserve significant archaeological and historical resources, including structures and sites which contribute to the heritage of East County.

Policy 137: The County shall require development to be designed to avoid cultural resources or, if avoidance is determined by the County to be infeasible, to include and implement appropriate mitigation measures that offset the impacts.

Program 59: The County shall require a background and records check of a project area if a project is located within an extreme or high archaeological sensitivity zone as determined by the County. If there is evidence of an archaeological site within a proposed project area, an archaeological survey by qualified professionals shall be required as a part of the environmental assessment process. If any archaeological sites are found during construction, all work in the immediate vicinity shall be suspended pending site investigation by a qualified archaeology professional. Proposed structures or roads on property that contains archaeological sites should be sited in consultation with a professional archaeologist to avoid damaging the archaeological sites. The County shall follow CEQA Guidelines for cultural resource preservation procedures in reviewing development projects located near identified cultural resources. Appropriate measures for preserving an historic structure include renovation or moving it to another location. Proposals to remove historic structures shall be reviewed by qualified professionals.

City of Livermore

City of Livermore General Plan

Livermore's General Plan, Community Character Element, includes a discussion of cultural resources and provides goals, objectives, policies, and actions to preserve and enhance cultural resources in Livermore. The following policies are relevant to the Project:

CC-3.1.P3 Whenever a historical resource is known to exist in or near a proposed project area, the City shall require an evaluation by qualified professionals as a part of the environmental assessment process.

CC-3.4.P1 The City shall require proper archaeological or paleontological testing, research, documentation, monitoring, and safe retrieval of archaeological and cultural resources as part of a City established archaeological monitoring and mitigation program.

CC-3.4.P2 Whenever there is evidence of an archaeological or paleontological site within a proposed project area, an archaeological survey by qualified professionals shall be required as a part of the environmental assessment process.

CC-3.4.P3 If an archaeological site is discovered during construction, all work in the immediate vicinity shall be suspended pending site investigation by qualified professionals. If, in the opinion of a qualified professional, the site will yield new information or important verification of previous findings, the site shall not be destroyed.

AFFECTED ENVIRONMENT

This section describes the Project's effect on cultural and tribal cultural resources. Information used to prepare this includes the following resources:

- Historic Property Survey Report (HPSR)
- Final Archaeological Survey Report (ASR)
- Extended Phase 1 Testing Report
- A California Historical Research Information System (CHRIS) search completed by the Northwest Information Center (NWIC)
- A Sacred Lands File search completed by the Native American Heritage Commission (NAHC)
- Section 106 and Assembly Bill 52 (AB 52) coordination with local Native American tribes

The study area for cultural resources is referred to as the area of potential effects (APE). For the purpose of evaluating potential effects to architectural resources, the architectural APE was established and includes the entirety of each parcel the Project site traverses, along with some

adjacent areas to the west and east of the Project site. The architectural APE is used to evaluate direct and indirect effects to architectural resources.

To evaluate potential effects to prehistoric and historic-period archaeological resources, an archaeological APE was established. The archaeological APE includes all areas where ground disturbance could occur and is equivalent to the construction footprint for the Project. The archaeological APE includes a vertical element as well as a horizontal (or plan view) component, to account for grading and excavation that would be required for the Project. To evaluate the likelihood of undiscovered archaeological resources within the archaeological APE, a records search was completed that includes a 1-mile buffer around the Project site.

There are no Section 4(f) resources in the study area, as described in **Appendix A**.

Prehistoric Archaeological Resources and Historic-Period Archaeological Resources

A NWIC records search was completed for the Project in February 2017 and included a 0.25-mile radius surrounding the Project site. In November 2018, an additional NWIC records search was completed using a 1-mile buffer. Information on previous archaeological surveys and recorded sites within a 1-mile radius of the APE was gathered to identify and evaluate the potential for the presence of archaeological resources at the Project site. The study included a review of archaeological and historical literature, as well as records and maps on file at NWIC. The *California Inventory of Historic Resources* (1976) and the Office of Historic Preservation's Historic Property Data File (HPDF) for Dublin, Livermore and the County were examined. The records searches failed to identify previously recorded archaeological resources within the APE. One previously recorded archaeological resource was identified within 0.25 mile of the Project site (beyond the APE) and has prehistoric and historic components.

The pedestrian survey completed for the Project covered the entire archaeological APE, and surface visibility ranged from 0 to 90 percent due to varying coverage by cheatgrass, an invasive annual grass that obscures much of the ground within the APE. No prehistoric archaeological resources were observed, and three potential historic archaeological resources were recorded. The historic ruins of a small ranch, including one standing corral and associated structural debris (the Corral Site), and the remains of a farmstead/ranch complex (the Farmstead Site) were within the Project APE.

Corral Site

The historic ruins of a small ranch, including one standing corral and associated structural debris, were identified within the archaeological APE. The site is believed to be partially within the proposed construction and operational footprint of the Project and extends south of the Project site. Visible surface remains include a standing corral, ruins of a fence and cattle chute, a concrete pad, and piled and scattered structural debris and refuse. Given the length of occupation of the ranch over the last 100 years (based on historical records research), the surface remains indicated a potential for additional subsurface archaeological materials such as a cellar, privy, or trash pits.

Accordingly, in June and July of 2019, archaeologists revisited the Corral Site and performed Extended Phase I subsurface testing. These excavations did not yield any cultural deposits or diagnostic artifacts. The only cultural materials found were colorless glass fragments (flat and vessel) and ferrous metal (nails, spikes, straps, and sheet metal.) Because site investigations yielded no evidence of subsurface deposits, archaeologists concluded that the vertical site boundary is limited to the surface. The Corral Site was deemed exemptible from further evaluation as per Stipulation VIII.C.1. and Attachment 4 of the PA.

Farmstead Site

This resource is a historic-era archaeological site that represents the remains of a farmstead/ranch complex including a dwelling and outbuildings. Aerial photographs indicate that it was razed in 2017 or early 2018. Overall, the site contains the pads or depressions of seven structures, a large wooden debris scatter, two concrete rubble piles, two lumber piles, two brick concentrations, a small corroding trailer, two fire hydrants, several non-native ornamental trees, a large earthen pile, and multiple driveways and road-cuts. The site includes non-native ornamental trees, including four that appear to be Siberian elms (*Ulmus pulmila*), one large Chinese elm (*Ulmus parvifolia*), and two small salt cedar tamarisk shrubs (*Tamarix ramosissima*). No artifacts were observed during the site survey.

Based on surface conditions, there is potential for buried historic-period archaeological deposits at this site. While the pasture associated with the site is within the archaeological APE, none of the archaeological features extend into the APE. The pasture has a low potential for subsurface deposits. The Farmstead Site will be protected from construction related activities through designated of an Environmentally Sensitive Area (ESA) as per Stipulation X.B.1.a and Attachment 5 of the PA.

Architectural Resources

Based on the results of both NWIC records searches completed for the Project, there are no previously identified architectural resources within the architectural APE. The pedestrian survey completed for the Project identified two properties which were evaluated for NRHP eligibility, and it was determined they are not eligible for inclusion in the NRHP (SHPO concurred on November 7, 2019 [FHWA_2019_1011_001]). Each of these resources is discussed below.

1881 Collier Canyon Road

A historic-period farm complex on the northern edge of Amador Valley was evaluated for NRHP eligibility under criteria A, B, C, and D. It currently retains four buildings over 50 years in age: a barn (circa 1958), two mid-20th-century single family residences, and a shed. A single-family residence constructed circa 1980 is located on the northwest portion of the property. Modern modular sheds and containers associated with operation of the current business are also located on the property. The property also includes hardscaped such as paved areas and landscaped vegetation. The property was determined to not eligible for the NRHP.

NRHP Criteria Evaluation

Criterion A: This resource does not meet Criterion A for association with events that have made a significant contribution to the broad patterns of our history. The property represented a family farm or ranch from the early-mid 20th century and thus is associated more broadly with the mid-20th century agricultural of Amador Valley and the outskirts of Livermore. During the mid-20th century the dominant historical pattern was the expansion of suburbs into the formerly agricultural outskirts, rather than the development of agriculture itself. Agriculture was firmly established in the region at the time of the property's construction and there is no indication that this property was historically significant in establishing or growing the agricultural economy in the area. The resource could not be tied to any particular labor force or immigrant group. While certainly participating in a broader pattern of agricultural development, the property at PW-127-3 is not a particularly good representative of or directly associated with historical events or themes of local, state, or national significance. House 3 was constructed circa 1980 and was constructed well after the period of historical use of the property. The building is not directly related to the potential historical significance of the property. Therefore, this site is not eligible for the NRHP under Criterion A.

Criterion B: This resource does not meet Criterion B for any direct association with lives of significant persons in our past. Archival research has provided little information regarding the lives of the previous owners and tenants on the property. The paucity of information regarding individuals specifically associated with the property is suggestive of the lack of historical significance of those individuals. Research yielded no indication of association between the site or any of the individual buildings and any historically significant individuals or groups within the region, state, or nation. Therefore, the site is not eligible for listing on the NRHP under Criterion B.

Criterion C: This resource does not meet Criterion C for embodying the distinctive characteristics of a type, period, or method of construction; or as a representative work of a master; or for possessing high artistic values. The individual buildings on the property are common and unremarkable examples of these building types. Many barns, sheds, and single-family homes of similar construction and design were built throughout California and the United States during the 20th century and these building represent neither the oldest examples not the most distinctive examples of these property types. There is no indication that the layout of these buildings represents a master plan of development that would represent a departure from standard housing and farming practices in the region. House 3 was constructed circa 1980 and was constructed well after the period of historical use of the property. The building is not directly related to the potential historical significance of the property. While the architect and builder of the buildings on the property was not identified, it is unlikely that these buildings represent the work of a master. Therefore, this resource and the modern buildings are not eligible for the NRHP under Criterion C.

Criterion D: The buildings located on the parcel at 1881 Collier Canyon Road has not and is not likely to yield important information that furthers our knowledge of prehistory or of the history of the community, state, or nation, and as such is not significant under NRHP Criterion D. This evaluation does not include any potential historical archaeological deposits that may be related to the property.

1421 Collier Canyon Road

An agricultural property containing three sheds, two homes, a barn, and a water tank house was evaluated for NRHP eligibility under criteria A, B, C, and D. The site is surrounded by I-580 and Collier Canyon Road immediately to the south, both highly visible from the property, and other adjacent, modern developments such as Crosswinds Church to the south and a landscaping business to the west/northwest. Seven buildings and structures older than 50 years were recorded within the residential and agricultural property during the pedestrian survey. According to the 1870 United States Census records, the homes were occupied by a group of farm laborers. The property was determined to not eligible for the NRHP.

NRHP Criteria Evaluation

Criterion A: This resource does not meet Criterion A for association with events that have made a significant contribution to the broad patterns of our history. Research has indicated that the property may have been occupied as early as 1878, however; the buildings present on the property appear to have been constructed between 1939 and 1950. Based on available information, the Barn was constructed circa 1939 with the Outhouse, Tankhouse, and Windmill likely being constructed during that time. The property represented a family farm or ranch from the early-mid 20th century and thus is associated more broadly with the mid-20th century agricultural of Amador Valley. During the mid-20th century the dominant historical pattern was the expansion of suburbs into the formerly agricultural outskirts, rather than the development of agriculture itself. Agriculture was firmly established in the region at the time of the property's construction and there is no indication that this property was historically significant in establishing or growing the agricultural economy in the area. The resource could not be tied to any particular labor force or immigrant group. The orchard on the property may have been in continued use from the late 19th century, however; the practice of planting orchards to augment income or to supplement the family's diet was common throughout the 19th and 20th centuries. While certainly participating in a broader pattern of agricultural development, the property at PW-127-4 is not a particularly good representative of or directly associated with historical events or themes of local, state, or national significance.

Criterion B: Archival research has not identified an association between PW-127-4 and historically significant individuals or groups within the region, state, or nation. Archival research has provided little information regarding the lives of the previous owners and tenants on the property. The paucity of information regarding individuals specifically associated with the property is suggestive of the lack of historical significance of those individuals. Previous owners and occupants, such as Owen Owens and R.S. and H. Farrelly,

do not appear to have made particular impacts to the development of the area, state, or Nation. Therefore, PW-127-4 is not eligible for listing on the NRHP under Criterion B.

Criterion C: This resource does not meet Criterion C for embodying the distinctive characteristics of a type, period, or method of construction; or as a representative work of a master; or for possessing high artistic values. The individual buildings on the property are common and unremarkable examples of these building types. Many barns, sheds, and single-family homes of similar construction and design were built throughout California and the United States during the 20th century and these building represent neither the oldest examples not the most distinctive examples of these property types. The Barn is a good example of mid-20th century barns in Murray Township, however it is a property type which is very common for agricultural properties in the region. While the Outhouse, Tankhouse, and Windmill may have been constructed prior to the mid-20th century, research has yielded no information to suggest that they were constructed prior to other buildings on the property. The materials, design, and method of construction are consistent with property types that both pre-date and post-date the mid-20th century but, based on field observations, they were likely constructed around the same time as the Barn (circa 1939). Like the other buildings on the parcel, they are common and unremarkable examples of the building and structure types. House 1 and House 2 are both typical of inexpensive mid-20th-century single family houses lacking in design elements characteristic of any particular architectural style or movement. The three sheds at PW-127-4 are a good example of vernacular, utilitarian buildings constructed according to local needs from redwood lumber and commercially produced sheet metal and hardware, for vehicle and equipment storage on a rural lot. They lack ornamentation or design elements characteristic of any particular architectural style or movement. There is no indication that the layout of these buildings represents a master plan of development that would represent a departure from standard housing and farming practices in the region. While the architect and builder of the buildings on the property was not identified, it is unlikely that these buildings represent the work of a master. Therefore, this resource and the individual buildings and structures are not eligible for the NRHP under Criterion C.

Criterion D: The buildings located on the parcel at 1421 Collier Canyon Road have not and are not likely to yield important information that furthers our knowledge of prehistory or of the history of the community, state, or nation, and as such is not significant under NRHP Criterion D. This evaluation does not include any potential historical archaeological deposits that may be related to the property.

Native American Consultation

On January 31, 2017, PaleoWest contacted the NAHC by email to request information on known Native American traditional or cultural properties at or near the Project site, through a search of the Sacred Lands File. This communication included a request for a list of individuals or groups with cultural affiliation to the study area. A Sacred Lands file search was completed and did not identify any tribal cultural resources in the study area. However, records maintained by the NAHC and CHRIS are not exhaustive, and these searches do not preclude the existence of tribal cultural

resources. A list of interested Native American tribal representatives with traditional lands or cultural places within Alameda County was included in the NAHC response.

In February 2017, certified letters were sent to all Native American contacts provided by the NAHC describing the Project, providing a location map, and requesting any information and concerns the Tribes may have regarding the Project or study area. No written responses were received. In March 2017, a first round of follow up phone calls was completed and included all Native American contacts provided by the NAHC. The following contacts responded with requests:

- Coastanoan Rumsen Carmel Tribe: Mr. Tony Cerda requested a copy of the geotechnical report, a plan for unanticipated discoveries, and asked that he be notified if any cultural resources were encountered.
- Indian Canyon Mutsun Band of Costanoan Indians: Ms. Ann Marie Sayers asked for a phone call once the survey had been completed and recommended that a Native American monitor and archaeological monitor be present during any earth movement.
- Muwekma Ohlone Indian Tribe of the San Francisco Bay Area: Ms. Rosemary Cambra asked to be contacted immediately if any cultural resources were found.

An additional round of follow-up phone calls was made in March 2017 and follow-up emails were sent to Ms. Irene Zwierlein, Mr. Andy Galvan and Ms. Perez.

As required under California Assembly Bill 52 (AB 52), all Tribes that have requested to be included on the AB 52 lists of Dublin, the County, and Livermore were contacted. Letters were sent to each Tribe in June 2017 and November 2017. No responses have been received. In summary, consultation with the NAHC and with interested Native American individuals and groups provided by the NAHC has resulted in no additional information about specific cultural resources or sacred sites within the APE.

ENVIRONMENTAL CONSEQUENCES

Build Alternative

Architectural and Archaeological Resources

As described above, there are no NRHP-eligible architectural and archaeological resources within the APE.

A separate environmental document was prepared for the Project pursuant to the California Environmental Quality Act. That Environmental Impact Report (EIR) was completed prior to Extended Phase I testing being completed for the Corral Site. Accordingly, the EIR presumed the presence of buried historic-era archaeological resources. As described above, Extended Phase I testing confirmed there are no buried resources present at the Corral Site. Therefore, implementation of the Build Alternative would not result in an adverse effect to this resource.

As documented in the HPSR, given the potential for buried resources within the Farmstead Site outside of the direct areas of disturbance, a portion of the site will be designated as an environmentally sensitive area (ESA) during construction. A detailed ESA Action Plan has been prepared for the Project and is included as an attachment to the HPSR. With implementation of the ESA Action Plan, the finding for this resource is Finding of No Adverse Effect with Standard Conditions.

In addition to the resources described above, there is always some potential to encounter unanticipated buried resources during construction. This may include buried archaeological resources that are prehistoric or historic. While the likelihood of this is very low. **Measure CUL-1** is included to ensure any unexpected cultural resource finds are appropriately evaluated.

There are no known human remains within the Project site or APE. However, if human remains were to be uncovered during Project construction, **Measure CUL-2** would be implemented to ensure human remains are handled and disposed of properly.

Native American Consultation

As described above, a Sacred Lands File search completed for the Project site and vicinity, as determined by the NAHC, did not identify any site, feature, place, cultural landscape, sacred place, or object with cultural value to Native American tribes. Consultation with the NAHC and with interested Native American individuals and groups has not resulted in any additional information about specific cultural resources or sacred sites within the Project site or surrounding areas.

However, the possibility remains that Project construction could uncover buried, previously unidentified objects with cultural value to California Native American tribes. If a tribal cultural resource is discovered during Project construction, **Measure CUL-4** would be implemented. This measure requires a culturally affiliated Native American with knowledge of tribal cultural resources to be present to monitor all ground disturbing activities. Should any tribal cultural resources be discovered, consultation with culturally affiliated Native Americans is required to determine how to treat said resource.

No-Build Alternative

The No-Build Alternative would not change existing conditions. The Project would not be constructed, and no ground disturbance would occur. Therefore, the No-Build Alternative would have no effect on cultural resources.

AVOIDANCE, MINIMIZATION, AND/OR MITIGATION MEASURES

Measure CUL-1: If cultural materials are discovered during construction, all earth-moving activity within and around the immediate discovery area will be diverted until a qualified archaeologist can assess the nature and significance of the find.

Measure CUL-2: If human remains are discovered, California Health and Safety Code (H&SC) Section 7050.5 states that further disturbances and activities shall stop in any area or nearby area suspected to overlie remains, and the County Coroner contacted. If the remains are thought by the coroner to be Native American, the coroner will notify the Native American Heritage Commission (NAHC), who, pursuant to PRC Section 5097.98, will then notify the Most Likely Descendent (MLD). At this time, the person who discovered the remains will contact a Caltrans Professionally Qualified Staff (PQS) Archaeologist so that they may work with the MLD on the respectful treatment and disposition of the remains. Further provisions of PRC 5097.98 are to be followed as applicable.

Measure CUL-3: The following measures shall be implemented to ensure that any tribal cultural objects or items encountered during Project construction are properly identified and evaluated and avoided or preserved.

- A culturally affiliated Native American with knowledge of cultural resources shall be identified and agreed upon by the City of Dublin and local tribes listed by the NAHC and shall be present to monitor all ground-disturbing activities.
- If tribal cultural objects or items are encountered, the treatment of those objects or items shall be considered in coordination with culturally affiliated Native Americans. If avoidance or preservation in place is preferred, avoidance or preservation in place will be completed where feasible and agreed upon by culturally affiliated Native Americans and the local jurisdiction.
- Tribal cultural objects or items encountered during Project construction shall be treated with culturally appropriate dignity, considering the tribal cultural values and meaning of the resource.
- The disposition of recovered tribal cultural items that are not burial-associated shall be coordinated in consultation with culturally affiliated Native Americans.

Measure CUL-4: The Environmentally Sensitive Area (ESA) Action Plan approved for the Project in September 2019 shall be implemented. Implementation of the ESA Action Plan will ensure that portions of one archaeological resource site are protected from any potential effects during construction, by requiring protective measures such as signage, protective high-visibility temporary fencing, access restrictions, periodic monitoring by Caltrans PQS archaeologist or qualified consultant archaeologist, and specific contractual language to ensure that construction contractors comply with the ESA Action Plan.

2.3 PHYSICAL ENVIRONMENT

2.3.1 WATER QUALITY AND STORM WATER RUNOFF

REGULATORY SETTING

Federal

Clean Water Act

In 1972, Congress amended the Federal Water Pollution Control Act, making the addition of pollutants to the waters of the United States (U.S.) from any point source unlawful unless the discharge is in compliance with a National Pollutant Discharge Elimination System (NPDES) permit.[32] This act and its amendments are known today as the Clean Water Act (CWA). Congress has amended the act several times. In the 1987 amendments, Congress directed dischargers of storm water from municipal and industrial/construction point sources to comply with the NPDES permit scheme. The following are important CWA sections:

- Sections 303 and 304 require states to issue water quality standards, criteria, and guidelines.
- Section 401 requires an applicant for a federal license or permit to conduct any activity that may result in a discharge to waters of the U.S. to obtain certification from the state that the discharge will comply with other provisions of the act. This is most frequently required in tandem with a Section 404 permit request (see below).
- Section 402 establishes the NPDES, a permitting system for the discharges (except for dredge or fill material) of any pollutant into waters of the U.S. Regional Water Quality Control Boards (RWQCBs) administer this permitting program in California. Section 402(p) requires permits for discharges of storm water from industrial/construction and municipal separate storm sewer systems (MS4s).
- Section 404 establishes a permit program for the discharge of dredge or fill material into waters of the U.S. This permit program is administered by the U.S. Army Corps of Engineers (USACE).

The goal of the CWA is "to restore and maintain the chemical, physical, and biological integrity of the Nation's waters."

The USACE issues two types of 404 permits: General and Individual. There are two types of General permits: Regional and Nationwide. Regional permits are issued for a general category of activities

[32] A point source is any discrete conveyance such as a pipe or a man-made ditch.

when they are similar in nature and cause minimal environmental effect. Nationwide permits are issued to allow a variety of minor project activities with no more than minimal effects.

Ordinarily, projects that do not meet the criteria for a Regional or Nationwide Permit may be permitted under one of the USACE's Individual permits. There are two types of Individual permits: Standard permits and Letters of Permission. For Individual permits, the USACE decision to approve is based on compliance with U.S. Environmental Protection Agency's (U.S. EPA) Section 404 (b)(1) Guidelines (40 Code of Federal Regulations [CFR] Part 230), and whether the permit approval is in the public interest. The Section 404(b)(1) Guidelines (Guidelines) were developed by the U.S. EPA in conjunction with the USACE, and allow the discharge of dredged or fill material into the aquatic system (waters of the U.S.) only if there is no practicable alternative which would have less adverse effects. The Guidelines state that the USACE may not issue a permit if there is a least environmentally damaging practicable alternative (LEDPA) to the proposed discharge that would have lesser effects on waters of the U.S. and not have any other significant adverse environmental consequences. According to the Guidelines, documentation is needed that a sequence of avoidance, minimization, and compensation measures has been followed, in that order. The Guidelines also restrict permitting activities that violate water quality or toxic effluent[33] standards, jeopardize the continued existence of listed species, violate marine sanctuary protections, or cause "significant degradation" to waters of the U.S. In addition, every permit from the USACE, even if not subject to the Section 404(b)(1) Guidelines, must meet general requirements. See 33 CFR 320.4. A discussion of the LEDPA determination, if any, for the document is included in the Wetlands and Other Waters section.

State

Porter-Cologne Water Quality Control Act

California's Porter-Cologne Act, enacted in 1969, provides the legal basis for water quality regulation within California. This act requires a "Report of Waste Discharge" for any discharge of waste (liquid, solid, or gaseous) to land or surface waters that may impair beneficial uses for surface and/or groundwater of the state. It predates the CWA and regulates discharges to waters of the state. Waters of the state include more than just waters of the U.S., like groundwater and surface waters not considered waters of the U.S. Additionally, it prohibits discharges of "waste" as defined, and this definition is broader than the CWA definition of "pollutant." Discharges under the Porter-Cologne Act are permitted by Waste Discharge Requirements (WDRs) and may be required even when the discharge is already permitted or exempt under the CWA.

The State Water Resources Control Board (SWRCB) and RWQCBs are responsible for establishing the water quality standards (objectives and beneficial uses) required by the CWA and regulating

[33] The U.S. EPA defines "effluent" as "wastewater, treated or untreated, that flows out of a treatment plant, sewer, or industrial outfall."

discharges to ensure compliance with the water quality standards. Details about water quality standards in a project area are included in the applicable RWQCB Basin Plan. In California, RWQCBs designate beneficial uses for all water body segments in their jurisdictions and then set criteria necessary to protect those uses. As a result, the water quality standards developed for particular water segments are based on the designated use and vary depending on that use. In addition, the SWRCB identifies waters failing to meet standards for specific pollutants. These waters are then state-listed in accordance with CWA Section 303(d). If a state determines that waters are impaired for one or more constituents and the standards cannot be met through point source or non-point source controls (NPDES permits or WDRs), the CWA requires the establishment of Total Maximum Daily Loads (TMDLs). TMDLs specify allowable pollutant loads from all sources (point, non-point, and natural) for a given watershed.

State Water Resources Control Board and Regional Water Quality Control Boards

The SWRCB administers water rights, sets water pollution control policy, and issues water board orders on matters of statewide application, and oversees water quality functions throughout the state by approving Basin Plans, TMDLs, and NPDES permits. RWCQBs are responsible for protecting beneficial uses of water resources within their regional jurisdiction using planning, permitting, and enforcement authorities to meet this responsibility.

National Pollutant Discharge Elimination System (NPDES) Program

Municipal Separate Storm Sewer Systems (MS4)

Section 402(p) of the CWA requires the issuance of NPDES permits for five categories of stormwater dischargers, including MS4s. The U.S. EPA defines an MS4 as "any conveyance or system of conveyances (roads with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, human-made channels, and storm drains) owned or operated by a state, city, town, county, or other public body having jurisdiction over storm water, that are designed or used for collecting or conveying stormwater." The SWRCB or the RWQCB issues NPDES permits for five years, and permit requirements remain active until a new permit has been adopted. NPDES permits are required and issued for discharges from a MS4 serving a population of 100,000 or more for Phase I and serving a population of 10,000 or more for Phase II. Alameda County is within a Phase I area.

Construction General Permit

Construction General Permit, Order No. 2009-0009-DWQ (adopted on September 2, 2009 and effective on July 1, 2010), as amended by Order No. 2010-0014-DWQ (effective February 14, 2011) and Order No. 2012-0006-DWQ (effective on July 17, 2012). The permit regulates storm water discharges from construction sites that result in a Disturbed Soil Area (DSA) of one acre or greater, and/or are smaller sites that are part of a larger common plan of development. By law, all storm water discharges associated with construction activity where clearing, grading, and excavation result in soil disturbance of at least one acre must comply with the provisions of the General Construction Permit. Construction activity that results in soil disturbances of less than one acre is subject to this Construction General Permit if there is potential for significant water quality impairment resulting from the activity as determined by the RWQCB. Operators of regulated

construction sites are required to develop Storm Water Pollution Prevention Plans (SWPPPs); to implement sediment, erosion, and pollution prevention control measures; and to obtain coverage under the Construction General Permit.

The Construction General Permit separates projects into Risk Levels 1, 2, or 3. Risk levels are determined during the planning and design phases and are based on potential erosion and transport to receiving waters. Requirements apply according to the Risk Level determined. For example, a Risk Level 3 (highest risk) project would require compulsory storm water runoff pH and turbidity monitoring, and before construction and after construction aquatic biological assessments during specified seasonal windows. For all projects subject to the permit, applicants are required to develop and implement an effective SWPPP. In accordance with the Department's SWMP and Standard Specifications, a Water Pollution Control Program (WPCP) is necessary for projects with DSA less than one acre.

Section 401 Permitting

Under Section 401 of the CWA, any project requiring a federal license or permit that may result in a discharge to a water of the U.S. must obtain a 401 Certification, which certifies that the project will be in compliance with state water quality standards. The most common federal permits triggering 401 Certification are CWA Section 404 permits issued by the USACE. The 401 permit certifications are obtained from the appropriate RWQCB, dependent on the project location, and are required before the USACE issues a 404 permit.

In some cases, the RWQCB may have specific concerns with discharges associated with a project. As a result, the RWQCB may issue a set of requirements known as WDRs under the State Water Code (Porter-Cologne Act) that define activities, such as the inclusion of specific features, effluent limitations, monitoring, and plan submittals that are to be implemented for protecting or benefiting water quality. WDRs can be issued to address both permanent and temporary discharges of a project.

Local

City of Dublin

City of Dublin General Plan

The City of Dublin General Plan, Chapter 12, Environmental Resources Management: Water Resources Management contains information and polices related to the conservation and

management of water resources, riparian corridors, and watershed lands within Dublin.[34] This element includes Dublin's goals pertaining to water quality and stormwater management, including the following guiding policies:

- Protect the quality and quantity of surface water and groundwater resources that serve the community
- Protect water quality by minimizing stormwater runoff and providing adequate stormwater facilities

City of Dublin Municipal Code

Chapter 7.74 (Stormwater Management and Discharge) of the Dublin Municipal Code controls discharges to municipal storm sewers from spills, dumping, or disposal; and reduces pollutants in stormwater discharges.[35] The purpose of this chapter is to ensure public health, safety, and general welfare by:

- Eliminating non-stormwater discharges to the municipal separate storm sewer
- Controlling the discharge to municipal separate storm sewers from spills, dumping or disposal of materials other than stormwater
- Reducing pollutants in stormwater discharges to the maximum extent practicable

Alameda County

Alameda County is subject to regulation by the San Francisco Bay RWQCB and is under a Phase I MS4. The Project area is under regional and local requirements and is subject to the "California Regional Water Quality Control Board San Francisco Bay Region Municipal Regional Stormwater NPDES Permit" (Order R2-2015-0049 NPDES Permit No. CAS612008). This permit is known as the MRP and presents the provisions for permanent post-construction stormwater requirements related to development, redevelopment and roadway projects outside of Caltrans right-of-way.

The MRP in Alameda County is administered by the ACCWP. The ACCWP has developed a manual called "C.3 Stormwater Technical Guidance" to assist designers and reviewers in complying with

[34] City of Dublin, 2017. City of Dublin General Plan, Ch. 12 Environmental Resources Management: Water Resources Element. Available: https://www.dublin.ca.gov/DocumentCenter/View/10560/Chapter-12. Accessed: October 10, 2019.

[35] City of Dublin, 2017. Dublin Municipal Code, Ch. 7.74 Stormwater Management and Discharge Control. Available: https://www.dublin.ca.gov/DocumentCenter/View/570/Muni-Code-Section-774-Stormwater. Accessed: June 5, 2018.

post-construction stormwater treatment requirements as well as Hydromodification Management requirements. For new roadway projects, the MRP requires post-construction stormwater treatment be provided for all new impervious areas.

Alameda County Watercourse Protection Ordinance

For unincorporated areas within Alameda County (County), the Watercourse Protection Ordinance restricts the discharge of pollutants to watercourses and the encroachment of new development into watercourses without first obtaining a permit from the County.[36] This includes setback limits near watercourses. Implementation of this ordinance serves to protect surface water and groundwater recharge areas from erosion, sedimentation, and sources of pollution.

City of Livermore

City of Livermore General Plan

The Livermore General Plan, Chapter 8, Open Space and Conservation Element ensures the comprehensive and long-range preservation and management of open space land for the protection of natural resources, economic uses, outdoor recreation, and as a scenic resource. The Open Space and Conservation Element contains goals and policies regarding watersheds, wetlands, creeks, surface water, and groundwater quality and preservation.[37]

AFFECTED ENVIRONMENT

Information for this section is provided in the Water Quality Report, prepared in July 2018.[38] The study area for water quality includes the Project site, receiving water bodies, and the larger watershed.

Watershed and Receiving Waters

The Project site is within the San Francisco Bay RWQCB jurisdiction, within the South Bay Hydrologic Unit. Locally, the Project site is within the Arroyo Mocho and the Arroyo las Positas

[36]Alameda County, 2018. *Alameda County, California - Municipal Code, Ch 13.12 Water Course Protection.* Available: https://library.municode.com/ca/alameda_county/codes/code_of_ordinances?nodeId=TIT13PUSE_CH13.12WAPR. Accessed: June 6, 2018.

[37]City of Livermore, 2004. City of Livermore General Plan 2003-2025. Amended December 2014. Accessed: October 10, 2019.

[38]BKF, 2018a. Water Quality Report - Dublin Boulevard-North Canyons Parkway Extension Project.

watersheds, and Lower Arroyo Mocho sub-watershed. Arroyo las Positas merges with Arroyo Mocho, which then flows into Arroyo de la Laguna prior to emptying into Alameda Creek.

No man-made drainage improvements exist within the undeveloped Project site, although there are several planned or existing systems at the Dublin Boulevard/Fallon Road and North Canyons Parkway/Doolan Road intersections. Local drainage from the study area flows north-to-south as sheet flow or concentrated flow through intermittent or ephemeral drainage areas following the natural topography before entering one of the three drainage systems that cross I-580:

- An east-west culvert within the Caltrans I-580 right-of-way that enters a stormwater collection system beneath Fallon Road before crossing under I-580 to the west
- A north-south culvert crossing under Collier Canyon Road that extends to the south under I-580
- Cottonwood Creek, which flows into Arroyo Las Positas south of I-580 before entering Arroyo Mocho

After crossing I-580, all runoff from the Project site discharges into Arroyo de la Laguna, then flows into Alameda Creek and ultimately empties into the San Francisco Bay.

Groundwater

The Project site is within the boundaries of the Livermore Valley groundwater basin, which extends from the Pleasanton Ridge east to the Altamont Hills and from the Livermore Upland north to the Orinda Upland.[39] Surface drainage features include Arroyo Valle, Arroyo Mocho, and Arroyo las Positas as principal streams, with Alamo Creek, South San Ramon Creek, and Tassajara Creek as minor streams.

The Livermore Valley groundwater basin provides municipal, domestic, industrial and agricultural water supply. Alameda County Flood Control and Water Conservation District, Zone 7 maintains an annual hydrologic supply and demand inventory. The groundwater budget is essentially in balance under average hydrologic conditions, which means that annual groundwater usage is completely replenished with recharge and groundwater is not being depleted. Historical geotechnical testing in the study area encountered groundwater approximately 10-39 feet below grade, but shallower

[39] California Department of Water Resources, 2006. California's Groundwater Bulletin 118 - Livermore Valley Groundwater Basin. Available: https://water.ca.gov/LegacyFiles/groundwater/bulletin118/basindescriptions/2-10.pdf. Accessed: November 28, 2018.

groundwater levels may be present throughout the Project site, particularly at the Cottonwood Creek crossing.[40]

303(d) Impaired Waters

Cottonwood Creek is not listed as a 303(d) impaired waterbody. Arroyo Mocho is a 303(d) Category 5 waterbody, which means this watercourse does not meet SWRCB water quality standards and a TMDL is required, but not yet completed, for at least one of the pollutants listed for this segment. Listed pollutants in Arroyo Mocho include; diazinon[41] related to urban stormwater runoff and temperature related to channelization, habitat modification, and removal of riparian vegetation.

ENVIRONMENTAL CONSEQUENCES

Build Alternative

Construction

Construction of the Build Alternative would involve ground disturbing activities such as excavation, trenching, grading, demolition, and vegetation removal, which could result in runoff that contains sediment and other pollutants that could degrade water quality if not properly controlled. Fueling or maintenance of construction vehicles would occur within the construction footprint during construction, which poses a risk of accidental spills or releases of fuels, oils, or other potentially toxic materials. An accidental release of these materials could pose a threat to water quality if contaminants enter storm drains, open channels, or surface water receiving bodies (i.e., Cottonwood Creek). Construction activities that intrude into the groundwater table or require dewatering could also introduce loose soils and pollutants, resulting in increased sedimentation and a temporary impact to groundwater quality.

The Alternative would be subject to a NPDES General Construction Permit, issued by the RWQCB, which would stipulate water quality control requirements. These requirements include the implementation of a SWPPP to identify potential pollutant sources and prescribe best management practices (BMPs) to avoid impacts to surface water or groundwater quality during construction. Such BMPs could include the following:

- Provide for waste management

[40]BKF, 2018c. Geotechnical Feasibility Summary- Dublin Boulevard-North Canyons Parkway Extension Project.

[41]Diazinonis an insecticide used in agriculture to control insects on fruit, vegetable, nut, and field crops.

- Establish proper building material staging areas
- Designate paint and concrete washout areas
- Establish proper equipment/vehicle fueling and maintenance practices
- Control equipment/vehicle washing and allowable non-stormwater discharges
- Develop a spill prevention and response plan

Grading and earthmoving during construction would alter upland topography across the Project site, which directly influences the direction and timing of stormwater and flood flows. Construction-induced erosion could also temporarily increase sedimentation in receiving water bodies throughout the construction period. However, construction activities would be subject to SWPPP erosion-control requirements, and temporary disturbance areas used for equipment access and staging would be restored to pre-Project topography upon the completion of construction activities. Construction of the Cottonwood Creek bridge would not take place within the watercourse or have direct impacts on the Creek itself. Therefore, construction activities would not permanently alter existing drainage patterns resulting in substantial erosion, siltation, or flood-related damage. Implementation of a SWPPP would ensure construction does not adversely affect water quality.

Operation

Erosion and Stormwater Quality

The Build Alternative would increase the amount of impervious surface on the Project site by 19 acres. Permanent effects to water quality could result from the addition of impervious area (roadway pavement, concrete, sidewalks, etc.). This additional impervious area would prevent runoff from naturally dispersing and infiltrating into the ground, resulting in increased concentrated flow. When a site is developed, much of the rainwater can no longer infiltrate into the soils, so it flows offsite at a faster rate and in greater volume. As a result, erosion may occur in creeks and channels downstream of the Project site. The additional flow has the potential to transport an increased amount of sediment and pollutants to waterways and water resources and may increase erosion from increases in velocity and volume of storm water runoff.

The NPDES MRP includes provisions for permanent post-construction stormwater treatment for roadway projects. The ACCWP administers Alameda County's MRP and developed the *C.3 Stormwater Technical Guidance* manual to assist compliance with post-construction stormwater treatment requirements. The ACCWP *C.3 Stormwater Technical Guidance* manual outlines BMPs to reduce water pollution, including on-site source control measures and Low Impact Development

(LID) features.[42] These required C.3 post-construction protocols would ensure stormwater conveyance and treatment systems proposed as a part of the Build Alternative adequately treat runoff prior to discharge offsite.

The Build Alternative would include facilities to collect and treat runoff from impervious surfaces prior to discharge into the stormwater system. Stormwater treatment facilities would include biofiltration swales proposed in the median and parkway strips, and if needed, detention basins at the base of embankments.

These facilities would ensure stormwater collection and treatment would not compromise surface water quality or result in increased, uncontrolled stormwater flows to existing stormwater drainage facilities or receiving water bodies. Once operational, these facilities would also minimize the potential for groundwater quality degradation. As discussed, polluted stormwater generated within the roadway would be treated prior to discharge into pervious areas or drainages that provide a connection to groundwater. As a result of Build Alternative's biofiltration components and the proposed storm drain, stormwater would continue to ultimately discharge to the same water bodies as it does under existing conditions, despite the addition of impervious surfaces.

Effects to Groundwater

The increased impervious area resulting from the Build Alternative would reduce the available area for stormwater infiltration. The reduction of infiltration through soils has the potential to result in loss in volume or amount of water that previously recharged localized aquifers. The reduction in local aquifer and groundwater recharge also has the potential to affect the beneficial uses of groundwater basins.

The Ygnacio Valley groundwater basin covers 15,900 acres. The additional impervious area created by the Build Alternatives would affect 0.03 percent (4.8 acres) of the groundwater basin which would have a negligible effect on groundwater recharge. Further, as described above, stormwater infrastructure installed as a part of the Build Alternative would ensure the existing hydrology is maintained, further minimizing affects to groundwater recharge.

No-Build Alternative

The No-Build Alternative assumes that the Project site would remain in its existing condition and no further action of improvements would occur. Under this alternative, the existing topography

[42] LID refers to systems and practices that can reduce runoff and pollutant loadings by managing runoff as close to its source(s) as possible. LID includes overall site design approaches and individual small-scale stormwater management practices that promote the use of natural systems for infiltration, evapotranspiration, and the harvesting and use of rainwater.

would remain unchanged. The No-Build Alternative would therefore not affect the water quality or storm water runoff within the Project limits.

AVOIDANCE, MINIMIZATION, AND/OR MITIGATION MEASURES

Short term potential effects to water quality during the construction phase are avoided and or minimized through the use of Construction Site BMPs, while the long term potential impacts due to increased impervious surfaces, and operation and maintenance of the roadway or other Caltrans facilities are avoided/minimized through the use of Design Pollution Prevention BMPs, Treatment BMPs and Maintenance BMPs. No additional avoidance, minimization, or mitigation is required.

2.3.2 GEOLOGY/SOILS/SEISMIC/TOPOGRAPHY

REGULATORY SETTING

Federal

For geologic and topographic features, the key federal law is the Historic Sites Act of 1935, which establishes a national registry of natural landmarks and protects "outstanding examples of major geological features."

State

This section also discusses geology, soils, and seismic concerns as they relate to public safety and Project design. Earthquakes are prime considerations in the design and retrofit of structures. Structures are designed using the Department's Seismic Design Criteria (SDC). The SDC provides the minimum seismic requirements for highway bridges designed in California. A bridge's category and classification will determine its seismic performance level and which methods are used for estimating the seismic demands and structural capabilities. For more information, please see the Department's Division of Engineering Services, Office of Earthquake Engineering, Seismic Design Criteria.

California Code of Regulations

Title 24 of the California Code of Regulations, also known as the California Building Standards Code, sets minimum requirements for building design and construction. The 2016 version of the California Building Standards Code is effective as of January 1, 2017. The California Building Standards Code is a compilation of three types of building standards from three different origins:

- Building standards that have been adopted by state agencies without change from building standards contained in national model codes
- Building standards that have been adopted and adapted from the national model code standards to meet California conditions; and

- Building standards, authorized by the California legislature, that constitute extensive additions not covered by the model codes that have been adopted to address particular California concerns

Alquist-Priolo Earthquake Faulting Act

The California Legislature passed the Alquist-Priolo Earthquake Fault Zoning Act in 1972 to mitigate the hazard of surface faulting to structures. The Alquist-Priolo Earthquake Fault Zoning Act's main purpose is to prevent the construction of buildings used for human occupancy astride the surface trace of active faults, and to require adequate structure setbacks from active faults.

Seismic Hazards Mapping Act

The Seismic Hazard Mapping Act was adopted by the California Legislature in 1990 to reduce public health and safety threats and to minimize property damage caused by earthquakes. The act directs the California Geological Survey to identify and map areas prone to earthquake hazards, such as liquefaction, earthquake induced landslides, and ground shaking. The act requires site-specific geotechnical investigations to identify potential seismic hazards and formulate mitigation measures prior to permitting most developments designed for human occupancy within seismic hazard zones.

Local

City of Dublin

City of Dublin General Plan

The Dublin General Plan, Chapter 8, Environmental Resources Management: Seismic Safety & Safety Element requires that safety measures are implemented to protect the community from any unreasonable risk associated with the effects of seismically induced ground rupture, ground shaking, ground failure, tsunami, seiche, and dam failure; slope instability leading to mudslides and landslides; subsidence, liquefaction and other seismic and geologic hazards; flooding; and wildland and urban fires.[43] Notably, Implementing Policy 8.2.1.B.1 identifies the following structural and grading requirements:

a) All structures shall be designed to the standards delineated in the Dublin Building Code and Dublin's Grading Ordinance. A "design earthquake" shall be established by an engineering geologist for each structure for which ground shaking is a significant design factor.

[43]City of Dublin, 2017. City of Dublin General Plan. Available: https://www.dublin.ca.gov/DocumentCenter/View/10560/Chapter-12.

Accessed: October 10, 2019.

b) Generally, facilities should not be built astride potential rupture zones, although certain low-risk facilities may be considered. Critical facilities that must cross a fault, such as oil, gas, and water lines, shall be designed to accommodate the maximum expected offset from fault rupture. Site specific evaluations shall determine the maximum credible offset.

City of Dublin Municipal Code

The Dublin Municipal Code is a compilation of the applicable ordinances of a municipality and sets forth Dublin's laws. Chapter 7.16, Grading Regulations, ensures the intended use of a graded site is consistent with the General Plan, any adopted specific plans, and applicable city ordinances, including the zoning ordinance.[44]

Eastern Dublin Specific Plan

Eastern Dublin Specific Plan (EDSP) Section 6.4.1, Geology, Soils, and Grading discusses slope stability, erosion, and relevant policies. The EDSP describes the north-eastern portion of the specific plan study area as particularly susceptible to slope instability and rates potential damage to future development improvements as high unless mitigated. The policies included in the EDSP define the acceptable slope percentages that structures may be built upon and defines at what slope percentages limited grading and repair of landslides is permitted. It also requires new development to provide effective control of soil erosion during construction activities and when altering site drainage characteristics.

Alameda County

Alameda County Safety Element

The Alameda County Safety Element provides regulatory guidance to resolve development issues that arise from known or previously unknown hazards.[45] Chapter 1.2, Seismic/Geologic Hazards, includes descriptive information, analysis and policies pertaining to geologic, seismic, flood and fire hazards within the County. The focus of the Safety Element is to minimize human injury, loss of life, property damage, and economic and social dislocation due to natural and human-made hazards.

[44]City of Dublin, 2019. Dublin Municipal Code, Ch. 7.16 Grading Regulations. Available: https://www.codepublishing.com/CA/Dublin/?Dublin09/Dublin0912.html&?f. Accessed: October 10, 2019.

[45]Alameda County Community Development Agency. 2013. Alameda County Safety Element. Amended 2014.

Alameda County General Ordinance Code

The Alameda County General Ordinance Code, Chapter 15.36, Grading, Erosion and Sediment Control, regulates grading on private property within unincorporated areas of the county.[46] This Code is intended to:

- Safeguard individuals, property, and public welfare
- Avoid pollution of watercourses with nutrients, sediments, or other earthen materials generated on or caused by surface runoff on or across the permit area
- Ensure that the intended use of a graded site is consistent with the County General Plan, any adopted specific plans, and applicable county ordinances including the zoning ordinance.

Alameda County General Plan, East County Area Plan

The East County Area Plan includes goals and policies pertaining to soil and slope stability, seismicity, and geologic hazards. The following goals and policies apply to the Project:

Goal: To minimize the risks to lives and property due to soil and slope instability hazards.

Policy 307: The County shall encourage Zone 7, cities, and agricultural groundwater users to limit the withdrawal of groundwater in order to minimize the potential for land subsidence.

Policy 308: The County shall not permit development within any area outside the Urban Growth Boundary exceeding 25 percent slopes to minimize hazards associated with slope instability.

Goal: To minimize the risks to lives and property due to seismic and geologic hazards.

Policy 309: The County shall not approve new development in areas with potential for seismic and geologic hazards unless the County can determine that feasible measures will be implemented to reduce the potential risk to acceptable levels, based on site-specific analysis. The County shall review new development proposals in terms of the risk caused by seismic and geologic activity.

Policy 310: The County, prior to approving new development, shall evaluate the degree to which the development could result in loss of lives or property, both within the development and beyond its boundaries, in the event of a natural disaster.

[46] Alameda County Community Development Agency. 2013. Alameda County Safety Element. Amended 2014.

Policy 312: The County shall ensure that major transportation facilities and pipelines are designed, to the extent feasible, to avoid or minimize crossings of active fault traces and to accommodate fault displacement without major damage that could result in long-term disruption of service.

City of Livermore

City of Livermore General Plan

Livermore's General Plan, Public Safety Element, provides information about risks in Livermore due to natural and created hazards.[47] Its policies are designed to protect the community as much as possible from seismic, flood, geologic and wildfire hazards. This element establishes mechanisms to reduce death, injuries, damage to property and to address the negative results from public safety hazards like flooding, fires and seismic events. Said mechanisms are highlighted in the policies and ordinances that are required of development. Policy Objective PS-1.1 of the Livermore General Plan's Public Safety element includes policies for new land development in order to prevent the creation of new geologic hazards. Policies under this objective that are relevant to the Project are outlined below

Policy P1. Urban development within earthquake fault zones and areas of high landslide susceptibility, shown in Figure 10-3, shall be conditioned upon the preparation of site-specific geotechnical investigations.

Policy P2. The City shall rely on the most current and comprehensive geologic hazard mapping available to assist in the evaluation of potential seismic hazards associated with proposed new development. Projects proposed in areas identified as being subject to moderate or high geologic hazard shall be required to conduct site-specific geotechnical investigation.

Policy P3. No structure proposed for human occupancy shall be placed across the trace of any active or potentially active fault within the Planning Area. The Greenville fault and Las Positas fault shall be assumed active, and the Livermore fault shall be assumed potentially active, unless and until proven otherwise.

Policy P4. Geologic and engineering studies shall be required for all proposed building projects, per State law, and all critical facilities (schools, hospitals, fire and police stations) within the City so that these facilities can be constructed in a manner that mitigates site-specific geotechnical challenges and will minimize the risk to the public from seismic hazards.

[47]City of Livermore. 2004. City of Livermore General Plan 2003-2025. Amended December 2014.

Policy P5. Construction shall be prohibited in areas with severe erosion (slopes over 10 percent), as mapped by the USDA's Natural Resources Conservation Service, unless it can be clearly demonstrated through geotechnical engineering analysis that the project will not contribute to increased erosion, sedimentation or runoff.

Policy P6. Development shall be prohibited in areas susceptible to slope failure (defined as landslide susceptibility areas 3 and 4 on Figure 10-3 or current hazard mapping), per State law, unless site-specific geotechnical investigation indicates that landslide hazards can be effectively mitigated.

Policy P7. Prohibit development on expansive soils which are subject to a high probability of sliding; developments proposed below areas of expansive soils in foothill areas shall be conditioned to avoid damage from potential slide areas.

AFFECTED ENVIRONMENT

This section describes effects on geology, soils, seismicity, and topography that would be caused by Project implementation. Information from the Geotechnical Feasibility Study prepared in July 2018 was used to inform this section. The *Geotechnical Feasibility Study* evaluates the background geologic setting in the geologic study area and identifies potential geotechnical constraints that may impact Project implementation The Geotechnical Feasibility Study includes relevant information published in geologic maps, aerial photographs, Project plans, in-house documents, and other literature pertaining to faulting hazards. The Geotechnical Feasibility Study also included a field reconnaissance to observe the existing conditions at the site. The Geotechnical Feasibility Study includes evaluation of geologic features including topography, hydrology, subsurface soils, geologic hazards, and seismic hazards. The geologic study area includes the Project site and areas in its immediate vicinity that could contain geological features or hazards that influence the Project site.

Geologic Setting

The study area is located in the Livermore-Amador Valley, a valley in eastern Alameda County bounded by the foothills of the Diablo Range on the north, east, and south. This range is part of the northwest-trending Coast Ranges Geomorphic Province of mountain ranges and valleys that trend northwest, parallel to the San Andreas Fault. The ranges have been intensely uplifted, folded, and faulted.[48]

The diverse geologic conditions underlying the Livermore-Amador Valley and greater San Francisco Bay Area (Bay Area) are largely defined by the network of major active faults that occur

[48]Bay Area Rapid Transit Agency, 2017. BART to Livermore Extension Project EIR, Chapter G: Geology, Soils, Seismicity, Mineral, and Paleontological Resources. Available: https://www.bart.gov/about/projects/liv/environment. Accessed October 10, 2019.

within the region. The San Andreas Fault System is one of the most prominent geologic features in the region; it includes several major fault zones (San Andreas, Hayward, and Calaveras) as well as smaller active and potentially active faults.

The geologic units which comprise the study area consist of Quaternary alluvium, a mixture of loose rocks and loosely consolidated deposits composed of sandstone, shale, and gravel (also known as Livermore Gravel).[49,50] The Quaternary period refers to the current period of geologic time, which began 1.65 million years ago.[51]

The climate in Alameda County is characterized by warm, dry summers and mild, wet winters. Average annual precipitation is 14.18 inches. Cottonwood Creek, the only waterway within the study area, crosses the Project site flowing north-to-southwest direction and discharges into Arroyo Mocho just south of I-580. Historic high groundwater levels in the study area range from 10 to 39 feet below ground level. Shallower groundwater levels may be present throughout the Project site, particularly at the Cottonwood Creek crossing. Refer to **Section 2.3.1, Water Quality and Storm Water Runoff**, for detailed information about climate, hydrology, and groundwater throughout the geologic study area.

The Project site slopes slightly downward toward the south and features elevations ranging from approximately 370 to 415 feet above mean sea level (AMSL). No natural landmarks or other major geologic features, such as scenic rock outcroppings, occur within the study area.

The *Water Quality Report*[52] includes a Natural Resources Conservation Service (NRCS) Web Soil Survey to identify soils underlying the Project site. The predominant soils within Project site are

[49] Bay Area Rapid Transit Agency, 2017.

[50]USGS. 2018b. California Geologic Map Data. Available: https://mrdata.usgs.gov/geology/state/map-us.html#home. Accessed: October 11, 2019.

[51]USGS. Earthquake Glossary. Available: https://earthquake.usgs.gov/learn/glossary/?term=Quaternary. Accessed: October 11, 2019.

[52]BKF, 2018. Water Quality Report - Dublin Boulevard-North Canyons Parkway Extension Project.

Diablo Clay[53] and Linne Clay Loam[54]. Soils beneath Cottonwood Creek are Clear Lake Clay[55]. All three soil types have a slow infiltration rate and high runoff potential when thoroughly wet.[56]

Geologic Hazards

Geologic hazards include soil erosion, subsidence, expansive soils, corrosive soils, landslides, and volcanic hazards. These hazards are explained below.

Soil Erosion

Erosion is the detachment and movement of soil material by natural processes, such as wind and water. During a rain event, the rate of soil erosion is dependent on the slope, vegetative cover, and soil properties. Texture, structure, organic matter content, and permeability are specific soil properties that influence the rate of soil erosion. The NRCS Web Soil Survey conducted for the Project indicates soils within the study area have low erosion potential.

Subsidence

Subsidence is the settlement of organic soils and saturated mineral soils of low-density following drainage of water out of the soils. According to the U.S. Geological Survey (USGS), the study area is not susceptible to subsidence.[57]

[53] Diablo clay is a soil included in the Diablo series of soils, which generally consist of deep to moderately deep, well-drained, clayey soils on rolling to very steep uplands north and west of the Livermore Valley.

[54] Linne Clay Loam is a soil included in the Linne series of soils, which consist of well-drained, shallow to deep, calcareous soils on rolling to very steep uplands north and east of the Livermore Valley. Linne soils are formed from soft, calcareous, interbedded shale and fine-grained sandstone.

[55] Clear Lake Clay is a soil from the Clear Lake Series. Soils in the Clear Lake series consist of deep, moderately well-drained and imperfectly drained, clayey soils in nearly level basins in the Livermore and Amador Valleys.

[56] The infiltration rate is the velocity or speed at which water enters into the soil. It is usually measured by the depth of the water layer that can enter the soil in one hour.

[57]USGS. 2018a. Areas of Land Subsidence in California. Available: https://ca.water.usgs.gov/land_subsidence/california-subsidence-areas.html. Accessed: June 4, 2018.

Expansive Soils

Expansive soils have the potential to shrink or swell depending on the moisture content of the soil. This potential for shrinking and swelling is dictated partially by the amount and type of clay materials present and is measured by finding the percent change of the soil volume. Highly expansive soils present a significant risk to buildings and infrastructure. Expansive soils are common in the Livermore Valley, particularly in soils with high clay content, and may be present at the Project site. As mentioned above, clayey soils such as Diablo Clay, Linne Clay Loam, and Clear Lake Clay were identified on the Project site, and these soils could exhibit expansive properties.[58] Therefore expansive soils have the potential to be present on the Project site.

Corrosive Soils

Various properties of soil, such as moisture content, texture, acidity, electrical conductivity, and sulfate or sodium content can cause soils to corrode uncoated subsurface steel and concrete structures. Over time, the corrosion could weaken the materials, resulting in fatigue and eventual failure of steel or concrete materials. Soil corrosivity is not a visually discernable characteristic and soil sampling and testing to evaluate soil corrosion parameters have not been performed. Though soil sampling to test for corrosive soils has not been performed, clayey soils, such as the soils found on the Project site, are considered to have a high corrosion potential. Therefore, the Project site has the potential for corrosive soils.

Landslides

Landslides are classified as either rapid movement of large amounts of soil or imperceptibly slow movement of soils on slopes. Areas with landslide potential generally have steeper slopes than the soil or rock material forming the slope can support. Topographic variability within the study area suggests history of landslide activity. Landslide susceptibility is prevalent in the hills north of the study area, outside of the Project site. The southern portion of the study area (bordering I-580) is relatively flat with little to no susceptibility to landslides. However, according to the Landslide Inventory Map, there is evidence of previous landslides north of the Project site.[59]

Tsunamis and Seiches

Tsunamis are large sea waves caused by submarine earthquakes, landslides, or volcanic eruptions. A seiche is defined as a wave oscillation on the surface of water in an enclosed basin, such as a lake,

[58] San Francisco Bay Area Rapid Transit District. 2018. BART to Livermore Extension Project Environmental Impact Report.

[59]USGS. 2010. Landslide Inventory Map of Livermore Quadrangle Alameda and Contra Costa Counties, California. Available: ftp://ftp.consrv.ca.gov/pub/dmg/pubs/lsim/LSIM_Livermore.pdf. Accessed: June 4, 2018.

which can occur as a result of seismic activity. There is no potential for tsunamis and/or seiches to occur within the study area due to the significant distance between the Project site and the San Francisco Bay (18 miles). Further, the Project site is 370 to 415 feet AMSL, and would therefore have reduced potential to be at risk of tsunamis and seiches, as water would need to climb a significant elevation over a significant distance to reach the Project. No other water bodies near the Project site are large enough to experience a seiche event. These features are considered either too distant or small to create a hazard at the Project site, and are not discussed further in this Draft EA.

Volcanic Hazards

The closest volcano to the study area is Clear Lake Volcanic Field, located approximately 132 miles away from the Project. This feature is considered too distant to create a hazard at the Project site and therefore is not discussed further within this Draft EA.

Seismic Hazards

Geologists and seismologists recognize the Bay Area as one of the most seismically active regions in the United States. The significant earthquakes that occur in the Bay Area are typically associated with movements along well-defined active fault zones that generally trend in a northwesterly direction. **Table 2.3-1** presents approximate distances from the Project site to nearby active faults. Faults in these table and many others in the Bay Area are sources of potential ground motion. However, earthquakes that might occur on other faults within northern California area are also potential generators of significant ground motion and could cause ground shaking at the site.

The site is not located within an Alquist-Priolo Earthquake Fault Zone. A field reconnaissance and review of Caltrans' statewide fault database conducted in 2018 for the *Geotechnical Feasibility Study* did not reveal evidence of active faulting through or near the site.

The Association of Bay Area Governments identifies the Mount Diablo Thrust Fault as the most active thrust fault in the Bay Area.[60] The Caltrans fault database dates the Mt. Diablo Thrust Fault as Late Quaternary age (0.5-1.0 million years) and places the fault approximately 1.75 miles north of the Project site. However, the *Geotechnical Feasibility Study* states that other geologic references place the inferred location of Mt. Diablo Thrust Fault within the Project site, west of Cottonwood Creek.

[60] A thrust fault is a break in the Earth's crust, across which older rocks are pushed above younger rocks. It is a dip-slip fault in which the upper block, above the fault plane, moves up and over the lower block. This type of faulting is common in areas of compression, such as regions where one plate is being subducted under another. When the dip angle is shallow, a reverse fault is often described as a thrust fault. (USGS)

According to a study of earthquake probabilities for the San Francisco Bay Region conducted by the USGS Working Group of California Earthquake Probabilities, the Mount Diablo Thrust Fault is capable of generating a magnitude 6.7 or greater earthquake with an estimated 3 percent probability of occurrence over the next 30 years. Buried thrust faults typically have fault planes that extend under a wide area and are extremely difficult to identify and characterize. Consequently, regulations such as the Alquist-Priolo Earthquake Fault Zoning Act have not been applied to the Mount Diablo Thrust Fault.[61]

Table 2.3-1 Regional Fault Summary

Fault Name	Approximate Distance to Nearest Portion of Project Site (miles)	Maximum Earthquake Magnitude, M_w	Fault Age
Mt. Diablo Thrust	1 ¾	6.7	Late Quaternary (0.5-1.0 million years ago)
Pleasanton	3 ¾	6.6	Holocene (within the last 11,000 years)
Las Positas	5 ½	6.4	Holocene (within the last 11,000 years)
Calaveras (North)	5 ½	6.9	Holocene (within the last 11,000 years)

Source: BKF, 2018

Surface Fault Rupture

During an earthquake, surface rupture occurs when the ground surface is broken as a result of fault movement. Surface rupture is an offset of the ground surface and is mostly found to occur along active fault traces. As noted above, an inferred location of the Mt. Diablo Thrust crosses the Project site near Cottonwood Creek.

Seismic Ground Shaking

During a seismic event, all aspects of motion of the earth's surface caused by the earthquake are generally referred to as seismic ground shaking. Ground shaking is normally the predominant cause of damage during earthquakes, and the extent of the ground shaking is controlled by the magnitude and intensity of the earthquake, distance from the epicenter, and local geologic conditions. Faults identified in **Table 2.3-1** and many others in the Bay Area are sources of potential ground motion. However, earthquakes that might occur on other faults within northern California area are also potential generators of significant ground motion and could cause ground shaking at the site.

[61]Bay Area Rapid Transit Agency, 2017.

Liquefaction

Liquefaction is a phenomenon in which loose, saturated, and low-cohesion soils beneath the groundwater table lose strength during strong ground motions. Primary factors controlling liquefaction include intensity and duration of ground motion, the subsurface soil characteristics, stress conditions, and depth to groundwater.[62] Most of the study area has a low susceptibility to liquefaction, except for the Cottonwood Creek area which has very high liquefaction susceptibility.[63]

Economic Resources/Mineral Hazards

The Livermore-Amador Valley consists of major sand and gravel deposits used as aggregate in the production of Portland Concrete Cement.[64] Due to the high value of sand and gravel deposits in the vicinity of Livermore, the California Geological Survey mapped and classified the aggregate resources in the area. Most of the valley floor south of I-580 is classified as an area of significant mineral resources.[65] However, areas north of I-580, including the Project site, are not within a designated mineral resource area.[66]

ENVIRONMENTAL CONSEQUENCES

Build Alternative

Geologic Hazards

Slope Stability

The Project would include cuts and fills throughout the Project site which, if not inclined properly, could lack adequate preventative slope stability safety measures. Furthermore, fill slopes constructed of predominantly clayey materials can be prone to surficial slumping, especially when

[62] Geological stress conditions refer to the force per unit area that is placed on a rock. There are four types of stresses: confining stress, compressions, tension, and shear. Stress can result in fracture or deformation of the rock, and are seismic hazards.

[63] Geocon Consultants, 2018.

[64] City of Livermore General Plan. 2003-2025. Mineral Resources.

[65] California Department Of Conservation, Division of Mines and Geology, 1996. Mineral Resources Sectors Within Planning Area, Figure 8 3.

[66] CGS. Index of Mineral Land Classification/ SMARA Maps and Reports. CGS Information Warehouse: Mineral Land Classification. Available: http://maps.conservation.ca.gov/cgs/informationwarehouse/mlc/ Accessed: October 12, 2019.

not properly vegetated after grading operations. If existing clayey soils on the Project site would be reused for fill, they could cause slope instability. This would potentially expose workers during construction and travelers during operation. The design-level geotechnical report required by **Measure GEO-1** (described below) would convey the need for selective grading provisions to mitigate the potential for clayey materials in fill slopes. In addition, the design-level geotechnical report would evaluate the suitability of existing soils for re-use as fill material based on the soil characteristics.

Subsidence and Landslides

According to the USGS, the study area is not susceptible to subsidence.[67] Additionally, based on geologic mapping, existing landslide distribution, and overall flatness of the Project site, existing landslides hazards would not endanger construction workers or future users of the Build Alternative. The distance between the Project site and the more steeply inclined hills to the north makes the overall risk of landslide at the Project site low.

Erosion

The potential for Project construction to result in substantial erosion or loss of topsoil is described in **Section 2.3.1, Water Quality and Storm Water Runoff**. Construction of the Build Alternative would involve grading and paving activities that could result in erosion and sedimentation. Projects involving construction on sites that are 1 acre or more are required to prepare and implement a SWPPP that specifies how the water quality would be protected during construction. These measures include, but are not limited to:

- Design and construction of cut and fill slopes in a manner that would minimize erosion
- Protection of exposed slope areas
- Control of surface water flows over exposed soils
- Limiting soil excavation in high winds
- Construction of berms and runoff diversion ditches
- Use of sediment traps, such as fiber rolls.

As stated above, **Measure GEO-1** would include the preparation of a design-level geotechnical report as part of the final design phase that would include subsurface field work and laboratory testing of soil samples. Site specific subsurface soil conditions (including erosion potential) and slope stabilities within the Project site would be verified during the preparation of this report to determine the appropriate final design for the Project. The design-level geotechnical report would

[67] USGS, 2018a.

characterize the risk of increased erosion as a result of topography, soil characteristics, and Project design. Recommendations from the design-level report would be incorporated into the Project design. **Measure GEO-1** and the SWPPP would reduce erosion potential and related hazards.

Expansive and Corrosive Soils

The Project site may contain corrosive and expansive soils. Soil sampling and testing to evaluate the presence or absence of corrosive or expansive soils has not yet been performed within the study area. However, clayey soils, such as those found on the Project site, have the potential to exhibit expansive and corrosive properties. Therefore, the risk of potential loss or injury from the effect of expansive or corrosive soils has the potential to occur. Roadway and bridge infrastructure built atop expansive soils (which are common to the Livermore Valley) could experience damage as changes in moisture cause soils shrink and swell. Corrosive soils can degrade structural integrity of uncoated steel and concrete structures. This could indirectly lead to unsafe conditions for travelers on the roadway and bridge structure.

The design-level geotechnical report required by **Measure GEO-1** would investigate for the presence of expansive and corrosive soils within the Project site. Depending on the extent of expansive soils and level of expansion potential, design recommendations such as lime-treatment, selective grading or select import fill materials may be necessary and would be documented in the design-level geotechnical report. Design recommendations from the design-level geotechnical report would be incorporated into the final Project design. These design recommendations would reduce the potential for risk associated with expansive and/or corrosive soils. With the implementation of **Measure GEO-1**, the Build Alternative's susceptibility to corrosive and expansive soils would be within acceptable margins of safety and would not pose a risk.

Seismic Hazards

Seismic hazards include liquefaction, settlement from seismic activity, surface fault rupture, and seismic ground shaking. Without proper engineering, these seismic hazards could be exacerbated by the Build Alternative through the introduction of a new roadway which would bring drivers, bicyclists, and pedestrians to the Project site.

Liquefaction and Seismically-Induced Settlement

Although most of the Project site exhibits low liquefaction susceptibility, the Cottonwood Creek drainage exhibits very high liquefaction susceptibility. This represents a hazard to construction workers and roadway users. The design-level geotechnical report required by **Measure GEO-1** shall evaluate liquefaction potential at Cottonwood Creek and recommend foundation designs to reduce liquefaction hazards. Specifically, the design-level geotechnical report would determine the need for foundation elements deeper than those required for structural loading purposes. Therefore, the measure would effectively determine the extent of the liquefaction hazard and implement a foundation design to counter liquefaction hazards, reducing the risk from liquefaction and settlement.

Groundshaking and Surface Fault Ruptures

The Project site is in proximity to several faults that, during a seismic event, would cause seismic groundshaking. While there are no Alquist-Priolo zones in the study area, the Build Alternative would cross the inferred location of Mt. Diablo Thrust Fault west of Cottonwood Creek. Linear features, such as a roadway or bridge, spanning a surface fault could become offset or deformed during a surface rupture. Therefore, the Build Alternative could experience surface fault rupture associated with the Mt. Diablo Thrust.

Although the Build Alternative could be susceptible to surface fault rupture at the Mt. Diablo Thrust, this fault is not a major safety consideration for the Build Alternative. As a generally linear, flat transportation structure, the Build Alternative would not be used for human occupancy, so life hazards would be limited. Potential displacement of the roadway alignment could interfere with roadway operations but would not cause collapse since the majority of the Build Alternative is not elevated. The Cottonwood Creek bridge, however, could be subject to collapse in the event of a surface fault rupture, if not properly designed. Implementation of **Measure GEO-1**, in addition to local and statewide regulations listed below, would ensure the bridge is designed appropriately to withstand potential seismic activity.

Potential seismic ground shaking hazards would be minimized through application of the Dublin General Plan Implementing Policy 8.2.1.B.1, which requires adherence to structural standards delineated in the Dublin Building Code and Dublin's Grading Ordinance based on a "design earthquake" event for each structure for which ground shaking is a significant design factor. Compliance with the California Building Code is also required. The Build Alternative would also apply the California Uniform Building Code, as recommended in the Livermore General Plan. Further, Policy 315 of the Alameda County East County Area Plan requires that buildings be designed and constructed to withstand groundshaking forces of a minor earthquake without damage, a moderate earthquake without structural damage, and a major earthquake without collapse of the structure. With implementation of these design criteria, construction or operation of the Build Alternative would not expose people or structures to adverse risks associated with seismic ground shaking.

No-Build Alternative

Under the No-Build Alternative, Dublin Boulevard and North Canyons Parkway would continue to operate unconnected in their current configurations. Given this, the No-Build Alternative would not result in geologic effects. No-Build Alternative would not result in adverse effects related to seismic risks, as no new structures or roadways would be implemented, and the Project site would remain unoccupied.

AVOIDANCE, MINIMIZATION, AND/OR MITIGATION MEASURES

Measure GEO-1: As part of the final design phase, preparation of a design-level geotechnical and geologic report would be required and would include subsurface field work and laboratory testing. Site specific subsurface soil conditions and slope stabilities within the Project site would be verified

during the preparation of this report to determine the appropriate final design for the Project. Recommendations from the design-level report would be incorporated into the Project design.

Future subsurface exploration would include soil borings at approximate 500-foot intervals along the roadway extension. Soil borings would determine the geologic stability of soils underlying the Project site. In addition, borings would specifically be performed for cut slopes over 8 feet, at retaining wall locations, at bridge support locations, and at culvert crossing locations. Additional borings may be necessary for other Project components, at the discretion of the City of Dublin or the Responsible Agency in their jurisdiction and on the recommendation of professionally qualified specialists. The field investigation would consider Project design details to provide design recommendations. Key considerations shall include the following:

- *Liquefaction*. The design-level geotechnical report shall evaluate liquefaction potential at the Cottonwood Creek crossing to determine the need for foundation elements deeper than those required for structural loading purposes.

- *Slope Stability.* The Project would include cuts and fills throughout the Project site. Cut/fill slopes would be addressed in the design-level geotechnical report to evaluate the need for selective grading provisions to mitigate the potential for clayey materials in fill slopes, which could create slope stability issues. Selective grading provisions, if necessary, would avoid this risk. In addition, the design-level geotechnical report would also evaluate the suitability of existing soils for re-use as fill material. If soils are not suitable to use as fill material, imported fill would be used where needed to ensure stability.

- *Corrosive Soils.* The design-level geotechnical report would investigate for the presence of corrosive soils within the Project site. If corrosive soils are identified at locations where new subsurface facilities are proposed (e.g. bridge foundations, culverts, etc.) specially coated rebar, or alternative pipe culverts would be specified in the contract documents.

- *Expansive Soils.* The design-level geotechnical report would investigate for the presence of expansive soils within the Project site. Depending on the extent of expansive soils and level of expansion potential, supplemental design measures such as lime-treatment, selective grading, or select import fill materials may be necessary.

- *Erosion Potential.* The design-level geotechnical report would characterize the risk of increased erosion as a result of topography, soil characteristics, and Project design.

2.3.3 PALEONTOLOGY

Paleontology is the study of plant and animal fossils from the prehistoric era. Paleontological resources are the remains of scientifically important organisms, mainly vertebrates that are older than 10,000 years.

REGULATORY SETTING

Paleontology is a natural science focused on the study of ancient animal and plant life as it is preserved in the geologic record as fossils. A number of federal statutes specifically address paleontological resources, their treatment, and funding for mitigation as a part of federally authorized projects. In addition, local jurisdictions within the Project area have policies that apply to paleontological resources. This section discusses regulatory pertaining to paleontological resources and the Project.

Federal

23 United States Code (USC) 1.9(a) requires that the use of Federal-aid funds must be in conformity with all federal and state laws.

23 United States Code (USC) 305 authorizes the appropriation and use of federal highway funds for paleontological salvage as necessary by the highway department of any state, in compliance with 16 USC 431-433 above and state law.

AFFECTED ENVIRONMENT

Information in this Section is based on the Dublin Boulevard – North Canyons Parkway Extension Phase I Paleontological Identification Report (PIR) approved in March 2017. The PIR was prepared consistent with the California requirements for paleontological studies outlined in Title 20, California Code of Regulations, Section 2012 and in Caltrans Standard Environmental References (2007), Volume 1, Chapter 8 – Paleontology. The PIR examined the Project area's geology, stratigraphy, and potential for significant paleontological (fossil) resources; and assessed whether construction or operation of the Project would have the potential to damage paleontological resources onsite. Analysis was informed by published and unpublished maps, aerial photography, and reports, online databases, and a reconnaissance site visit.

To evaluate the likelihood for paleontological resources to be present at the site, geologic mapping of the Tri-Valley area was examined. Geologic time is described by eras, periods, and epochs, shown in **Figure 2.3-1**. The Holocene epoch is the present-day geologic epoch. It began approximately 11,650 years ago, after the last glacial period.

Figure 2.3-1

Geologic Time

Source: PaleoWest, 2018

As documented in the PIR, the Project site is within the California Coast Range Province. The Coast Range reflects regional deformation as the result of three major fault systems that have been important in the tectonic history of the area: The San Andreas, the Sur-Nacimiento, and the Coast Range thrust. Stratigraphic units[68] at and near the Project site may be broken down into three groups:

1. Complex igneous (a rock having solidified from lava or magma) and metamorphic (a rock that has undergone transformation by heat, pressure, or other natural processes) rocks at the deepest levels from the Jurassic and Cretaceous periods; this type of rock does not contain fossils
2. Marine sedimentary rocks generally above the igneous and metamorphic layers, from the Cretaceous through late Tertiary period; this type of rock has the potential to produce fossils
3. Continental rocks and alluvial deposits (which are made up of sediments deposited or cemented into a unit of rock) above the marine sedimentary deposits, from the late Tertiary period (or Pliocene epoch) to the Holocene epoch; this type of rock and soil has the potential to produce fossils

The Livermore Valley area is a topographic and structural depression filled with alluvium as thick as 3,900 feet, referred to as the Livermore Formation. Alluvial deposits as defined by the Livermore Formation are present at the surface and below. Generally, the upper 2 feet is composed of younger alluvium (Holocene or recent) and will not contain any fossils. Older alluvium below the first few feet of soil may contain "Ice Age" fossils from the Pleistocene epoch.

A detailed records search of recorded fossils was completed for the Project site and in the surrounding areas which contain similar geologic layers. Records searches included the Los Angeles County Museum (LACM) and the University of California Museum of Paleontology (UCMP). UCMP indicated no recorded fossil presence in the Project site. However, over 900 "Ice Age" fossils have been collected south, north, and northwest of the Project site. These fossils were found in older alluvium outside Pleasanton, in Livermore, unincorporated areas of the County (specifically in Doolan Canyon), and in Martinez. LACM concluded that no vertebrate fossil localities have been previously identified within the Project site, but identified other fossil localities found within the same or similar sedimentary deposits as deposits in the subsurface of the Project site. Due to the presence of fossils nearby, Quaternary sedimentary deposits in the area are ranked as having "high sensitivity" paleontologically.

[68] A Stratigraphic Unit is a volume of rock forming a discrete and definable unit. Such units are determined on the basis of their lithology (description of their macroscopic features, e.g. its texture), or their fossil content, or their time span.

A mammoth tusk, portion of skull, rib bones and leg bones have previously been recovered from a site approximately 0.75 miles north east of Fallon Road at Jordan Ranch development, 0.5 miles north of the Project. The mammoth fossils occurred in the same type of deposits mapped at the site.

The uppermost 2 to 3 feet of soil at the Project site is Holocene soil less than 10,000 years old. Because by definition, organic remains must be older than 10,000 years old to be considered as fossils, the upper 2 to 3 feet of soil could not contain paleontological resources and is considered to have "Low Sensitivity". However, if excavations exceeding more than 2 to 3 feet occur, than there is potential to encounter Quaternary alluvium older than 10,000 years and therefore, could encounter paleontological resources. Quarternary alluvium has the potential to contain vertebrate fossils, most significantly, mammals. Vertebrates are the most "significant" fossils likely to occur at the Project site.

ENVIRONMENTAL CONSEQUENCES

Build Alternative

The Project site is in an area that is considered likely to have paleontological resources present. As mentioned above, Quaternary sedimentary deposits in the area are ranked as having "high sensitivity" paleontologically, as over 900 “Ice Age” fossils have been collected south of the Project site outside Pleasanton. Based on proposed excavation depths for the Build Alternative (anticipated to range from 2 feet to 40 feet in depth), there is potential for construction to encounter soils and rock older than 10,000 years, and consequently paleontological resources. Therefore, the potential to encounter a unique paleontological resource is reasonably high. Implementation of **Measure PALEO-1** would involve retention of a principal paleontologist to monitor construction period activities, to ensure that any paleontological resources encountered are evaluated and, if recommended, recovered and appropriately curated to allow those resources to contribute to the body of paleontological research in the Bay Area.

No-Build Alternative

Under the No-Build Alternative, Dublin Boulevard and North Canyons Parkway would continue to operate unconnected in their current configurations. No construction activities would occur. Given this, no paleontological resources would be affected.

AVOIDANCE, MINIMIZATION, AND/OR MITIGATION MEASURES

Implementation of the following measures would be required to avoid effects to paleontological resources should any be discovered during construction of the Build Alternative:

Measure PALEO-1: Consistent with Federal and State law, if fossils are discovered during grading, an approved Paleontologist must be called to the site to develop mitigation measures to protect those resources. Based on the information in the PIR, the Paleontologist shall determine when and where monitoring would be required, and who would conduct it.

The following measures will ensure that any paleontological resources encountered during Project construction would be properly handled, evaluated, and curated to ensure their value to paleontological research is preserved:

- The principal paleontologist or another mitigation program staff member shall coordinate with appropriate construction contractor personnel to provide information regarding applicable requirements concerning protecting paleontological resources. Contractor personnel, particularly heavy equipment operators, shall also be briefed on procedures to be followed in the event that fossil remains and/or a currently unrecorded fossil site is encountered by earthmoving activities, particularly if a paleontological construction monitor is not present on the site at the time of the discovery. Additional briefing shall be presented to new contractor personnel as necessary. Names and telephone numbers of the monitor and other appropriate mitigation program personnel shall be provided to appropriate contractor personnel.

- When required, monitoring shall consist of visually inspecting freshly exposed cuts and spoil piles for the discovery and recovery of larger fossil remains, and periodically dry test screening to allow for the discovery and recovery of smaller fossil remains. If larger vertebrate fossils are noted by construction workers or monitors, excavation there will cease, and the monitor will be notified.

    - The monitor and recovery staff will salvage all larger vertebrate fossil remains, as soon as practicable and as quickly as possible, following Society of Vertebrate Paleontology protocols. The monitor shall document the location and proper geologic context of any recovered fossil occurrence or rock or sediment samples. Any recovered rock or sediment sample shall be processed to allow for the recovery of smaller fossil remains that normally are too small to be observed by the monitor.
    - If the principal paleontologist or monitor determines that the fossil site is too unproductive or the fossil remains not worthy of recovery by the monitor, no further action will be taken to preserve the fossil site or remains, and earthmoving activities shall be allowed to proceed through the site immediately.

- The monitor shall maintain daily monitoring logs that include the particular tasks accomplished, the earthmoving activity monitored, the location where monitoring was conducted, the rock unit(s) encountered, the fossil specimens recovered, and associated specimen data and corresponding geologic and geographic site data. A final technical report of results and findings shall be prepared by the principal paleontologist in accordance with any local jurisdictional requirements (including those of the City of Dublin, Alameda County, and City of Livermore as appropriate) and archived at a repository mutually approved by the jurisdiction and principal paleontologist.

- Consistent with Federal and State law, if fossils are discovered during grading, the principal paleontologist must be called to the site to develop a mitigation plan to protect those resources.

- All fossil specimens recovered as a result of mitigation, including those recovered as the result of processing rock or sediment samples, will be treated (i.e., prepared, identified, curated, catalogued) in accordance with designated museum repository requirements. Rock or sediment samples will be submitted to commercial laboratories for microfossil, pollen, radiometric dating, or other analysis, as appropriate. The Project site lies in Alameda County. If paleontological specimens are encountered and collected at the site during mitigation, they become property of the County and should be properly curated at an approved facility (local to the Project location or a museum) and preserved for future research.

2.3.4 HAZARDOUS WASTE/MATERIALS

This section describes potential hazards and hazardous materials related to the Project. For the purposes of this Draft EA, "hazardous materials" are defined as substances that could pose a substantial present or future risk to human health or the environment if improperly handled, stored, disposed, or otherwise managed. Hazardous materials can result in public health hazards through human contact with contaminated soils or groundwater, or through airborne releases in vapors, fumes, or dust.

Construction workers typically have the greatest risk of exposure during site preparation and grading. Accidents or spills during the transport of hazardous materials can also expose the public and the environment to these substances. If contamination at a site remains undetected or unmitigated, future residents may experience health risks due to long-term exposure.

REGULATORY SETTING

Federal

Hazardous materials, including hazardous substances and wastes, are regulated by many federal laws. Statutes govern the generation, treatment, storage, and disposal of hazardous materials, substances, and waste, and also the investigation and mitigation of waste releases, air and water quality, human health, and land use.

The primary federal laws regulating hazardous wastes/materials are the *Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) of 1980* and the *Resource Conservation and Recovery Act (RCRA) of 1976*. The purpose of CERCLA, often referred to as "Superfund," is to identify and cleanup abandoned contaminated sites so that public health and welfare are not compromised. The RCRA provides for "cradle to grave" regulation of hazardous waste generated by operating entities. Other federal laws include:

- Community Environmental Response Facilitation Act (CERFA) of 1992
- Clean Water Act
- Clean Air Act

- Safe Drinking Water Act
- Occupational Safety and Health Act (OSHA)
- Atomic Energy Act
- Toxic Substances Control Act (TSCA)
- Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA)

Section 121(d) of CERCLA requires that remedial action plans include consideration of more stringent state environmental "Applicable or Relevant and Appropriate Requirements" (ARARs). The 1990 National Oil and Hazardous Substances Pollution Contingency Plan (NCP) also requires compliance with ARARs during remedial actions and during removal actions to the extent practicable. As a result, state laws pertaining to hazardous waste management and cleanup of contamination are also pertinent.

In addition to the acts listed above, Executive Order (EO) 12088, *Federal Compliance with Pollution Control Standards*, mandates that necessary actions be taken to prevent and control environmental pollution when federal activities or federal facilities are involved.

Worker and public health and safety are key issues when addressing hazardous materials that may affect human health and the environment. Proper management and disposal of hazardous material is vital if it is found, disturbed, or generated during Project construction.

State

In California, the US Environmental Protection Agency (EPA) has granted the California Environmental Protection Agency (CAL/EPA) most enforcement authority over federal hazardous materials regulations in the state. The mission of CAL/EPA is to restore, protect, and enhance the environment to ensure public health, environmental quality, and economic vitality. Under the authority of CAL/EPA, the Department of Toxic Substances Control (DTSC) and the San Francisco Bay Regional Water Quality Control Board (RWQCB) is responsible for overseeing the cleanup of contaminated soil and groundwater sites in the East Dublin Specific Plan (EDSP) area. RWQCB regulations applicable to hazardous materials are contained in Title 27 of the California Code of Regulations (CCR). Additional state regulations applicable to hazardous materials are contained in CCR Title 22. CCR Title 26 is a compilation of those sections or titles of the CCR that are applicable to hazardous materials.

Local

City of Dublin

<u>City of Dublin General Plan</u>

Chapter 4 of Dublin's General Plan references the Alameda County Hazardous Waste Management Plan, enforced by the Alameda County Department of Environmental Health (ACDEH), to ensure

consistency between the two. The General Plan establishes goals and policies pertaining to the hierarchy of hazardous waste management strategies and creates a set of criteria for the siting of expanded or new offsite hazardous waste facilities.[69]

Chapter 8 of the Dublin General Plan establishes guiding and implementing policies associated with hazards and hazardous materials. The policies included in this chapter aim to regulate the transportation, use, and storage of hazardous materials and minimize the risk of exposure from contaminated sites:

Guiding Policy 8.3.4.A.1:	Maintain and enhance the ability to regulate the use, transport, and storage of hazardous materials and to quickly identify substances and take appropriate action during emergencies.
Guiding Policy 8.3.4.A.2:	Minimize the risk of exposure to hazardous materials from contaminated sites.
Implementing Policy 8.3.4.B.2:	As part of the City's Comprehensive Emergency Response Plan, the City has adopted a Hazardous Materials Response Plan. The City will periodically review the Plan to prepare for and respond to emergencies related to hazardous materials.
Implementing Policy 8.3.4.B.3:	Periodically review and enforce the City's ordinances regulating the handling, transport, and storage of hazardous materials and hazardous waste.
Implementing Policy 8.3.4.B.4:	Require site-specific hazardous materials studies for new development projects where there is a potential for the presence of hazardous materials from previous uses on the site. If hazardous materials are found, require the clean-up of sites to acceptable regulatory standards prior to development.
Guiding Policy 8.4.1.A.1:	All proposed land uses within the Airport Influence Area (AIA) shall be reviewed for consistency with the safety compatibility policies and airspace protection policies of the Airport Land Use Compatibility Plan (ALUCP) for the Livermore Municipal Airport.

[69]City of Dublin. 1985. *City of Dublin General Plan.* Community Development Department. Dublin, CA. Amended November, 2017.

Eastern Dublin Specific Plan

The EDSP contains the following policies and programs as it relates to hazards and hazardous materials:

Policy 11-1 Prior to issuance of building permits for site-specific Phase I (and if necessary, Phase II) environmental site assessments shall be made available to the Community Development Director, with appropriate documentation that all recommended remediation actions have been completed.

Eastern Dublin Specific Plan

The EDSP contains the following policies and programs as it relates to hazards and hazardous materials:

Policy 11-1 Prior to issuance of building permits for site-specific Phase I (and if necessary, Phase II) environmental site assessments shall be made available to the Community Development Director, with appropriate documentation that all recommended remediation actions have been completed.

Alameda County

The Alameda County Department of Environmental Health (ACDEH) is the Certified Unified Program Agency (CUPA) that coordinates and enforces numerous local, state, and federal hazardous materials management and environmental protection programs in the county. ACDEH administers a number of programs that contain basic information on the location, type, quantity, and health risks of hazardous materials and waste.

Alameda County Hazardous Materials/Waste Program

The Alameda County Hazardous Materials/Waste Program is recognized by the DTSC and enforces numerous local, state, and federal hazardous materials management and environmental protection programs in the County.[70]

Alameda County Safety Element: Chapter 2 Man Made Hazards

Chapter 2.2 of the Alameda County Safety Element describes man-made hazards present within unincorporated areas of the County and goals, policies and actions intended to minimize loss due to

[70]Alameda County Environmental Health. *Alameda County Hazardous Materials/Waste Program*. Available: https://www.acgov.org/aceh/hazard/. Accessed: October 14, 2019.

hazardous materials and aviation.[71] The chapter's goals and policies aim to minimize residents' exposure to the harmful effects of hazardous materials and waste. The following policies and programs from the Alameda County Safety Element relate to hazards and hazardous materials:

Policy 2.P2 Hill area development, and particularly that adjoining heavily vegetated open space area, should incorporate careful site design, use of fire retardant building materials and landscaping, development and maintenance of fuel breaks and vegetation management programs, and provisions to limit public access to open space areas in order to minimize wildland fire hazards. (Source: Seismic Safety and Safety Element, pg. 7)

Policy 4.P8 Developers shall be required to conduct the necessary level of environmental investigation to ensure that soil, groundwater and buildings affected by hazardous material releases from prior land uses and lead or asbestos in building materials will not have a negative impact on the natural environment or health and safety of future property owners or users. This shall occur as a pre-condition for receiving building permits or planning approvals for development on historically commercial or industrial parcels.

Policy 4.P11 To the extent feasible, the County shall continue to support the removal of hazardous wastes from the solid waste stream in unincorporated Alameda County in accordance with Countywide plans.

Policy 5.A2 Refer all updates to County General Plans, Specific Plans, and Zoning Ordinances to the Alameda County ALUC for a compatibility determination.

Policy 6.P2 Adequate emergency water flow, emergency vehicle access and evacuation routes shall be incorporated into any new development prior to project approval.

City of Livermore

City of Livermore General Plan

Chapter 10 of the Livermore General Plan sets goals and policies to protect the community from the harmful effects of hazardous materials through promoting the safe transport of hazardous materials, requiring environmental investigation for contaminants prior to site redevelopment, and

[71] *Alameda County Safety Element: Chapter 2 Man Made Hazards.* Available: https://www.acgov.org/cda/planning/generalplans/documents/SafetyElementAmendmentFinal.pdf. Accessed: October 14, 2019.

implementing relevant provisions consistent with the hazardous materials and waste management plans for the County.[72]

AFFECTED ENVIRONMENT

Information in this section is based on the Phase I Environmental Site Assessment Report (ESA) prepared in June 2018. The objective of the ESA was to identify the presence or likely presence of any hazardous substances at the property or associated with previous uses of the property. The study area included the Project site and a 1-mile buffer around the Project site.

The ESA entailed a review of publicly available local, state, tribal, and federal environmental record sources; standard historic sources; aerial photographs; fire insurance maps; and topographic, geologic, and hydrogeologic records. Data sources related to historic land uses, current land uses, and environmental records from regulatory agencies were reviewed to identify known or potential sites associated with hazardous materials within the study area, which includes the Project site plus a 1-mile radius. These sites were then evaluated to identify known or potential releases of hazardous materials that could impact soils or groundwater beneath the Project site.

The ESA also included an Environmental Data Resources (EDR) radius map search of federal, state, and local environmental databases for historic hazardous spills or releases. As shown in **Table 2.3-2** below, there are several facilities within the study area included in the EDR database. However, the seven parcels that encompass the Project site are not listed in the EDR database search results. Refer to the ESA for additional information on these database searches.

The Department of Toxic Substance Control's Hazardous Waste and Substances Site List, prepared pursuant to Government Code Section 65962.5, is a planning document used by state and local agencies to provide information about hazardous material release sites. The Project site is not included on this list of hazardous material sites.

Site History

According to the ESA's historic information sources, the largely undeveloped Project site was originally dedicated to rural residential and agricultural uses. A ranch compound dating back to the early 1900's was located on the Project site along the western end of the proposed alignment. A former residence was located at 3457 Croak Road on the Project site during the 1990s but was subsequently demolished. The business name listing corresponding with the address suggests the relationship to a trucking and equipment enterprise, which could have storage or used of petroleum products or other hazardous materials.

[72] *Livermore General Plan: Chapter 10 Public Safety Element, Hazardous Waste Management*. Available:http://www.cityoflivermore.net/civicax/filebank/documents/6101/ Accessed: June 7, 2018.

Potential Hazards Associated with Former Use

Former Agricultural Uses

Aerial photographs indicate that large portions of the study area were used for farming and ranching. Paths or narrow roads, possibly related to dry land farming, have been present in the study area since before 1940. As mentioned above, an apparent ranch compound was located along the western terminus of the proposed alignment near Fallon Road from the early 1900's to the late 1960's. A decayed livestock loading corral likely formerly associated with the structures is currently located in the Project site. The Project site has been used primarily for grazing land with partial field or row crops since at least 1949. It is possible that pesticides were in use in field or row crop areas.

Previous Residential or Commercial Land Uses

Topographic maps reviewed as a part of the ESA depict structures near the western alignment terminus dating back to the early 1900's, with more recent, sporadic residential and agricultural development throughout the study area. These uses suggest the potential presence of water/dry wells, septic systems, and underground storage tanks (UST) used for the storage of heating oil or fuel.

Aboveground Storage Tanks

Site records indicated two aboveground storage tanks (ASTs) were within the Project site and were removed sometime between 1985 and 1990 without incident. The tanks were located on a paved area with containment berms, to prevent spillage, and each stored approximately 5,000 gallons of diesel fuel associated with a former paving business that leased the property (Assessor's Parcel Number 905-1-4-4). The former presence of the ASTs is a potential environmental concern, as diesel-contaminated soils may be toxic to plants and soil microorganisms, and act as a source of groundwater contamination. If the groundwater below the site has been contaminated, the contamination could have spread to surrounding groundwater.

Table 2.3-2 EDR Record Search Results

Database Name	Search Radius (Miles)	Number of Listings	Property/Facility Name
Resource Conservation and Recovery Act – Large Quantity Generator (RCRA-LQG)	0.25	1	Target Store T2771 2800 Dublin Boulevard, Dublin, CA 94568
Resource Conservation and Recovery Act – Conditionally Exempt Small Quantity Generator (RCRA-CESQG)	0.25	1	CVS Pharmacy #17628 2800 Dublin Boulevard, Site B, Dublin, CA 94568
(DTSC equivalent CERCLIS Database (EnviroStor)	1.0	6	Proposed New Elementary School Jordan Ranch E-5, Site E, Fallon Road and north of I-580, Dublin, CA 94588
			Proposed Kolb Elementary School Palermo Way, Dublin, CA 94568
			M-1 Middle School Parcel O-Tract 6725/S, Dublin Ranch Drive, Dublin, CA 94588
			E-2 Elementary School Parcel O-Tract 6960/Antone Way, Dublin, CA 94588
			Proposed Elementary School E-4 5781 Fallon Road, Dublin, CA 94568
			E-5 Alternative School Site South of Central Parkway, east of Fallon Road, Dublin, CA 94588
State and Tribal Leaking Underground Storage Tank (LUST)	0.5	4	Bernard's 1051 Airway Boulevard, Livermore, CA 94550
			Livermore Municipal Airport 1800 Freisman Road, Livermore, CA 94550
			Las Positas Golf Course 909 Clubhouse, Livermore, CA 94566

Database Name	Search Radius (Miles)	Number of Listings	Property/Facility Name
Resource Conservation and Recovery Act – Large Quantity Generator (RCRA-LQG)	0.25	1	Target Store T2771 2800 Dublin Boulevard, Dublin, CA 94568
Resource Conservation and Recovery Act – Conditionally Exempt Small Quantity Generator (RCRA-CESQG)	0.25	1	CVS Pharmacy #17628 2800 Dublin Boulevard, Site B, Dublin, CA 94568
			Livermore Municipal Airport 1800 Freisman Road, Livermore, CA 94550
Spills, Leaks, Investigations, and Cleanups sites (SLIC)	0.5	2	Windwood at Jordan Ranch, 4233 Fallon Road, Dublin, CA 94568
			Freisman Ranch, 1600 Freisman Road, Livermore, CA 94550
Alameda County Contaminated Sites	0.5	5	Bernard's, 1051 Airway Blvd Livermore, CA 94550
			Windwood at Jordan Ranch, 4233 Fallon Road, Dublin, CA 94568
			City of Livermore Airport, 1800 Freisman Livermore, CA 94550
			Las Positas Golf Course, 909 Clubhouse, Livermore, CA 94566
			Freisman Ranch, 1600 Freisman Road, Livermore, CA 94550
Local Lists of Hazardous Waste/Contaminated Sites SCH (DTSC School Property Evaluation Program)	0.25	1	E-5 Alternative School Site South of Central Parkway, east of Fallon Road, Dublin, CA 94588
HIST CORTESE (Historical ("Cortese" Hazardous Waste & Substance Site List)	0.5	2	Las Positas Golf Course 909 Clubhouse, Livermore, CA 94566
			Livermore Municipal Airport, 1800 Freisman Road, Livermore, CA 94550

Database Name	Search Radius (Miles)	Number of Listings	Property/Facility Name
Resource Conservation and Recovery Act – Large Quantity Generator (RCRA-LQG)	0.25	1	Target Store T2771 2800 Dublin Boulevard, Dublin, CA 94568
Resource Conservation and Recovery Act – Conditionally Exempt Small Quantity Generator (RCRA-CESQG)	0.25	1	CVS Pharmacy #17628 2800 Dublin Boulevard, Site B, Dublin, CA 94568
Proposition 65 Records (Notify 65)	1.0	1	Airport/Los Positas Golf Course, 1800 Freisman Road, Pleasanton, CA 92561

Source: GeoCon, 2018

ENVIRONMENTAL CONSEQUENCES

Build Alternative

Construction

Construction would entail large areas of grading, installation of road surfaces, drainage improvements, cut/fill embankments, underground utilities, and a new bridge structure over Cottonwood Creek. Construction of the Build Alternative would also require vehicles trips to deliver materials and remove waste products or excavated soil. As mentioned above, an environmental database search found no evidence of previous spills or widespread contamination on the Project site. However, excavation and grading could encounter residual contamination associated with previous residential, commercial, and agricultural uses on the Project site, as described below.

Previous Residential and Commercial Land Uses

Parcels within the Project site could contain septic systems, water/dry wells, and USTs used for the storage of heating oil and fuel. Leakage or spillage from these systems could have contaminated soil and/or groundwater within the Project site. Should any potential water/dry wells be encountered during construction, Dublin, Livermore, or the County would be required by law to remove wells in accordance with the California Department of Water Resources requirements for destroying wells as outlined in California Well Standards Bulletins 74-81[73] and 74-90.[74,75]

If undocumented USTs or septic tanks are encountered during construction activities, Dublin, Livermore, or the County would be required by law to abandon and/or remove the USTs or septic tanks in accordance with the ACDEH Underground Storage Tank Program, which regulates the construction, operation, repair and removals of UST and septic tank systems used to store hazardous materials or waste. In the event a UST is unexpectedly encountered during construction, **Measure HAZ-1** would be implemented to further protect worker safety. This measure requires a temporary halting of work until coordination with ACDEH is complete to ensure workers are not exposed to hazardous substances.

[73]California Department of Water Resources. June 1981. California Well Standards: State of California. Bulletin 74-81.

[74]Alameda County Department of Environmental Health. *Alameda County Hazardous Materials/Waste Program*. Available: http://www.acgov.org/aceh/hazard/. Accessed: October 14, 2018.

[75]California Department of Water Resources. June 1991. California Well Standards. Bulletin 74-90.

Formal Agricultural Uses

The study area including the Project site has historically been used primarily for rangeland with partial field or row crops. Aerial photographs indicate that portions of the study area were used for farming and ranching. It is possible pesticides were in use in field or row crop areas. The presence of residual pesticides associated with agricultural activities represents a potential risk to construction worker health. This risk would be avoided through implementation of **Measure HAZ-1. Measure HAZ-1** would require a limited soil investigation prior to issuance of any demolition, grading, or building permit. If agricultural contaminants are present on the Project site, a remediation plan shall be implemented to ensure the safety of workers and future users.

Aboveground Storage Tanks

The former existence of above-ground diesel storage tanks within the Project site (Assessor's Parcel Number 905-1-4-4) indicates a potential for diesel fuel contamination. ASTs can pose a serious hazard if leakage or spillage has occurred and has potentially contaminated the soil or groundwater. The presence of AST-related contaminants represents a potential risk to construction worker health. This risk would be avoided through implementation of **Measure HAZ-2**. **Measure HAZ-2** provides protocols for construction safety if the results of the soil investigation are negative, but subsequently petroleum-impacted soils or USTs are unexpectedly encountered during construction.

Aerially Deposited Lead

Aerially deposited lead (ADL) from the historical use of leaded gasoline, exists along roadways throughout California. If encountered, soil with elevated concentrations of lead as a result of ADL on the state highway system right of way within the limits of the Project will be managed under the July 1, 2016, ADL Agreement between Caltrans and the California Department of Toxic Substances Control. This ADL Agreement allows such soils to be safely reused within the Project limits as long as all requirements of the ADL Agreement are met.

Operation

Operation of the Build Alternative would not directly involve the routine use, disposal, or transportation of hazardous materials. Operation of the Build Alternative would entail multi-modal use of a new roadway. During operation, automobile traffic along this facility could experience collisions that result in the accidental release of substances such as fuel, lubricants, or hazardous freight. In order to account for these potential hazards, the Build Alternative would be designed and engineered per standard engineering requirements for roadway slope, curvature, speeds, storm water treatment, lane orientation, and other standard roadway design criteria. Compliance with these standards would minimize the potential for hazardous material or waste release under accident conditions.

Cottonwood Creek Elementary School is located 0.25 miles north of the Project site along Central Parkway. The next closest schools - Eleanor Murray Fallon Middle School and Mohr Elementary School - are located approximately 1 mile west of the Project site. If contamination is detected on

the Project site, transportation and disposal activities could handle hazardous materials within 0.25-mile of schools along haul routes. The remediation plan discussed under **Measure HAZ-1** would include provisions to prevent the transportation of hazardous materials within 0.25-mile of educational facilities during hauling activities.

No-Build Alternative

Under the No-Build Alternative, Dublin Boulevard and North Canyons Parkway would continue to operate unconnected in their current configurations. No construction activities would occur, and there would be no change in the operations of the existing roadways. The No-Build Alternative would not result in increased risks associated with hazardous materials or hazardous waste.

AVOIDANCE, MINIMIZATION, AND/OR MITIGATION MEASURES

Measure HAZ-1: Prior to issuance of any demolition, grading, or building permit, a limited soil investigation would be completed within the construction area to identify potential contamination from past petroleum hydrocarbons and any agrichemical contamination from agricultural use.

- Soil samples would be collected and tested for residual pesticides by a qualified professional. Concentrations of agricultural contaminants would be compared to applicable State Water Quality Control Board Environmental Screening Levels.
- Dublin shall prepare and submit a comprehensive report to the ACDEH, signed by a qualified environmental professional, documenting the presence or lack of petroleum hydrocarbons, agrichemicals, or other contaminants on the Project site.
- If the soil investigation finds contaminants are present, Dublin, in cooperation with the County if needed, shall create and implement a remediation plan that ensures workers and future users of the Project are not exposed to concentrations in excess of screening levels or other risks associated with soil contamination in accordance with regulatory standards.
- Potential safety measures could include soil removal and treatment, or protective work attire requirements for construction workers.
- The remediation plan shall also include provisions to outline safe transportation and disposal techniques and would prevent the handling of hazardous materials[76] nearby

[76] In this context, *hazardous materials* include a hazardous substance (as defined in California Public Resources Code Section 21151.4) or a mixture containing extremely hazardous substances in a quantity equal to or greater than the state threshold specified pursuant to subdivision (j) of Section 25532 of the Health and Safety Code.

sensitive educational facilities by delimiting work areas and hauling routes within 0.25 mile of a school.

Measure HAZ-2: If petroleum-impacted soils or USTs are unexpectedly encountered during any construction activities, work in the area shall be temporarily halted and the corresponding jurisdiction (City of Dublin, the County, or Livermore) shall coordinate with the ACDEH to determine appropriate treatment and removal of the UST and contaminated soil.

2.3.5 AIR QUALITY

REGULATORY SETTING

Federal and State

The Federal Clean Air Act (FCAA), as amended, is the primary federal law that governs air quality while the California Clean Air Act (CCAA) is its companion state law. These laws, and related regulations by the United States Environmental Protection Agency (U.S. EPA) and the California Air Resources Board (ARB), set standards for the concentration of pollutants in the air. At the federal level, these standards are called National Ambient Air Quality Standards (NAAQS). NAAQS and state ambient air quality standards have been established for six transportation-related criteria pollutants that have been linked to potential health concerns: carbon monoxide (CO), nitrogen dioxide (NO_2), ozone (O_3), particulate matter (PM) — which is broken down for regulatory purposes into particles of 10 micrometers or smaller (PM_{10}) and particles of 2.5 micrometers and smaller ($PM_{2.5}$) — and sulfur dioxide (SO_2). In addition, national and state standards exist for lead (Pb), and state standards exist for visibility reducing particles, sulfates, hydrogen sulfide (H2S), and vinyl chloride. The NAAQS and state standards are set at levels that protect public health with a margin of safety and are subject to periodic review and revision. Both state and federal regulatory schemes also cover toxic air contaminants (air toxics); some criteria pollutants are also air toxics or may include certain air toxics in their general definition.

Federal air quality standards and regulations provide the basic scheme for project-level air quality analysis under the National Environmental Policy Act (NEPA). In addition to this environmental analysis, a parallel "Conformity" requirement under the FCAA also applies.

Conformity

The conformity requirement is based on FCAA Section 176(c), which prohibits the U.S. Department of Transportation (USDOT) and other federal agencies from funding, authorizing, or approving plans, programs, or projects that do not conform to State Implementation Plan (SIP) for attaining the NAAQS. "Transportation Conformity" applies to highway and transit projects and takes place on two levels: the regional (or planning and programming) level and the project level. The proposed project must conform at both levels to be approved.

Conformity requirements apply only in nonattainment and "maintenance" (former nonattainment) areas for the NAAQS, and only for the specific NAAQS that are or were violated. U.S. EPA regulations at 40 Code of Federal Regulations (CFR) 93 govern the conformity process. Conformity

requirements do not apply in unclassifiable/attainment areas for NAAQS and do not apply at all for state standards regardless of the status of the area.

Regional conformity is concerned with how well the regional transportation system supports plans for attaining the NAAQS for CO, NO_2, O_3, PM_{10}, $PM_{2.5}$, and in some areas (although not in California), SO_2. California has nonattainment or maintenance areas for all of these transportation-related "criteria pollutants" except SO_2, and also has a nonattainment area for Pb); however, lead is not currently required by the FCAA to be covered in transportation conformity analysis. Regional conformity is based on emission analysis of Regional Transportation Plans (RTPs) and Federal Transportation Improvement Programs (FTIPs) that include all transportation projects planned for a region over a period of at least 20 years (for the RTP) and 4 years (for the FTIP). RTP and FTIP conformity uses travel demand and emission models to determine whether or not the implementation of those projects would conform to emission budgets or other tests at various analysis years showing that requirements of the FCAA and the SIP are met. If the conformity analysis is successful, the Metropolitan Planning Organization (MPO), Federal Highway Administration (FHWA), and Federal Transit Administration (FTA) make the determinations that the RTP and FTIP are in conformity with the SIP for achieving the goals of the FCAA. Otherwise, the projects in the RTP and/or FTIP must be modified until conformity is attained. If the design concept and scope and the "open-to-traffic" schedule of a proposed transportation project are the same as described in the RTP and FTIP, then the proposed project meets regional conformity requirements for purposes of project-level analysis.

Project-level conformity is achieved by demonstrating that the project comes from a conforming RTP and TIP; the project has a design concept and scope[77] that has not changed significantly from those in the RTP and TIP; project analyses have used the latest planning assumptions and EPA-approved emissions models; and in PM areas, the project complies with any control measures in the SIP. Furthermore, additional analyses (known as hot-spot analyses) may be required for projects located in CO and PM nonattainment or maintenance areas to examine localized air quality impacts.

Regional

The Bay Area Air Quality Management District (BAAQMD) regulates air quality in the San Francisco Bay Area Air Basin. BAAQMD is responsible for developing and enforcing air quality rules in the air district and is responsible for planning for the attainment of the state's ambient air quality standards. BAAQMD inspects stationary sources and responds to citizen complaints, monitors ambient air quality and meteorological conditions, and implements programs and regulations required by law. It also reviews air quality analyses prepared for projects under the California

[77] "Design concept" means the type of facility that is proposed, such as a freeway or arterial highway. "Design scope" refers to those aspects of the project that would clearly affect capacity and thus any regional emissions analysis, such as the number of lanes and the length of the project.

Environmental Quality Act (CEQA) and has published the CEQA Air Quality Guidelines (BAAQMD Guidelines), which are commonly used in the evaluation of air quality impacts.

Bay Area Air Quality Management District Air Quality Management Plan

BAAQMD is responsible for developing a Clean Air Plan, which guides the region's air quality planning efforts to attain the CAAQS. BAAQMD adopted the 2017 Clean Air Plan in April 2017. The 2017 Clean Air Plan updates the 2010 Clean Air Plan in accordance with the requirements of the California Clean Air Act to implement "all feasible measures" to reduce ozone; provide a control strategy to reduce ozone, particulate matter, Toxic air contaminants (TACs), and greenhouse gases in a single, integrated plan; review progress in improving air quality in recent years; and establish emission control measures to be adopted or implemented in both the short term and through 2050. Accordingly, the 2017 Clean Air Plan contains district-wide control measures to reduce the ozone precursor emissions, reactive organic gases (ROG), oxides of nitrogen (NO_x), particulate matter, TACs, and greenhouse gas emissions.

Community Air Risk Evaluation Program

Initiated in 2004, the Community Air Risk Evaluation (CARE) program evaluates and reduces health risks associated with exposures to outdoor TACs in the Bay Area. The program examines TAC emissions from point sources, area sources, and on- and off-road mobile sources with an emphasis on diesel exhaust. The CARE program is ongoing and encourages community involvement and input. Throughout the program, information derived from the technical analyses will be used to focus emission reduction measures in areas with high TAC exposures and a high density of sensitive populations. Risk reduction activities associated with the CARE program are focused on the most at-risk communities in the Bay Area.

A health risk assessment is an analysis in which human health exposure to toxic substances is estimated and considered together with information regarding the toxic potency of the substances, to provide a quantitative estimate of health risks. As part of ongoing efforts to identify and assess potential health risks to the public, BAAQMD has collected and compiled air toxics emissions data from industrial and commercial sources of air pollution throughout the Bay Area.

AFFECTED ENVIRONMENT

Information in this section is based on the Air Quality Technical Report (AQTR) completed in May 2019.

The Project is located within Dublin, Livermore, and the County, within the San Francisco Bay Air Basin. Air quality regulation in the San Francisco Air Basin is administered by BAAQMD. These boundaries make up the air quality study area for regional impacts. The study area for localized air quality impacts includes the Project site plus a 1,000-foot buffer and nearby intersections evaluated in the *Transportation Impact Assessment* (TIA) prepared in August 2018.

Regional Climate and Topography

The Project site is within the Livermore Valley, which is about 30 miles (48 km) east of the first coastal range of foothills that surround the San Francisco Bay Area. The Livermore Valley has an east-west orientation with mountain passes on the west and east connecting the Bay Area and the Central Valley. The passes are used by railroads and highways to connect the two regions. Livermore Valley is about 15 miles (24 km) long (east to west), 10 miles (16 km) wide (north to south) and surrounded by California coastal range mountains and foothills.

The Livermore Valley has a Mediterranean climate, although it is close to a semi-arid climate because of its relatively low annual precipitation. It features warm-to-hot dry summers and mild-to-cool wet winters. Daytime temperatures between June and October average between 75 and 85°F, but can reach 100°F and occasionally approach 110°F. Summer nights, however, are normally much cooler with lows from 50 to 60°F. The valley's passes direct the normal west to east flow of air through the valley. There are often strong evening winds in the summer that bring cool air off the Pacific Ocean into the Livermore Valley as it heads towards the much hotter Central Valley. The period from June to September is extremely dry and is characterized by clear skies, but in late summer, subtropical moisture occasionally surges into the Livermore Valley, bringing high humidity, monsoon clouds, and, much less commonly, thunderstorms. Nearly all the 14.6 inches of annual rainfall comes between September and May, but about 50 percent of the days are sunny during this period with no appreciable cloud cover. The peak rainy months are December to March.

Air quality in the region is controlled by meteorological conditions and the rate of pollutant emissions. Meteorological conditions such as wind speed, atmospheric stability, and mixing height may all affect the atmosphere’s ability to mix and disperse pollutants. Long-term variations in air quality typically result from changes in air pollutant emissions, while frequent, short-term variations result from changes in atmospheric conditions.

Air quality standards for ozone are traditionally exceeded when relatively stagnant air conditions occur for periods of several days during the warmer months of the year. Key components of ground-level ozone formation are sunlight and heat. Therefore, significant ozone formation only occurs during the months from late spring through early fall. Prevailing winds during the summer and fall can transport and trap ozone precursors from the more urbanized portions of the Bay Area in the Livermore Valley. Meteorological factors make air pollution potential in the study area relatively high during summer and fall months.

Air Pollutants

The six transportation-related criteria pollutants of concern (listed above in the **Regulatory Setting**), as well as lead, are discussed further below.

Ozone

Motor vehicles do not emit ozone directly into the environment, but tailpipe emissions undergo complex chemical reactions in the presence of sunlight, which result in the formation of ozone. The primary chemicals involved in these reactions are NO_x and ROG, often referred to as ozone

precursors. Ozone precursors may come from sources other than motor vehicles, but the largest anthropogenic source in the San Francisco Bay Area Air Basin (SFBAAB) is motor vehicle exhaust. Ozone exposure causes eye irritation and damage to lung tissue in humans. Ozone also harms vegetation, reduces crop yields, and accelerates deterioration of paints, finishes, rubber products, plastics, and fabrics.

Carbon Monoxide

CO is an odorless, colorless gas usually formed as the result of the incomplete combustion of fuels. The single largest source of CO is motor vehicles. CO disperses with distance from the source under normal meteorological conditions. However, under certain extreme meteorological conditions, CO concentrations near congested roadways or intersections may reach unhealthy levels that adversely affect local sensitive receptors (discussed further below). Typically, high CO concentrations are associated with roadways or intersections operating at unacceptable levels of service (LOS) or with extremely high traffic volumes. Exposure to high concentrations of CO reduces the oxygen-carrying capacity of the blood and can cause headaches, nausea, dizziness, and fatigue; impair central nervous system function; and induce chest pain in persons with serious heart disease. Very high levels of CO can be fatal.

Nitrogen Dioxide

NO_2 is a reddish-brown gas that is a byproduct of combustion processes. Automobiles and industrial operations are the main sources of NO_2. Aside from its contribution to ozone formation, NO_2 also contributes to other pollution problems, including a high concentration of fine particulate matter, poor visibility, and acid deposition. NO_2 may be visible as a coloring component on high pollution days, especially in conjunction with high ozone levels. NO_2 decreases lung function and may reduce resistance to infection.

Sulfur Dioxide

SO_2 is a colorless, irritating gas formed primarily from incomplete combustion of fuels containing sulfur. Industrial facilities also contribute to SO_2 levels in the region. SO_2 irritates the respiratory tract, can injure lung tissue when combined with fine particulate matter, and reduces visibility and the level of sunlight.

Particulate Matter

PM_{10} and $PM_{2.5}$ consist of extremely small, suspended particles or droplets that are 10 microns and 2.5 microns or smaller in diameter, respectively. Some sources of particulate matter, like pollen, forest fires, and windblown dust, are naturally occurring. In populated areas, most particulate matter is caused by road dust, combustion products, abrasion of tires and brakes, and construction activities. Secondary particulate matter can also be formed in the atmosphere through condensation and chemical reactions of inorganic gases and ROG.

Particulate matter exposure can affect breathing, aggravate existing respiratory and cardiovascular disease, alter the body's defense systems against foreign materials, and damage lung tissue,

contributing to cancer and premature death. Individuals with chronic obstructive pulmonary or cardiovascular disease, asthmatics, the elderly, and children are most sensitive to the effects of particulate matter.

Lead

Lead is a metal found naturally in the natural environment as well as in manufactured products. The major sources of lead emissions have historically been mobile and industrial sources. Twenty years ago, mobile sources were the main contributor to ambient lead concentrations in the air. In the early 1970s, the U.S. EPA established national regulations to gradually reduce the lead content in gasoline. In 1975, unleaded gasoline was introduced for motor vehicles equipped with catalytic converters. The U.S. EPA banned the use of leaded gasoline in highway vehicles in 1995. As a result of the EPA's regulatory efforts to remove lead from gasoline, emissions of lead from the transportation sector and levels of lead in the air decreased dramatically. Metal processing is currently the primary source of lead emissions, with the highest levels of lead in the air generally found near lead smelters. Other stationary sources are waste incinerators, utilities, and lead-acid battery manufactures.

Mobile Source Air Toxics

MSATs include a diverse group of air pollutants that can adversely affect human health. Unlike criteria air pollutants, which generally affect regional air quality, MSAT emissions are evaluated based on estimations of localized concentrations and risk assessments. The adverse health effects a person may experience following exposure to any chemical depend on several factors, including the amount (dose), duration, chemical form, and any simultaneous exposure to other chemicals.

The U.S. EPA's Integrated Risk Information System (IRIS) includes 93 hazardous air pollutants emitted from mobile sources. Based on the U.S. EPA's 2011 National-scale Air Toxics Assessment, nine of these compounds are considered significant national and regional-scale cancer risk drivers or contributors and/or non-cancer hazard contributors. These are acetaldehyde, acrolein, benzene, 1,3-butadiene, diesel particulate matter, ethylbenzene, formaldehyde, naphthalene, and polycyclic organic matter. While the FHWA considers these nine compounds the priority MSATs, the list is subject to change and may be adjusted in consideration of future U.S. EPA rules.

Air Quality

Regional Air Quality Attainment Status

The BAAQMD monitors pollutants of concern, known as criteria pollutants, and air quality conditions throughout the San Francisco (SF) Air Basin. Areas that do not violate ambient air quality standards are considered to have attained the standard. Violations of ambient air quality standards are based on air pollutant monitoring data and are judged for each air pollutant. **Table 2.3-3** includes a summary of the applicable air quality standards, the typical sources of pollutants and their associated health effects, and the SF Air Basin's attainment status with respect to the air quality standards. As shown in **Table 2.3-3**, the SF Air Basin is not in attainment of state or federal

standards with respect to O_3 or $PM_{2.5}$. In addition, the SF Air Basin is not in attainment of state standards for PM_{10}.

Conformity

The Project is included in the regional emissions analysis conducted by MTC for the current RTP, Plan Bay Area 2040.[78] The regional emissions analysis found that significant projects in the San Francisco Bay Area will conform to the SIP for attaining and/or maintaining the NAAQS as provided in Section 176(c) of the Clean Air Act. FHWA and FTA determined that the RTP conforms to the SIP on August 23, 2017. The Project is also included in the MTC's financially constrained 2019 TIP. The TIP gives priority to eligible Transportation Control Measures (TCMs) identified in the SIP and provides sufficient funds to provide for their implementation. FHWA and FTA determined that the TIP conforms to the SIP on December 17, 2018.

[78] Association of Bay Area Governments, 2017. Plan Bay Area 2040. Available: http://2040.planbayarea.org/cdn/ff/buje2Q801oUV3Vpib-FoJ6mkOfWC9S9sgrSgJrwFBgo/1510696833/public/2017-11/Final_Plan_Bay_Area_2040.pdf. Accessed October 14, 2019.

Table 2.3-3 State and Federal Ambient Air Quality Standards, Effects, and Sources

Pollutant	Averaging Time	State [8] Standard	Federal [8] Standard	Principal Health and Atmospheric Effects	Typical Sources	Project Area Attainment Status
Ozone (O_3)[2]	1 hour 8 hours	0.09 ppm 0.070 ppm	0.070 ppm (4th highest in 3 years)	High concentrations irritate lungs. Long-term exposure may cause lung tissue damage and cancer. Long-term exposure damages plant materials and reduces crop productivity. Precursor organic compounds include many known toxic air contaminants. Biogenic VOC may also contribute	Low-altitude O_3 is almost entirely formed from reactive organic gases/volatile organic compounds (ROG or VOC) and nitrogen oxides (NOx) in the presence of sunlight and heat. Common precursor emitters include motor vehicles and other internal combustion engines, solvent evaporation, boilers, furnaces, and industrial processes.	Federal: Non-attainment (Marginal) State: Non-attainment
Carbon Monoxide (CO)	1 hour 8 hours	20 ppm 9.0 ppm	35 ppm 9 ppm ---	CO interferes with the transfer of oxygen to the blood and deprives sensitive tissues of oxygen. CO also is a minor precursor for photochemical ozone. Colorless, odorless	Combustion sources, especially gasoline-powered engines and motor vehicles. CO is the traditional signature pollutant for on-road mobile sources at the local and neighborhood scale.	Federal: Attainment Maintenance (Moderate) State: Attainment
Respirable Particulate Matter (PM_{10})[2]	24 hours Annual	50 µg/m^3 20 µg/m^3	150 µg/m^3 --- 2 (expected number of days above standard < or equal to 1)	Irritates eyes and respiratory tract. Decreases lung capacity. Associated with increased cancer and mortality. Contributes to haze and reduced visibility. Includes some toxic air contaminants. Many toxic & other aerosol and solid compounds are part of PM_{10}.	Dust- and fume-producing industrial and agricultural operations; combustion smoke & vehicle exhaust; atmospheric chemical reactions; construction and other dust-producing activities; unpaved road dust and re-entrained paved road dust; natural sources.	Federal: Unclassifiable/ Attainment State: Non-attainment

Pollutant	Averaging Time	State [8] Standard	Federal [8] Standard	Principal Health and Atmospheric Effects	Typical Sources	Project Area Attainment Status
Fine Particulate Matter ($PM_{2.5}$)[2]	24 hours Annual 24 hours (conformity process[5]) Secondary Standard (annual; also for conformity process[5])	--- 12 µg/m^3 --- ---	35 µg/m^3 12.0 µg/m^3 65 µg/m^3 15 µg/m^3 (98th percentile over 3 years)	Increases respiratory disease, lung damage, cancer, and premature death. Reduces visibility and produces surface soiling. Most diesel exhaust particulate matter – a toxic air contaminant – is in the $PM_{2.5}$ size range. Many toxic & other aerosol and solid compounds are part of $PM_{2.5}$.	Combustion including motor vehicles, other mobile sources, and industrial activities; residential and agricultural burning; also formed through atmospheric chemical and photochemical reactions involving other pollutants including NOx, sulfur oxides (SOx), ammonia, and ROG	Federal: Non-attainment State: Non-attainment
Nitrogen Dioxide (NO_2)	1 hour Annual	0.18 ppm 0.030 ppm	0.100 ppm[6] (98th percentile over 3 years) 0.053 ppm	Irritating to eyes and respiratory tract. Colors atmosphere reddish-brown. Contributes to acid rain & nitrate contamination of storm water. Part of the "NOx" group of ozone precursors	Motor vehicles and other mobile or portable engines, especially diesel; refineries; industrial operations	Federal: Unclassifiable/ Attainment State: Attainment
Sulfur Dioxide (SO_2)	1 hour 3 hours 24 hours	0.25 ppm --- 0.04 ppm	0.075 ppm[7] (99th percentile over 3 years) 0.5 ppm[9]	Irritates respiratory tract; injures lung tissue. Can yellow plant leaves. Destructive to marble, iron, steel. Contributes to acid rain. Limits visibility	Fuel combustion (especially coal and high-sulfur oil), chemical plants, sulfur recovery plants, metal processing; some natural sources like active volcanoes. Limited contribution possible from heavy-duty diesel vehicles if ultra-low sulfur fuel not used.	Federal: Unclassifiable/ Attainment State: Attainment
Lead (Pb)[3]	Monthly Rolling 3-month average	1.5 µg/m^3 ---	--- 0.15 µg/m^3 11	Disturbs gastrointestinal system. Causes anemia, kidney disease, and neuromuscular and neurological dysfunction. Also a toxic air contaminant and water pollutant	Lead-based industrial processes like battery production and smelters. Lead paint, leaded gasoline. Aerially deposited lead from older gasoline use may exist in soils along major roads	Federal: Unclassifiable/ Attainment State: Attainment

Pollutant	Averaging Time	State [8] Standard	Federal [8] Standard	Principal Health and Atmospheric Effects	Typical Sources	Project Area Attainment Status
Sulfate	24 hours	25 µg/m^3	---	Premature mortality and respiratory effects. Contributes to acid rain. Some toxic air contaminants attach to sulfate aerosol particles	Industrial processes, refineries and oil fields, mines, natural sources like volcanic areas, salt-covered dry lakes, and large sulfide rock areas	Federal: N/A State: Attainment
Hydrogen Sulfide (H_2S)	1 hour	0.03 ppm	---	Colorless, flammable, poisonous. Respiratory irritant. Neurological damage and premature death. Headache, nausea. Strong odor	Industrial processes such as: refineries and oil fields, asphalt plants, livestock operations, sewage treatment plants, and mines. Some natural sources like volcanic areas and hot springs	Federal: N/A State: Unclassified
Visibility Reducing Particles (VRP)	8 hours	Visibility of 10 miles or more (Tahoe: 30 miles) at relative humidity less than 70%	---	Reduces visibility. Produces haze. NOTE: not directly related to the Regional Haze program under the Federal Clean Air Act, which is oriented primarily toward visibility issues in National Parks and other "Class I" areas. However, some issues and measurement methods are similar	See particulate matter above May be related more to aerosols than to solid particles	Federal: N/A State: Unclassified
Vinyl Chloride[3]	24 hours	0.01 ppm	---	Neurological effects, liver damage, cancer Also considered a toxic air contaminant	Industrial processes	Federal: N/A State: No Information Available

Notes: ppm = parts per million; µg/m3 = micrograms per cubic meter; ppb=parts per billion (thousand million)

1. Rounding to an integer value is not allowed for the state 8-hour CO standard. A violation occurs at or above 9.05 ppm.
2. Annual PM_{10} NAAQS revoked October 2006; was 50 µg/m^3. 24-hr. $PM_{2.5}$ NAAQS tightened October 2006; was 65 µg/m^3. Annual $PM_{2.5}$ NAAQS tightened from 15 µg/m^3 to 12 µg/m^3 December 2012 and secondary annual standard set at 15 µg/m^3.
3. The ARB has identified vinyl chloride and the particulate matter fraction of diesel exhaust as toxic air contaminants. Diesel exhaust particulate matter is part of PM_{10} and, in larger proportion, $PM_{2.5}$. Both the ARB and U.S. EPA have identified lead and various organic compounds that are precursors to ozone and $PM_{2.5}$ as toxic air contaminants. There are no exposure criteria for adverse health effect due to toxic air contaminants, and control requirements may apply at ambient concentrations below any criteria levels specified above for these pollutants or the general categories of pollutants to which they belong.
4. Prior to 6/2005, the 1-hour ozone NAAQS was 0.12 ppm. Emission budgets for 1-hour ozone are still in use in some areas where 8-hour ozone emission budgets have not been developed, such as the SF Bay Area.
5. The 65 µg/m^3 $PM_{2.5}$ (24-hr) NAAQS was not revoked when the 35 µg/m^3 NAAQS was promulgated in 2006. The 15 µg/m^3 annual $PM_{2.5}$ standard was not revoked when the 12 µg/m^3 standard was promulgated in 2012. The 0.08 ppm 1997 ozone standard is revoked FOR CONFORMITY PURPOSES ONLY when area designations for the 2008

0.75 ppm standard become effective for conformity use (7/20/2013). Conformity requirements apply for all NAAQS, including revoked NAAQS, until emission budgets for newer NAAQS are found adequate, SIP amendments for the newer NAAQS are approved with a emission budget, EPA specifically revokes conformity requirements for an older standard, or the area becomes attainment/unclassified. SIP-approved emission budgets remain in force indefinitely unless explicitly replaced or eliminated by a subsequent approved SIP amendment. During the "Interim" period prior to availability of emission budgets, conformity tests may include some combination of build vs. no build, build vs. baseline, or compliance with prior emission budgets for the same pollutant.

6. Final 1-hour NO_2 NAAQS published in the Federal Register on 2/9/2010, effective 3/9/2010. Initial area designation for California (2012) was attainment/unclassifiable throughout. Project-level hot spot analysis requirements do not currently exist. Near-road monitoring starting in 2013 may cause redesignation to nonattainment in some areas after 2016.
7. EPA finalized a 1-hour SO_2 standard of 75 ppb in June 2010. Nonattainment areas have not yet been designated as of 9/2012.
8. State standards are "not to exceed" or "not to be equaled or exceeded" unless stated otherwise. Federal standards are "not to exceed more than once a year" or as described above.
9. Secondary standard, set to protect public welfare rather than health. Conformity and environmental analysis address both primary and secondary NAAQS.
10. Lead NAAQS are not considered in Transportation Conformity analysis

Sensitive Receptors

Some groups of people are more affected by air pollution than others and are known as sensitive receptors. The state has identified the following groups of people who are most likely to be affected by air pollution: children under 16, the elderly over 65, people conducting athletic activities, and people with cardiovascular and chronic respiratory diseases. Locations that may contain a high concentration of these sensitive population groups include residential areas, hospitals, daycare facilities, elder care facilities, outdoor athletic fields, and elementary schools. Air quality studies evaluate health impacts to sensitive receptors that are within 1,000 feet of a project, as receptors beyond 1,000 feet would generally not be close enough to experience any effects from project air pollutant emissions. Sensitive receptors for this Project include residences and Cottonwood Creek Elementary School located north and northwest of the Project, approximately 619 to 864 feet from the nearest edge of the Project site. There is a private school along North Canyons Parkway, east of the Project site, which is currently unoccupied. The radius of this analysis included the vacant school, and it was considered a sensitive receptor since the infrastructure for a school remains and it could reasonably be anticipated to reopen in the future. There are no other existing sensitive uses, such as hospitals, within 1,000 feet of the Project site.

Naturally-Occurring Asbestos

Disturbance to naturally occurring asbestos during construction is a concern in parts of California. According to information presented in the Department of Conservation Division of Mines and Geology map, naturally occurring asbestos is not indicated the Project site or in the vicinity of the Project.

ENVIRONMENTAL CONSEQUENCES

Build Alternative

Regional Conformity

The Project is listed in Plan Bay Area 2040 financially constrained Regional Transportation Plan which was found to conform by MTC on July 26, 2017, and FHWA and FTA made a regional conformity determination finding on August 23, 2017. The Project is included in the MTC's current conforming RTP, Plan Bay Area 2040 (RTP ID 17-01-0048) and the current financially constrained 2019 TIP (TIP ID ALA150003). The MTC Regional Transportation Improvement Program was determined to conform by FHWA and FTA on December 17, 2018. The design concept and scope of the Project is consistent with the project description in the 2019 RTP, RTIP, and the "open to traffic assumptions of the MTC's regional emissions analysis.

The Project is included in the regional emissions analysis conducted by MTC for the current RTP, Plan Bay Area 2040. The regional emissions analysis found that significant projects in the San Francisco Bay Area will conform to the SIP for attaining and/or maintaining the NAAQS as provided in Section 176(c) of the Clean Air Act. The Transportation Improvement Program gives priority to eligible Transportation Control Measures (TCMs) identified in the SIP and provides sufficient funds to provide for their implementation. Therefore, the Project would not interfere with the timely implementation of any TCMs identified in the SIP.

Project-Level Conformity

Project-level conformity is achieved by demonstrating that the project comes from a conforming RTP and Transportation Improvement Program; the project has a design concept and scope that has not changed significantly from those in the RTP and Transportation Improvement Program; project analyses have used the latest planning assumptions and EPA-approved emissions models; and in PM areas, the project complies with any control measures in the SIP. Furthermore, additional analyses (known as hot-spot analyses) may be required for projects located in CO and PM nonattainment or maintenance areas to examine localized air quality impacts.

At the time of this report preparation, the SFBAAB was designated as a federal maintenance area for CO, and the Project is in a federal nonattainment area for O_3 and $PM_{2.5}$.[79] For nonattainment or maintenance area, a project-level hot-spot analysis for CO is required under 40 CFR 93.109 and an evaluation of project-level conformity to the SIP was performed. In accordance with guidance from the UC Davis Transportation Project-Level Carbon Monoxide Protocol, a CO hot-spot analysis was performed for the Build Alternative to evaluate the potential transportation-related impacts on local CO levels at the most congested intersections and/or interchanges.

Because O_3 impacts are regional in nature, projects that are included in an RTP and TIP have already undergone regional conformity analysis and do not require further analysis for a project-level conformity determination. This Project is included in a conforming RTP and TIP, and therefore emissions of O_3 precursors from project-related traffic are not anticipated to cause or contribute to, or worsen, any O_3 violations.

In addition, the BAAQMD adopted the 2017 Clean Air Plan (CAP) to plan for and achieve compliance with the federal and State O_3 standards (BAAQMD 2017). The Build Alternative would not interfere with the control measures described in the 2017 CAP. This Project is not listed in the SIP as a TCM.

[79] On March 21, 2018, U.S. EPA informed the California Air Resources Board that the transportation conformity requirements for CO ended on June 1, 2018, as the region has the region has been designated maintenance for 20 years. The region is now designated "Attainment." The maintenance plan remains in effect until a revision to the state plan is approved by the EPA.

Therefore, the Build Alternative would provide transportation benefits that reduce pollutant emissions, including O3 precursors, by improving traffic operations and efficiency.

On October 25, 2018, the Air Quality Conformity Task Force determined the Project is not a Project of Air Quality Concern as defined by 40 CFR 93.123(b)(1) or 40 CFR 93.128 and therefore is not subject to $PM_{2.5}$ project-level conformity requirement.

Construction-Related Hot-Spot Analysis

40 CFR 93.123(c)(5) states that: "CO, PM_{10}, and $PM_{2.5}$ hot-spot analyses are not required to consider construction-related activities which cause temporary increases in emissions. Each site which is affected by construction-related activities shall be considered separately, using established 'Guideline' methods. Temporary increases are defined as those which occur only during the construction phase and last five years or less at any individual site." Because construction of the Project is expected to last less than five years, an evaluation of CO and $PM_{2.5}$ emissions during Project construction is not required for a project-level conformity determination.

Operational Hot-Spot Analysis

The CO Protocol was developed for project-level conformity (hot-spot) analysis and was approved for use by the U.S. EPA in 1997. It provides qualitative and quantitative screening procedures, as well as quantitative (modeling) analysis methods to assess project-level CO impacts. The qualitative screening step is designed to avoid the use of detailed modeling for projects that clearly cannot cause a violation, or worsen an existing violation, of CO standards.

The CO analysis followed the procedures in the CO Protocol, which the applies screening procedures to evaluate potential CO effects and assess the need for any further analysis. The Project site is within a CO maintenance area where continued attainment of the federal CO standard has been verified. The study area is also in attainment for the state CO standard. The Build Alternative is included in a conforming RTP and TIP. Based on the CO Protocol, the screening procedure in "Level 7" was followed to make a comparison of the Build Alternative and one of the worst intersections in the region. For this analysis, the State Route 24 between Broadway and State Route 13 was used. Projects that meet the requirement in Section 4.7.2 of the Caltrans CO Protocol are deemed to be satisfactory and no further analysis is necessary. A discussion of the protocol list items is provided in detail in the AQTR. The comparative analysis results indicate that total CO concentrations would not cause or contribute to any new localized violations of the federal 1-hour or 8-hour CO ambient standards.

The Dublin Boulevard/North Canyons Parkway extension would carry less traffic than the comparison location. In addition, the background CO level at the Project site is lower than that of the comparison location. Based on the Level 7 checklist analysis, all of the key conditions would be satisfied and there is no reason to expect high CO concentrations along the Dublin Boulevard/North Canyons Parkway Extension than those measured at the comparison location. Further, Alameda County has recorded CO levels well below both the CO standard and the CO levels at the comparison location. Therefore, the Build Alternative is not expected to cause exceedances of state or federal CO standards.

The approved RTP and TIP for the Project area has no CO mitigation or control measures that relate to the Project's construction or operation. Therefore, a written commitment consistent with CFR 93.125 to implement CO control measures is not required.

Additional Environmental Analysis

The Caltrans Emission Factor 2014 (CT-EMFAC2014) Version 6.0 model was used to predict vehicle emission rates. CT-EMFAC2014 models on-road vehicle emissions for criteria pollutants, mobile source air toxics, and CO_2. The tool's underlying data is based on CARB's EMFAC2014 on-road emissions model and mobile source air toxins speciation factors supplied by CARB and the U.S. EPA. Emission processes modeled include running exhaust for all pollutants, running losses for organic compounds (such as ROG), and tire and brake wear for PM_{10} and $PM_{2.5}$. The predicted daily traffic conditions were combined with CT-EMFAC2014 emissions factors to predict emissions in pounds per day. Caltrans's Ethylbenzene tool and the Sacramento Metropolitan Air Quality Management District's Roadway Construction Emissions Model were also used to calculate the emissions from the Build Alternative.

Construction

Site preparation and roadway construction would involve clearing, cut-and-fill activities, grading, and paving roadway surfaces. During construction, short-term degradation of air quality is expected from the release of particulate emissions (airborne dust) generated by excavation, grading, hauling, and other activities related to construction. Emissions from construction equipment powered by gasoline and diesel engines are also anticipated and would include CO, NOx, VOCs, directly emitted PM_{10} and $PM_{2.5}$, and TACs such as diesel exhaust particulate matter. Construction activities are expected to increase traffic congestion in the area, resulting in increases in emissions from traffic during the delays. These emissions would be temporary and limited to the immediate area surrounding the construction site.

Under the transportation conformity regulations (40 CFR 93.123(c)(5)), construction-related activities that cause temporary increases in emissions do not need to be included in a hot-spot analysis. These temporary increases in emissions are those that occur only during the construction phase and last five years or less at any individual site. They typically fall into two main categories:

- **Fugitive Dust:** Fugitive dust is major emission from construction due to ground disturbance. All air districts and the California Health and Safety Code (Sections 41700-41701) prohibit "visible emissions" exceeding three minutes in one hour – this applies not only to dust but also to engine exhaust. In general, this is interpreted as visible emissions crossing the right-of-way line. Sources of fugitive dust include disturbed soils at the construction site and trucks carrying uncovered loads of soils. Unless properly controlled, vehicles leaving the site may deposit mud on local streets, which could be an additional source of airborne dust after it dries. PM_{10} emissions may vary from day to day, depending on the nature and magnitude of construction activity and local weather conditions. PM_{10} emissions depend on soil moisture, silt content of soil, wind speed, and the amount of

equipment operating. Larger dust particles would settle near the source, while fine particles would be dispersed over greater distances from the construction site.

- **Construction equipment emissions:** Diesel exhaust particulate matter is a California-identified toxic air contaminant, and localized issues may exist if diesel-powered construction equipment is operated near sensitive receptors.

Construction emissions were estimated for the Build Alternative using detailed equipment inventories and Project construction scheduling combined with emissions factors from the Sacramento Metropolitan Air Quality Management District Road Construction Emissions Model, Version 8.1.0. Construction-related emissions for the Build Alternative are presented in **Table 2.3.-4**. The results of the construction emission calculations are included in the AQTR. The emissions presented are based on the best information available at the time of calculations. Implementation of **Measure AQ-1**, some of which may also be required for other purposes such as storm water pollution control, would reduce air quality effects resulting from construction activities.

Operation

Operational emissions take into account long-term changes in emissions that would occur under the Build Alternative. The operational emissions analysis compares forecasted emissions for existing conditions without the Build Alternative (2017 baseline), emissions in the year 2025 and 2040 under the No-Build Alternative, and emissions in 2025 and 2040 with implementation of the Build Alternative. The CT-EMFAC model, Version 4.0 was used with Project traffic data to analyze air pollutant emissions associated with the Build Alternative. **Table 2.3-5** shows the effect of the Project in the Project vicinity and **Table 2.3-6** shows emissions from the local roadway network and proposed roadway only.

Mobile Source Air Toxics

MSAT emissions were estimated for Baseline, No-Build, and the Build Alternative for the opening year 2025 and horizon year 2040. The modeling results for the Baseline, No-Build, and Build Alternative are presented in Table 16 of the AQTR for the entire network (in the vicinity) and in Table 17 of the AQTR for the localized increase along the roadway. The AQTR summarizes the results of the MSAT analysis.

CT-EMFAC2014 was used to estimate emissions of benzene, 1,3-butadiene, formaldehyde, acrolein, naphthalene, diesel particulate matter, and polycyclic organic matter. The emissions for ethylbenzene were calculated using the Caltrans Ethylbenzene Emissions Calculator dated April 26, 2016. Traffic activity data were estimated for each of the different periods of a representative day in the baseline, opening 2025, and horizon 2040 years.

The results of the MSAT analysis demonstrated that all emissions would decrease in the Project vicinity in the opening year (2025) and cumulative year (2040) under both the Build Alternative and No-Build Alternative. In 2025, emissions for the Build Alternative and No-Build Alternative would be identical with the exception of ethyl-benzene, which would be negligibly higher under the

Build Alternative. Similarly, the Build Alternative would result in negligible increases in MSATs along the Project itself.

Table 2.3-4 Construction Emissions for the Build Alternative

Activity/Phase	ROG (lbs./day)	PM_{10} Exhaust (lbs./day)	$PM_{2.5}$ Exhaust (lbs./day)	NO_x (lbs./day)	CO_2e (lbs./day)
Land Clearing/ Grubbing	10.91	5.56	5.1	107.75	13,399.38
Grading/Excavation	15.11	4.64	4.07	101.72	17,253.60
Drainage/Utilities/Sub-Grade	10.9	3.54	3.22	65.44	11,749.74
Paving	4.3	2.5	2.2	45.25	8,700.93
Average Daily	4.44	2.33	2.06	47.10	7,977.51
Project Total (Tons/construction Period)	**0.82**	**0.43**	**0.38**	**8.69**	**1335**

Source: Illingworth & Rodkin, 2018

Overall, emissions of all criteria pollutants would reduce over time when compared to existing conditions due to improvement in traffic flow on the roadway network and through cleaner vehicles which are assumed in the model defaults.

Table 2.3-5 Emissions Analysis in the Project Vicinity

Scenario/ Analysis Year	CO (tons/day)	PM_{10} (tons/day)	$PM_{2.5}$ (tons/day)	NO_x (tons/day)
Baseline	1,754.98	8.10	7.67	708.80
No-Build 2025	962.58	3.19	2.99	252.86
Build Alternative 2025	962.53	3.19	2.99	252.85
No-Build 2040	655.02	1.74	1.63	148.69
Build Alternative 2040	655.21	1.74	1.63	148.73

Source: Illingworth & Rodkin, 2018

Table 2.3-6 Summary of Comparative Emissions Analysis for the Project

Scenario/ Analysis Year	CO (tons/day)	PM_{10} (tons/day)	$PM_{2.5}$ (tons/day)	NO_x (tons/day)
Analysis for the Project Area (Local Roadway Network)				
Baseline	48.8	1.6	0.9	20.8
No-Build 2025	26.3	1.9	0.8	8.0
Build Alternative 2025	57.5	4.1	1.7	17.4
No-Build 2040	35.3	4.0	1.6	11.3
Build Alternative 2040	48.6	5.5	2.3	15.6
Analysis for the New Roadway Only				
Baseline	0	0	0	0
No-Build 2025	0	0	0	0
Build Alternative 2025	31.2	2.2	0.9	9.4
No-Build 2040	0	0	0	0
Build Alternative 2040	13.3	1.5	0.7	4.3

Source: Illingworth & Rodkin, 2018

Community Health Risk

The potential for the Build Alternative to result in increased community health or cancer risk would occur primarily from the Build Alternative being a new source of operational TACs in the vicinity of sensitive receptors. BAAQMD recommends a 1,000-foot screening radius around a project site to identify health and cancer risks. In addition to operational TACs, construction activities would generate dust and equipment exhaust on a temporary basis that could affect nearby sensitive receptors.

Health Risk and Cancer Risk from Construction Activities

A community health risk assessment of construction activities was conducted to evaluate potential health effects on sensitive receptors. This analysis focuses on diesel particulate matter and $PM_{2.5}$. Sensitive receptors potentially affected by construction include residences within 1,000 feet of the construction area (north and northwest along North Canyons Parkway) and portions of the existing roadway network affected by construction traffic. As shown in **Table 2.3-7**, the maximum increased residential risk would be below the BAAQMD significance threshold of a cancer risk of 10 in one million or greater. The maximum annual $PM_{2.5}$ concentration and computed hazard index (HI) are also below the significance threshold. These thresholds have been established to ensure that unacceptable risks to human health, including cancer, are avoided. BAAQMD significance thresholds are provided as a basis for comparison, to contextualize and help evaluate effects.

Table 2.3-7 Maximum Community Risk from Construction Activities

Location and Exposure Type	Cancer Risk (per million)	Annual $PM_{2.5}$ ($\mu g/m^3$)[a]	Chronic Hazard Index
Maximum Residential			
Infant/Child	1.1	0.03	<0.01
Adult	0.02	--	--
BAAQMD Significance Threshold	>10.0	>0.3	>1.0
Exceed Threshold	No	No	No

Source: Illingworth & Rodkin, 2019
[a]The annual $PM_{2.5}$ concentration is the sum of the DPM and fugitive $PM_{2.5}$ concentrations.

Health Risk and Cancer Risk from Project Operation

Based on the BAAQMD screening calculator results, potential excess cancer risk from operation of the Build Alternative would range from one in one million to four in one million at existing sensitive receptors. This is below the BAAQMD significance threshold of 10 in one million. Annual $PM_{2.5}$ concentrations from operation of the Build Alternative would be 0.12 µg/m3, which would not exceed the BAAQMD significance threshold of 0.3µg/m3. The maximum community risks from Project operation are summarized in **Table 2.3-8**. These results are based on a calculation that assumes current (2017) vehicle emission rates. However, vehicle emission rates are anticipated to decrease over time as required by state and federal standards. A refined modeling scenario that considers lower emissions rates for the years 2025 and 2040 would likely predict lower impacts. Project operation would not result in health risk or cancer risk that exceeds BAAQMD thresholds, even when higher vehicle pollutant emissions rates are used.

Table 2.3-8 Maximum Community Risk from Project Operations

Scenario	Fallon Road. & Dublin Blvd.		Croak Rd. & Dublin Blvd. Extension	Doolan Rd. & N. Canyons Parkway
	ADT west	ADT east	ADT north	ADT south
Existing 2017	7,565	0	0	895
No Build 2025	9,705	0	0	985
2025 Plus Project	16,480	11,525	9,850	10,770
2025 ADT Increase	6,775	11,525	9,850	9,785
No Build 2040	11,835	0	0	895
2040 Plus Project	18,555	19,145	15,780	16,460
2040 ADT Increase	6,720	19,145	15,780	15,565
Closest Sensitive Receptor	40 ft North	>700 ft North	>700 ft South	>150 ft North
Cancer Risk at 50 feet	3.56	1.49	0.66	4.15

Scenario	Fallon Road. & Dublin Blvd.		Croak Rd. & Dublin Blvd. Extension	Doolan Rd. & N. Canyons Parkway
	ADT west	ADT east	ADT north	ADT south
$PM_{2.5}$ at 50 feet	0.10	0.04	0.02	0.12
BAAQMD Significance Threshold	Cancer Risk (per million)		Annual PM2.5 (µg/m3)1	
	Less than 10.0 ppm		Less than 0.3 ppm	
Exceed Threshold	No		No	

Source: Illingworth & Rodkin, 2019
ADT = Average daily trips
[1]The annual PM2.5 concentration is the sum of the diesel particulate matter and fugitive PM2.5 concentrations.
[2]Roadway Screening Calculator does not consider roadways to be sources of substantial HI.
[3]Note screening cancer risk prediction based on residential exposure (i.e., infant, child and adult exposure over 30 years), where nearest receptor is a school and with less exposure duration (i.e., child exposure over 9 years).

No-Build Alternative

Under the No-Build Alternative, Dublin Boulevard and North Canyons Parkway would continue to operate unconnected in their current configurations. No construction activities would occur, and there would be no change in the operations of the existing roadways. As demonstrated in the analysis above, the No-Build Alternative would have the same or similar effects as the Build Alternative. The No-Build Alternative would not result in any adverse effects to air quality.

AVOIDANCE, MINIMIZATION, AND/OR MITIGATION MEASURES

Measure AQ-1: The construction contractor must comply with the Department's Standard Specifications and the dust control measures specified in the contract specifications.

- Water or dust palliative would be applied to the site and equipment as often as necessary to control fugitive dust emissions. Fugitive emissions generally must meet a "no visible dust" criterion either at the point of emissions or at the right-of-way line depending on local regulations.
- Soil binder would be spread on any unpaved roads used for construction purposes, and on all Project construction parking areas.
- Trucks would be washed as they leave the right-of-way as necessary to control fugitive dust emissions.
- Construction equipment and vehicles would be properly tuned and maintained. All construction equipment would use low sulfur fuel as required by California Code of Regulations Title 17, Section 93114.
- A dust control measure would be developed documenting sprinkling, temporary paving, speed limits, and timely revegetation of disturbed slopes as needed to minimize construction impacts to existing communities.

- Equipment and materials storage sites would be located as far away from residential and park uses as practicable. Construction areas would be kept clean and orderly.
- Track-out reduction measures, such as gravel pads at Project access points to minimize dust and mud deposits on roads affected by construction traffic, would be used.
- All transported loads of soils and wet materials would be covered before transport, or adequate freeboard (space from the top of the material to the top of the truck) would be provided to minimize emission of dust (particulate matter) during transportation.
- Dust and mud that are deposited on paved, public roads due to construction activity and traffic would be promptly and regularly removed to decrease particulate matter.
- To the extent feasible, construction traffic would be scheduled and routed to reduce congestion and related air quality impacts caused by idling vehicles along local roads during peak travel times.

2.3.6 NOISE AND VIBRATION

REGULATORY SETTING

Federal

The National Environmental Policy Act (NEPA) of 1969 provides the broad basis for analyzing and abating highway traffic noise effects. The intent of this law is to promote the general welfare and to foster a healthy environment. The requirements for noise analysis and consideration of noise abatement under NEPA are described below.

National Environmental Policy Act and 23 CFR 772

For highway transportation projects with Federal Highway Administration (FHWA) involvement (and the Department, as assigned), the Federal-Aid Highway Act of 1970 and its implementing regulations (23 Code of Federal Regulations [CFR] 772) govern the analysis and abatement of traffic noise impacts. The regulations require that potential noise impacts in areas of frequent human use be identified during the planning and design of a highway project. The regulations include noise abatement criteria (NAC) that are used to determine when a noise impact would occur. The NAC differ depending on the type of land use under analysis. For example, the NAC for residences (67 dBA) is lower than the NAC for commercial areas (72 dBA).[80] **Table 2.3-9** lists the noise abatement criteria for use in the NEPA/23 CFR 772 analysis.

[80] DBA – A-weighted decibel

Table 2.3-9 Noise Abatement Criteria

Activity Category	Activity $L_{eq[h]}$[1]	Evaluation Location	Description of Activities
A	57	Exterior	Lands on which serenity and quiet are of extraordinary significance and serve an important public need and where the preservation of those qualities is essential if the area is to continue to serve its intended purpose.
B[2]	67	Exterior	Residential.
C[2]	67	Exterior	Active sport areas, amphitheaters, auditoriums, campgrounds, cemeteries, day care centers, hospitals, libraries, medical facilities, parks, picnic areas, places of worship, playgrounds, public meeting rooms, public or nonprofit institutional structures, radio studios, recording studios, recreation areas, Section 4(f) sites, schools, television studios, trails, and trail crossings.
D	52	Interior	Auditoriums, day care centers, hospitals, libraries, medical facilities, places of worship, public meeting rooms, public or nonprofit institutional structures, radio studios, recording studios, schools, and television studios.
E	72	Exterior	Hotels, motels, offices, restaurants/bars, and other developed lands, properties, or activities not included in A–D or F.
F	No NAC – reporting only	-	Agriculture, airports, bus yards, emergency services, industrial, logging, maintenance facilities, manufacturing, mining, rail yards, retail facilities, shipyards, utilities (water resources, water treatment, electrical), and warehousing.
G	No NAC – reporting only	-	Undeveloped lands that are not permitted.

[1]The $L_{eq(h)}$ activity criteria values are for impact determination only and are not design standards for noise abatement measures. All values are A-weighted decibels (dBA).
[2] Includes undeveloped lands permitted for this activity category.

Figure 2.3-2 lists the noise levels of common activities to enable readers to compare the actual and predicted highway noise levels discussed in this section with common activities. According to the Department's *Traffic Noise Analysis Protocol for New Highway Construction and Reconstruction Projects*, May 2011, a noise impact occurs when the predicted future noise level with the Project substantially exceeds the existing noise level (defined as a 12 dBA or more increase) or when the future noise level with the Project approaches or exceeds the NAC. Approaching the NAC is defined as coming within 1 dBA of the NAC.

If it is determined that the Project will have noise impacts, then potential abatement measures must be considered. Noise abatement measures that are determined to be reasonable and feasible at the time of final design are incorporated into the Project plans and specifications. This document discusses noise abatement measures that would likely be incorporated in the Project.

Figure 2.3-2

Noise Levels of Common Activities

Source: Caltrans, 2018

The Department's *Traffic Noise Analysis Protocol* sets forth the criteria for determining when an abatement measure is reasonable and feasible. Feasibility of noise abatement is basically an engineering concern. A minimum 5 dBA reduction for all impacted receptors in the future noise levels must be achieved for an abatement to be considered feasible. Other considerations include topography, access requirements, other noise sources, and safety considerations. Additionally, a noise reduction of at least 7 dBA must be achieved at one or more benefited receptors for an abatement measure to be considered reasonable. The reasonableness determination is basically a cost-benefit analysis. Factors used in determining whether a proposed noise abatement measure is reasonable include residents' acceptance and the cost per benefited residence.

State

The California Department of Transportation (Caltrans) Construction Contract Standards, also referred to as the 2015 standards, include but are not limited to Standard Specifications, Standard Plans, and Standards Special Provisions which are to be used on all projects after June 30, 2016. In accordance with the 2015 Standards, noise associated with construction activities is controlled by Caltrans Standard Specification Section 14-8.02, "Noise Control," which states the following:

- Control and monitor noise resulting from work activities.
- Do not exceed 86 dBA L_{max} at 50 feet from the job site activities from 9:00 p.m. to 6:00 a.m.

California Noise Control Act of 1973

Sections 46000 through 46080 of the California Health and Safety Code, known as the California Noise Control Act, find that excessive noise is a serious hazard to public health and welfare, and that exposure to certain levels of noise can result in physiological, psychological, and economic damage. The Act also finds that there is a continuous and increasing bombardment of noise in urban, suburban, and rural areas. The California Noise Control Act declares that the State has a responsibility to protect the health and welfare of its citizens by the control, prevention, and abatement of noise. It is the policy of the State to provide an environment for all Californians that is free from noise that jeopardizes their health or welfare.

AFFECTED ENVIRONMENT

This Draft EA provides an evaluation of noise effects under NEPA. Information in this section is based on the Noise Study Report (NSR) approved in August 2018. The Project's noise impacts relative to the local general plan noise policies can be found in the *Dublin Boulevard – North Canyons Parkway Extension Project Final Environmental Impact Report* in Chapter 5.10, Noise and Vibration.

Principles of Acoustics

Noise is defined as loud, unexpected, or annoying sound. In the science of acoustics, the fundamental model used to describe noise consists of a sound (or noise) source, a receptor, and the propagation path between the two. The loudness of the noise source and obstructions between the noise and the receptor determine sound levels and characteristics of the noise perceived by the receptor.

In order to describe environmental noise and to assess impacts on areas sensitive to noise, a frequency weighting measure[81] that simulates human perception is customarily used. The frequency weighting scale known as A-weighting best reflects the human ear's reduced sensitivity to low frequencies and correlates well with human perceptions of the annoying aspects of noise. The A-weighting network approximates the response of the average young ear when listening to most ordinary sounds. When people make a judgment of the relative loudness or annoyance of a sound, their judgment correlates with the A-scale sound levels of those sounds. Noise levels for traffic noise reports are typically reported in terms of A-weighted decibels or dBA. **Table 2.3-10** describes typical A-weighted noise levels for various noise sources.

The human ear can begin to detect sound level increases of 3 decibels (dB) in typical noisy environments. A 5-dB increase is generally perceived as a distinctly noticeable increase, and a 10-dB increase is generally perceived as a doubling of loudness. Therefore, a doubling of sound energy (e.g., doubling the volume of traffic on a highway) that would result in a 3-dB increase in sound, would generally be barely detectable.

Noise in our daily environment fluctuates over time. Some fluctuations are minor, but some are substantial. Various noise descriptors have been developed to describe time-varying noise levels. The following are the noise descriptors most commonly used in traffic noise analysis:

- **Equivalent Sound Level (L_{eq}):** L_{eq} represents an average of the sound energy occurring over a specified period. The 1-hour A-weighted equivalent sound level (L_{eq}) is the energy average of A-weighted sound levels occurring during a one-hour period.
- **Percentile-Exceeded Sound Level (L_{xx}):** L_{xx} represents the sound level exceeded for a given percentage of a specified period (e.g., L10 is the sound level exceeded 10 percent of the time, and L90 is the sound level exceeded 90 percent of the time).
- **Maximum Sound Level (L_{max}):** L_{max} is the highest instantaneous sound level measured during a specified period.

[81]The sound pressure level in decibels as measured on a sound level meter using the A-weighting filter network.

- **Day-Night Level (L_{dn}):** L_{dn} is the energy average of A-weighted sound levels occurring over a 24-hour period, with a 10-dB penalty applied to A-weighted sound levels occurring during nighttime hours between 10:00 p.m. and 7:00 a.m.

Table 2.3-10 Typical A-Weight Noise Levels

Common Outdoor Activities	Noise Level (dBA)	Common Indoor Activities
Jet fly-over at 1000 feet	- 110 -	Rock band
Gas lawn mower at 3 feet	- 100 -	
Diesel truck at 50 feet at 50 mph	- 90 -	Food blender at 3 feet
Noisy urban area, daytime	- 80 -	Garbage disposal at 3 feet
Gas lawn mower, 100 feet	- 70 -	Vacuum cleaner at 10 feet
Commercial area/Heavy traffic at 300 feet	- 60 -	Normal speech at 3 feet/ Large business office
Quiet urban daytime	- 50 -	Dishwasher next room
Quiet urban nighttime	- 40 -	Theater, large conference room (background)
Quiet suburban nighttime	- 30 -	Library
Quiet rural nighttime	- 20 -	Bedroom at night, concert hall (background)
	- 10 -	Broadcast/recording studio
Lowest threshold of human hearing	- 0 -	Lowest threshold of human hearing

Source: Caltrans Technical Noise Supplement, 2013

- **Community Noise Equivalent Level (CNEL)**: Similar to L_{dn}, CNEL is the energy average of the A-weighted sound levels occurring over a 24-hour period, with a 10-dB penalty applied to A-weighted sound levels occurring during the nighttime hours between 10:00 p.m. and 7:00 a.m., and a 5-dB penalty applied to the A-weighted sound levels occurring during evening hours between 7:00 p.m. and 10:00 p.m.

Principles of Groundborne Vibration

Ground vibration consists of rapidly fluctuating motions or waves. At certain levels, vibration can result in irritation to nearby people and building damage. Several different methods are typically used to quantify vibration. For the purposes of this Draft EA, a Peak Particle Velocity (PPV) descriptor with units of inches per second (in/sec) is used to evaluate construction-generated vibration for building damage. The PPV is defined as the maximum instantaneous peak of a vibration wave. The general human response to different levels of groundborne vibration levels is shown below in **Table 2.3-11**.

Table 2.3-11 Reaction of People and Damage to Buildings from Continuous or Frequent Intermittent Vibration Levels

Velocity Level, PPV (in/sec)	Human Reaction	Effect on Buildings
0.01	Barely perceptible	No effect
0.04	Distinctly perceptible	Vibration unlikely to cause damage of any type to any structure
0.08	Distinctly perceptible to strongly perceptible	Recommended upper level of the vibration to which ruins and ancient monuments should be subjected
0.1	Strongly perceptible	Threshold at which there is a risk of damage to fragile buildings with no risk of damage to most buildings
0.25	Strongly perceptible to severe	Threshold at which there is a risk of damage to historic and some old buildings.
0.3	Strongly perceptible to severe	Threshold at which there is a risk of damage to older residential structures
0.5	Severe - Vibrations considered unpleasant	Threshold at which there is a risk of damage to new residential and modern commercial/industrial structures

Source: Transportation and Construction Vibration Guidance Manual, California Department of Transportation, September 2013

Acoustical Setting

Noise Study Area

The noise study area includes the Project site plus a surrounding 500-foot buffer. The 500-foot buffer was established based on a preliminary screening study completed for the Project, which showed no noise impacts at 500 feet.

Sensitive Receptors

Sensitive receptors are defined as land uses that are sensitive to noise impacts as determined by noise exposure standards and guidelines. Sensitive receptors include but are not limited to hospitals, schools, churches, libraries, auditoriums, public meeting rooms, motels, hotels, residences, recreational facilities, and lands on which serenity and quiet are of extraordinary importance and which serve an important public need.

A field investigation was conducted at the Project site from December 12 to 14, 2017 to identify land uses that could be subject to traffic and construction noise impacts from the Project. Sensitive receptors were identified along the Project corridor through a review of mapping, aerial photos, and field reconnaissance. The nearest sensitive receptors are residential land uses to the north of the Project site approximately 700 to 1,300 feet from the proposed right-of-way.

Existing Ambient Noise Measurements

The primary existing noise source in the area is vehicles traveling on I-580 and local roads. Local non-traffic related noise sources include aircraft, sounds of nature, and agricultural operations. To quantify existing ambient noise levels in the study area, six short-term noise measurements (S1-S6)[82] were taken within the Project vicinity concurrent with two long-term noise measurements. Noise measurement locations were selected to be representative of sensitive receptor locations and are shown on **Figure 2.3-3**. Two or more consecutive 10-minute measurements were made at each short-term noise measurement site. At short-term locations, noise levels were measured 5 feet above the ground surface and at least 10 feet from structures or barriers. Short-term noise measurement locations were used as noise modeling receptors for the prediction of existing and future loudest-hour traffic noise levels. As summarized in **Table 2.3-12**, the ambient recorded noise levels ranged from 45 dBA to 60 dBA L_{eq} near the Project site. The maximum loudest-hour noise levels in the Project vicinity ranged from 48 L_{eq} dBA to 65 L_{eq} dBA. Traffic counts and speed observations were made along I-580 and local roads during the short-term noise measurements for model calibration purposes.

Long-term noise measurements were completed at two locations to quantify the overall trend in existing noise levels and to establish the peak traffic noise hour. These long-term noise measurements were taken along the existing portion of Dublin Boulevard to the west of the Project (L1) and along the existing portion of North Canyons Parkway to the east of the Project (L2). Locations L1 and L2 were selected to be representative of traffic noise levels occurring along existing continuous portions of the local roadways. The noise measurements were made over an approximate 48-hour period, from midday on Tuesday, December 12th, 2017 to midday on Thursday, December 14th, 2017. Measurements were taken at heights of about 12 feet above ground level. As summarized in **Table 2.3-13**, the loudest hour was 8:00 a.m. and ambient noise was measured at 70 L_{eq} dBA. The trends in ambient noise levels measured at long-term locations are summarized graphically in the NSR.

Future Undeveloped Land Uses

Much of the land in the Project area and vicinity is undeveloped. Lists of planned and approved projects in Dublin, Livermore, and the County were reviewed to identify undeveloped lands for which development is planned, designed, and programmed so that it may be considered approved and included within the existing conditions. The review focused on projects within approximately 500 feet of the Dublin Boulevard-North Canyons Parkway Extension within the Project limits, where traffic noise levels from the highway or other improved Project roadways could dominate the noise environment. Projects located beyond this distance were excluded from further analysis.

[82] Results from measurement location S4 were used to determine the existing loudest hour at the adjacent sensitive land use represented by R4.

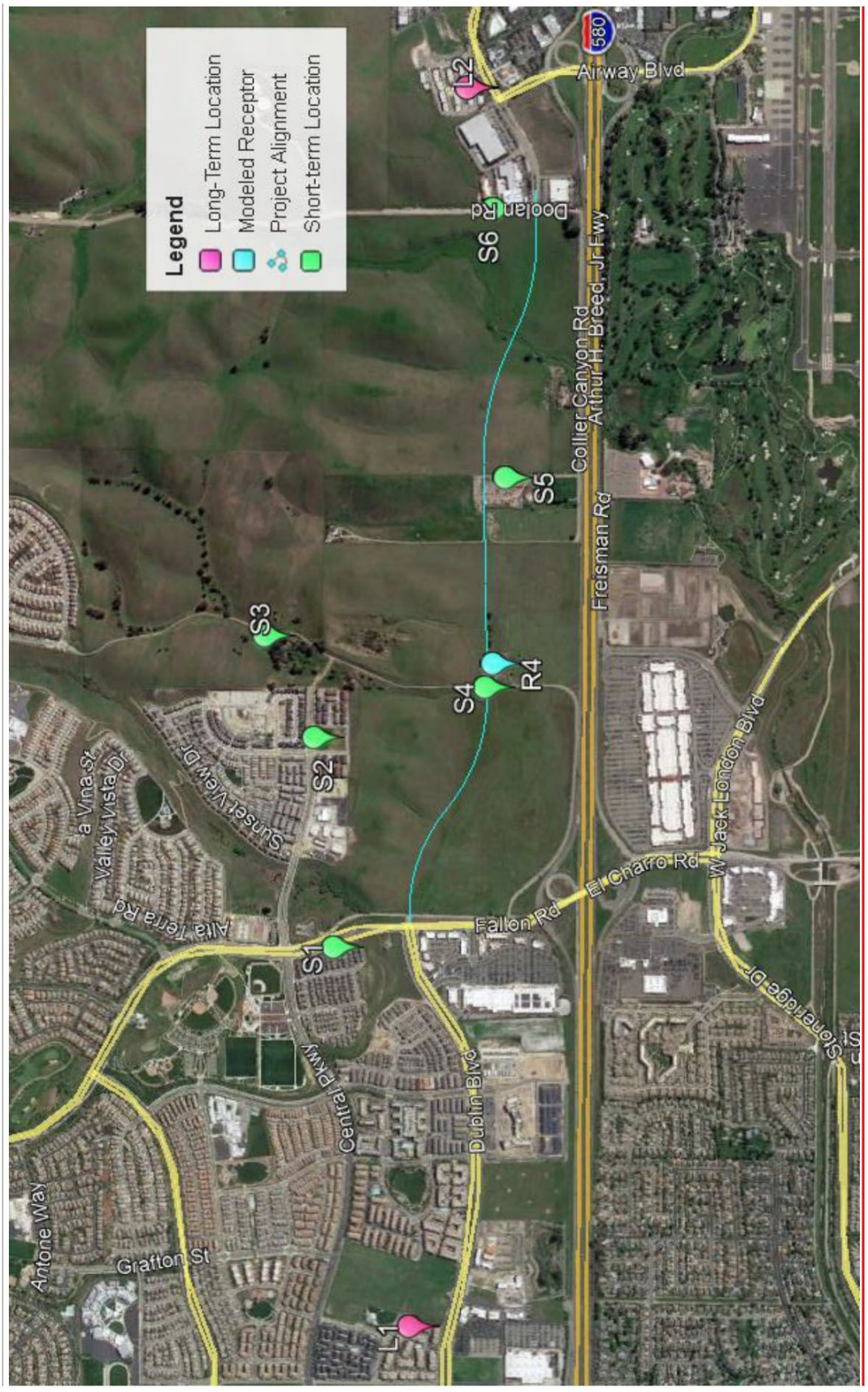


Figure 2.3-3

Noise Measurement Locations

Source: Illingworth & Rodkin, 2018

Table 2.3-12 Summary of Short-Term Noise Measurement Data

Site	Location (see Figure 2.2-3)	Start Time	Measured Noise Levels, dBA				Primary Noise Source
			L_{10}	L_{50}	L_{90}	L_{eq}	
S1	2601 Alliston Loop, Dublin	11:30 a.m.	63	60	56	60	Traffic on Fallon Road
		11:40 a.m.	63	60	56	60	
S2	3899 Camino Loop, Dublin	11:20 a.m.	49	45	43	52	Distant traffic (I-580), intermittent aircraft, occasional local traffic
		11:30 a.m.	47	45	43	46	
S3	Croak Road, north of Central Parkway, Dublin	10:50 a.m.	45	39	35	45	Distant traffic (I-580), intermittent aircraft, occasional local traffic
		11:00 a.m.	48	42	38	45	
S4[1]	Croak Road, 730 feet north of I-580, Dublin	10:10 a.m.	61	58	53	58	Traffic on I-580, police sirens
		10:20 a.m.	58	56	54	57	
S5	500 feet north of I-580, Dublin	10:00 a.m.	60	59	57	59	Traffic on I-580
		10:10 a.m.	62	59	58	61	
S6	901 Doolan Road, Livermore	10:30 a.m.	61	52	50	59	Traffic on I-580 and Doolan Road
		10:40 a.m.	61	51	49	60	

[1]Measurement location S4 was selected to be representative of the adjacent residence but was not located at the noise sensitive land use due to access restrictions. Measurement results were used to determine the existing loudest hour at the adjacent sensitive land use represented by R4.
Source: Illingworth & Rodkin, Inc., 2018

Table 2.3-13 Summary of Long-Term Noise Measurements

Receptor ID	Location (See NSR for Photos)	Date	Loudest Hour(s)	Loudest Hour $L_{eq[h]}$, dBA
L1[1]	3637 Dublin Boulevard, 75 feet north of the center of Dublin Boulevard	12/13/2017	8:00 a.m.	70
L2[1]	1051 Airway Boulevard, 60 feet south of the center of North Canyons Parkway	12/13/2017	7:00 a.m.	70

[1]Location is more than 500 feet from the roadway in the Project limits.
Source: Illingworth & Rodkin, Inc., 2018

City of Dublin

Dublin currently has one project 'under review' in the Project area. The Grand View Project is proposed primarily south of the Dublin Boulevard-North Canyons Parkway Extension in Dublin. The conceptual proposal is for a mixed-use project comprised of up to 2,391,668 square feet of retail/commercial and office uses and up to 338 housing units. Preliminary concepts for the project include a pedestrian oriented "main street" that would be supported by retail, office, hotels and recreational uses. The proposed Project would include the extension of Dublin Boulevard and improvements to Croak Road in order to accommodate the proposed development. Noise modeling receptors were placed at locations representative of the hotel, garden restaurant, and single-family residences. Noise increase thresholds would not apply to future receptors that are not planned, programmed, and approved prior to Project approval.

Alameda County

There are no planned or approved projects located in unincorporated Alameda County within the project area.

City of Livermore

The City of Livermore currently has three 'approved' projects and one project under construction in the project area. The three approved projects include the demolition of an existing hotel and construction of two new hotels at 1000 Airway Boulevard, the construction of a new hotel with 122 guest rooms at 5200 Wolf House Drive (currently 2000 Freisman Road), and the construction of a new hotel with 104 guest rooms at 5400 Wolf House Drive (currently also 2000 Freisman Road). A portion of the 2000 Freisman Road property is currently under construction with retail, restaurant, hotel, and auto dealership uses. All four of these projects are located more than 500 feet from the Project area and would be located across I-580 from the Project site. The primary noise source at these locations is anticipated to be vehicular traffic traveling along I-580. Based on the foregoing, these projects are not analyzed further.

ENVIRONMENTAL CONSEQUENCES

The Code of Federal Regulations (23 CFR 772) "Procedures for Abatement of Highway Traffic Noise" provides procedures for preparing operational and construction noise studies and evaluating noise abatement options. Under 23 CFR 772, projects are categorized as Type I, Type II, or Type III projects. Type I projects are defined as proposed federal or federal-aid highway improvements for the construction of a highway on new location; or the physical alteration of an existing highway which significantly changes either the horizontal or vertical alignment or increases the number of through-traffic lanes. The FHWA identifies Type I projects as improvements that will create a completely new noise source, increase the volume or speed of traffic, or move the traffic closer to a receiver. Type I projects include the addition of an interchange, ramp, auxiliary lane, or truck-climbing lane to an existing highway, or the widening of an existing ramp by a full lane for its entire length. As the Build Alternative involves the construction of a roadway, it is considered a Type I project. The FHWA noise regulations require noise analyses for all Type I projects.

Build Alternative

Construction

Noise generated by Project-related construction activities would be a function of the noise levels generated by individual pieces of construction equipment, the type and amount of equipment operating at any given time, the timing and duration of construction activities, the proximity of nearby sensitive land uses, and the presence or lack of shielding at these sensitive land uses. Construction noise levels would vary on a day-to-day basis during each phase of construction depending on the specific task being completed.

The Project would be constructed through largely undeveloped areas of Dublin and Alameda County. Construction activities would include but are not limited to demolition, earthwork, paving, pile driving, concrete/rebar/formwork, utility trenching, and roadway striping. Construction staging would be located at the eastern end of the Project site, south of the roadway extension and north of Collier Canyon Road and would occur in a single construction phase.

Construction noise would primarily result from the operation of heavy construction equipment and arrival and departure of heavy-duty trucks. The highest maximum instantaneous noise levels would result from special impact tools such as impact pile drivers. FHWA's Roadway Construction Noise Model (RCNM) was used to calculate the maximum and average noise levels anticipated during each type of construction. This construction noise model includes representative sound levels for the most common types of construction equipment and the approximate usage factors of such equipment. The usage factors represent the percentage of time that the equipment would be operating at full power. Vehicles and equipment anticipated during each type of construction were input into RCNM to calculate noise levels at 100 feet.

Table 2.3-14 shows the construction noise levels calculated for each major construction activity. In some instances, maximum instantaneous noise levels are calculated to be slightly lower than hourly average noise levels. This occurs because the model reports the maximum instantaneous noise level generated by the loudest single piece of construction equipment, while alternatively, the model reports the hourly average noise levels resulting from the additive effect of multiple pieces of construction equipment operating simultaneously. Noise generated by construction equipment drops off at a rate of 6 dB per doubling of distance.

Table 2.3-14 Noise Levels by Construction Phase at 100 feet

Construction Activity	Maximum Noise Level (L_{max}, dBA)	Hourly Average Noise Level ($L_{eq[h]}$, dBA)
Site Preparation	84	85
Grading and Excavation	79	82
Sewer Trenching and Installation	75	79
Utility Trenching and Installation	75	79
Bridge Foundations	75	77
Impact Pile Driving	95	88
Bridge Abutment and Piers	75	76
Bridge Superstructure/ Barriers	75	76
Landscaping, Irrigation, and Lighting	75	76
Paving	77	80

Source: Illingworth & Rodkin, 2018

Although the overall construction schedule is anticipated to occur over a period exceeding 12 months, roadway construction activities typically occur for relatively short periods of time in any specific location as construction proceeds within the Project area. Much of construction would be located more than 500 feet from any noise sensitive receptors. Construction noise would mostly be of concern where impulse-related noise levels would be concentrated for extended periods of time adjacent to noise sensitive receptors. Additional concerns include areas where construction equipment noise would be substantially higher than ambient conditions, and if construction activities occur during noise-sensitive early morning, evening, or nighttime hours.

A comparison of construction noise levels and existing ambient noise shows most construction activities would generate average noise levels that would exceed ambient daytime noise levels at adjacent land uses (R4, S5, and S6) by 10 to 15 dBA $L_{eq[h]}$. Site preparation would generate average noise levels approximately 20 to 25 dBA $L_{eq[h]}$ higher than ambient noise conditions. Maximum instantaneous noise levels generated by typical construction activities would generally be 5 to 10 dBA above existing maximum noise levels generated by traffic on I-580. Maximum instantaneous

noise levels generated by impact pile driving activities would generally be 20 to 30 dBA above existing maximum noise levels generated by traffic on I-580. Except for construction phases involving impact tools, noise levels would not be expected to exceed the quantitative noise limits established by Caltrans or local noise ordinances. However, to ensure construction noise levels are within established limits, **Measure NOI-1** would be implemented. This measure provides performance criteria including consistency with local noise ordinances, daytime construction windows for the loudest activities, and equipment requirements to minimize noise.

Operation

Future (2040) traffic noise conditions under the Build and No-Build Alternatives were modeled for the identified noise sensitive land uses illustrated in the NSR. **Table 2.3-15** presents the existing and future modeled noise levels for these land uses. In this table, traffic noise levels under the Build Alternative are compared to existing conditions and to 2040 No-Build Alternative. The comparison to existing conditions is included in the analysis to identify traffic noise impacts as defined under 23 CFR 772. The comparison between 2040 Build and 2040 No-Build conditions indicates the direct effect of the Project.

Table 2.3-15 Predicted Noise Levels

Receptor ID[3]	Location	Loudest-Hour Noise Levels, $L_{eq[h]}$ dBA			Noise Increase Over Existing		2040 Build Noise Increase Over No Build	Activity Category (NAC)	Impact[1]
		Existing	2040 No Build	2040 Build	2040 No Build	2040 Build			
S1	2601 Alliston Loop, Dublin	63	64	65	1	2	1	B(67)	None
S2	3899 Camino Loop, Dublin	50[2]	50[2]	51[2]	0	1	1	B(67)	None
S3	Croak Road, north of Central Parkway, Dublin	48[2]	48[2]	48[2]	0	0	0	B(67)	None
R4	Croak Road residence, Dublin	63	63	64	0	1	1	B(67)	None
S5	500 feet north of I-580, Dublin	67	67	67	0	0	0	F	None
S6	901 Doolan Road, Livermore	63	63	65	0	2	2	E(72)	None

Receptor ID[3]	Location	Loudest-Hour Noise Levels, $L_{eq[h]}$ dBA			Noise Increase Over Existing		2040 Build Noise Increase Over No Build	Activity Category (NAC)	Impact[1]
		Existing	2040 No Build	2040 Build	2040 No Build	2040 Build			
F1[3]	Proposed Grand View Hotel, 50 feet from Dublin Blvd	55	55	69	0	N/A[4]	N/A[4]	E(72)	None
F2[3]	Proposed Grand View Garden Restaurant, 75 feet from Dublin Blvd	56	57	69	1	N/A[4]	N/A[4]	E(72)	None
F3[3]	Proposed Grand View Residence, 125 feet from Dublin Blvd	59	59	64	0	N/A[4]	N/A[4]	B(67)	None

[1]Impact Type: S = Substantial Increase (12 dBA or more), A/E = Approach or Exceed NAC.
[2]Noise levels based on noise modeling and measurement results.
[3]Approximate location of proposed land use, based on Grand View conceptual plan.
[4]These proposed land uses are "under review" by the City of Dublin. Noise increase thresholds would not apply to future receptors that are not planned, programmed, and approved prior to Project approval.
Source: Illingworth & Rodkin, Inc., 2018

As shown in **Table 2.3-15**, the loudest-hour noise levels at Category B land uses are calculated to range from 48 to 63 dBA $L_{eq(h)}$ under existing conditions, from 48 to 64 dBA $L_{eq(h)}$ under 2040 No-Build conditions, and from 48 to 65 dBA $L_{eq(h)}$ under 2040 Build conditions. The loudest-hour noise levels at Category E land uses are calculated to range from 55 to 63 dBA $L_{eq(h)}$ under existing and 2040 No-Build conditions, and from 65 to 69 dBA $L_{eq(h)}$ under 2040 Build conditions. Traffic noise levels with implementation of the Build Alternative are not predicted to approach or exceed the NAC any noise sensitive areas of frequent human use in the noise study area.

At existing land uses, noise levels are calculated to increase by up to 1 dBA over existing conditions under 2040 No-Build conditions and by up to 2 dBA under 2040 Build conditions. These noise level increases are not considered substantial. Noise increase thresholds would not apply to future receptors that are not planned, programmed, and approved prior to Project approval.

Noise Abatement Analysis

In accordance with 23 CFR 772(13)(c) and 772(15)(c), noise abatement is considered where noise impacts are predicted in areas of frequent human use that would benefit from a lowered noise level. As no traffic noise impacts are anticipated, no noise abatement measures are required.

Groundborne Vibration

Project-related traffic is not anticipated to generate perceptible levels of groundborne vibration at nearby structures. Project construction equipment would include concrete saws, excavators, graders, dozers, backhoes, forklifts, cement mixers, bore/drill rigs, aerial lifts, cranes, welders, generators, pavers, paving equipment, rollers, and pick-up trucks. Additionally, pile driving may take place during construction of the Cottonwood Creek bridge. Construction activities with the greatest potential of generating perceptible vibration levels would include pile driving, the removal of pavement and soil, the movement of heavy tracked equipment, and vibratory compacting of roadway base materials by use of a roller. **Table 2.3-16** summarizes typical vibration levels associated with varying pieces of construction equipment at 25 feet.

Table 2.3-16 Vibration Source Levels for Construction Equipment at 25 feet

Equipment		PPV at 25 ft. (in/sec)
Pile Driver (Impact)	upper range	1.158
	typical	0.644
Pile Driver (Sonic)	upper range	0.734
	typical	0.170
Clam shovel drop		0.202
Hydromill (slurry wall)	in soil	0.008
	in rock	0.017
Vibratory Roller		0.210
Hoe Ram		0.089
Large bulldozer		0.089
Caisson drilling		0.089
Loaded trucks		0.076
Jackhammer		0.035
Small bulldozer		0.003

Source: Transit Noise and Vibration Impact Assessment, United States Department of Transportation, Office of Planning and Environment, Federal Transit Administration, May 2006

Vibration levels generated by proposed construction activities and equipment other than pile driving would not exceed 0.3 in/sec PPV when construction occurs at distances of 25 feet or more from structures. Pile driving activities would be below the 0.3 in/sec PPV criteria when construction occurs at distances of 100 feet or greater from structures. There are no structures within 100 feet of Cottonwood Creek, where vibration levels could approach the threshold of 0.3 in/sec PPV. Architectural or structural damage to normal structures greater than 100 feet away would not be anticipated.

No-Build Alternative

Under the No-Build Alternative, Dublin Boulevard and North Canyons Parkway would continue to operate unconnected in their current configurations. No construction activities would occur, and there would be no change in the operations of the existing roadways. As described above, traffic noise levels are calculated to increase by up to 1 dBA over existing conditions under the No-Build Alternative (year 2040). This noise level increase is not substantial. Therefore, the No-Build Alternative would not result in an adverse effect related to noise or vibration.

AVOIDANCE, MINIMIZATION, AND/OR ABATEMENT MEASURES

Measure NOI-1: To reduce the potential for noise impacts resulting from construction of the Build Alternative, the following measures should be implemented during Project construction.

- As a requirement of the construction contract, the Project contractor shall submit a Construction Noise Management Program that identifies measures proposed to minimize construction noise impacts on existing residents.
- All construction equipment will conform to Section 14-8.02, Noise Control, of the latest Standard Specifications.
- In Dublin, all construction operations shall comply with local noise standards and be limited to normal daylight hours where feasible. All stationary equipment shall be adequately muffled and located away from sensitive receptors. The construction contractor shall limit all on-site noise-producing construction activities, including deliveries and warming up of equipment, to the daytime hours of 7:00 a.m. to 7:00 p.m., daily, where feasible. If work is necessary outside of these hours, the contractor shall acquire appropriate permits from the local jurisdiction and implement a construction noise monitoring program, providing additional mitigation where practical and feasible.
- In the County and Livermore, construction activities generating excessive noise will be limited to the hours specified in the appropriate local ordinance, where feasible. If work is necessary outside of these hours, the contractor shall acquire appropriate permits from the local jurisdiction and implement a construction noise monitoring program, providing additional mitigation where practical and feasible.
- Pile driving activities in all jurisdictions will be limited to daytime hours only, when feasible. If pile driving outside of typical construction hours specified in this measure is required, the contractor shall acquire appropriate permits from the local jurisdiction and implement a construction noise monitoring program, providing additional mitigation where practical and feasible.
- Equip all internal combustion-engine driven equipment with manufacturer recommended intake and exhaust mufflers that are in good condition and appropriate for the equipment.

- Locate stationary noise generating equipment and self-powered lighting systems as far as possible from sensitive receptors when sensitive receptors adjoin or are near the construction footprint.
- Utilize "quiet" air compressors and other "quiet" equipment where such technology exists.
- Prohibit unnecessary idling of internal combustion engines within 100 feet of residences.
- Avoid staging of construction equipment within 200 feet of noise-sensitive uses.
- The construction contractor shall designate a noise disturbance coordinator who would be responsible for responding to any local complaints about construction noise. When a complaint is received, the disturbance coordinator shall notify Dublin within 24 hours of the complaint and determine the cause of the noise complaints (starting too early, bad muffler, etc.) and institute reasonable measures warranted to correct the problem, as deemed acceptable by the City of Dublin Community Development Department. The construction contractor shall conspicuously post the contact name and telephone number for the noise disturbance coordinator at the construction site.

2.4 BIOLOGICAL ENVIRONMENT

This section describes effects on biological and aquatic resources that would be caused by Project implementation. Unless otherwise noted, information in this section vas drawn from the Natural Environment Study (NES) prepared in May 2019 and the Biological Assessment (BA) prepared in December 2019.[83] The NES includes desktop reviews and field surveys to identify biological resources on the Project site and within the larger biological study area (BSA). The BSA and biological resources are shown on **Figure 2.4-1**.

[83]H. T. Harvey & Associates, 2019

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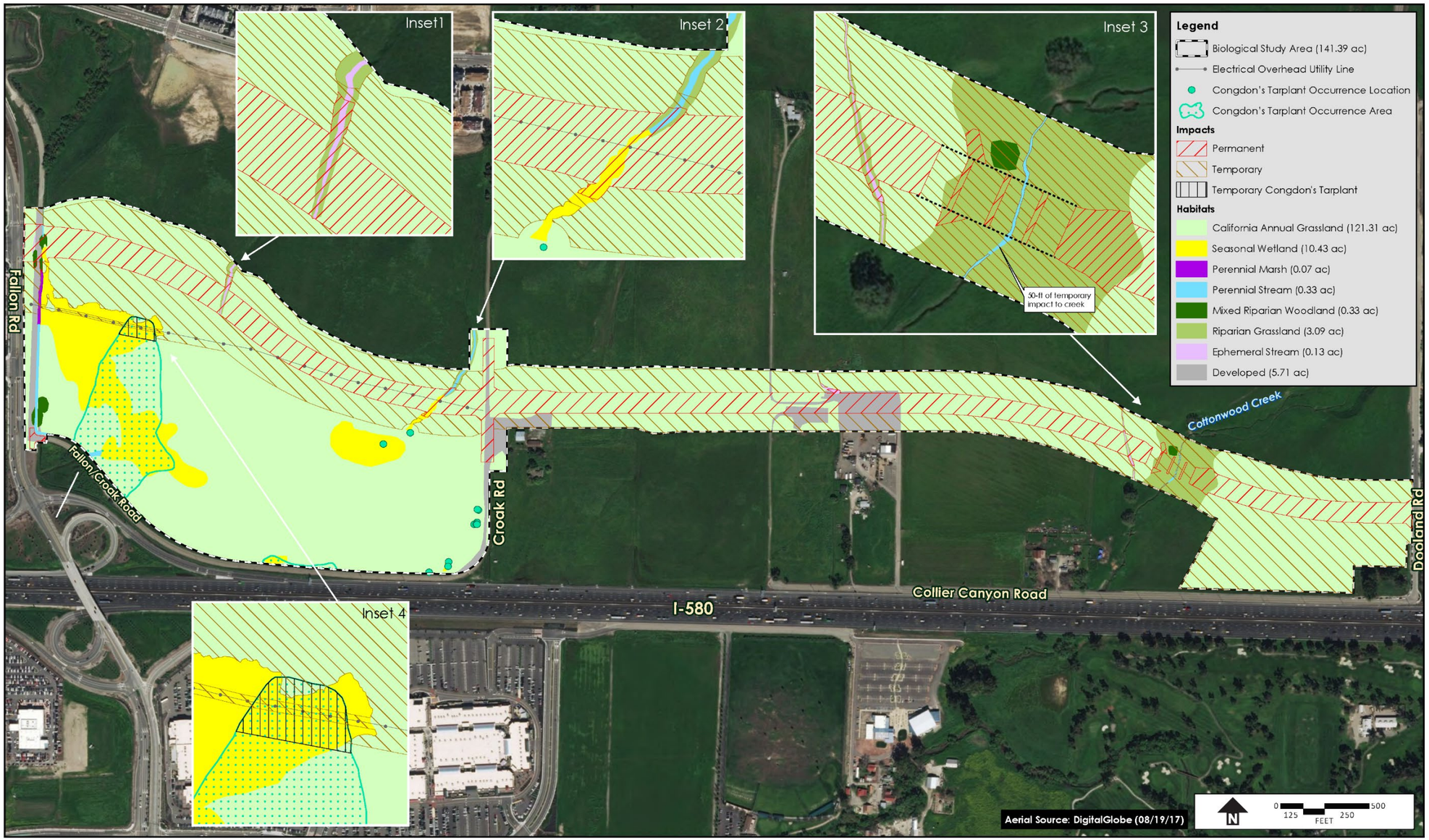

Habitat within the Biological Study Area

Figure 2.4-1

Source: H.T. Harvey and Associates, 2019

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2.4.1 NATURAL COMMUNITIES

REGULATORY SETTING

Local

City of Dublin

City of Dublin Heritage Tree Ordinance

The City of Dublin (Dublin) defines heritage trees as any oak, bay, cypress, maple, redwood, buckeye and sycamore tree having a trunk or main stem of 24 inches or more in diameter measured at 4 feet 6 inches above natural grade. Additionally, any tree preserved as part of an approved development plan, zoning permit, use permit, site development review, or subdivision map is protected as a heritage tree as is any tree planted as a replacement for an unlawfully removed tree. Heritage trees may not be removed unless a tree removal permit is granted, or the removal is approved as part of other approved development permits. If a development site contains heritage trees that are to be preserved under approved development plan, these trees must be protected during site development. A tree protection plan must be approved prior to commencement of work unless Dublin's Community Development Director has specifically waived this requirement.

Alameda County

East Alameda County Conservation Strategy

The East Alameda County Conservation Strategy (EACCS) serves as a coordinated approach to conservation in the eastern portion of Alameda County (County), including Dublin and the City of Livermore (Livermore). Dublin adopted the EACCS as guidance for public infrastructure and capital improvement projects and uses the document to provide input on managing biological resources and conservation priorities during public project-level planning and environmental permitting. The Project site is located within Conservation Zone 4 of the EACCS study area and includes suitable habitat for several EACCS focal land cover types. Impacts to these land cover types must be avoided, minimized, and mitigated through implementation of measures listed in the EACCS.

Alameda County Tree Ordinance

The County protects trees within their right-of-way that are at least 10 feet tall and 2-inches diameter at breast height (DBH)[84] on the main stem. Removal of such trees requires an

[84]DBH is the standard for measuring trees and refers to the tree diameter measured at 4.5 feet above the ground.

encroachment permit from the County. Typically, such a permit requires replacement of the ordinance tree.

City of Livermore

City of Livermore Tree Preservation Ordinance

Livermore's Tree Preservation Ordinance establishes the policies, regulations, and standards for the protection of trees on any parcel of land within Livermore. It is Livermore's policy to require the preservation of protected trees, unless a reasonable and conforming use of a property justifies the removal, relocation, and/or encroachment into the protected zone of such tree. In accordance with the Tree Preservation Ordinance, no person shall remove or encroach into the protected zone of any protected tree or trees upon a property within Livermore unless a tree permit has been issued pursuant to the Section 12.20 of the Livermore Municipal Code.

AFFECTED ENVIRONMENT

This section of the document discusses natural communities of concern. The focus of this section is on biological communities, not individual plant or animal species. This section also includes information on wildlife corridors, fish passage, and habitat fragmentation. Wildlife corridors are areas of habitat used by wildlife for seasonal or daily migration. Habitat fragmentation involves the potential for dividing sensitive habitat and thereby lessening its biological value.

Habitat areas that have been designated as critical habitat under the Federal Endangered Species Act (FESA) are discussed below in **Section 2.4.5, Threatened and Endangered Species**. **Table 2.4-1** provides dates on which H.T. Harvey & Associates personnel performed biological surveys of the BSA.

Habitat Types

Table 2.4-2 lists the non-aquatic habitat types present within the BSA. Biologists surveyed a 77.71-acre area encompassing the non-aquatic portions of the BSA and determined that non-sensitive Californian annual grassland and landscaped/developed habits are located within the BSA. Although California annual grassland is not considered a sensitive natural community, it is classified as a focal habitat by the EACCS.

Table 2.4-1 Biological Surveys and Personnel

Survey	Dates	Personnel
Reconnaissance-Level Surveys	March 15, 2017 and March 16, 2017	Maya Goklany, M.S. and Bridget Sousa, Ph.D.
Rare Plant Surveys	April 13 and 17, 2018	Elan Alford, Ph. D
	May 8, 10, and June 29, 2018.	David Gallagher, M.S.
Wetland Technical Assessment	April 13 and 17, 2018	Elan Alford, Ph. D

Survey	Dates	Personnel
Delineation of jurisdictional Habitats	May 8 and 10, 2018 and June 29, 2018	David Gallagher, M.S.

Source: H.T. Harvey & Associates, 2019

The remaining areas within the BSA consist of perennial stream, ephemeral stream, perennial marsh, seasonal wetland, mixed riparian woodland, and riparian grassland which are described in **Section 2.4.2, Wetlands and Other Waters**. The northern portions of the BSA are designated as critical habitat for the California red-legged frog. This species' habitat is described in **Section 2.4.5, Threatened and Endangered Species**.

Table 2.4-2 Natural Communities within BSA

Natural Community	Total Acreage
California annual grassland	121.31
Developed/landscaped	5.71
Total	**127.02**

Source: H. T. Harvey & Associates, 2019

California Annual Grassland

The majority of the BSA consists of California annual grassland habitat. Much of this grassland is currently grazed by cattle and is dominated by a suite of non-native grasses and common weedy and non-native forbs. While the majority of the grasslands in the BSA are composed of non-native, ruderal vegetation, some portions exhibit higher species diversity and frequency of native wildflowers, such as common gumplant (*Grindelia camporum*), Itherial's spear (*Triteleia laxa*), annual lupine (*Lupinus bicolor*), blue eyed grass (*Sisyrinchium bellum*), blow wives (*Achyrachaena mollis*), shining peppergrass (*Lepidium nitidum*), and small flowered fiddleneck (*Amsinkia menziesii).*

Developed/Landscaped

Developed/landscaped habitat is present in the BSA as hardscaped areas along Fallon Road and Croak Road in the western portion of the Project site. Additional hardscaped areas such as parking, storage, sheds, and landscaped areas occur around buildings, fences, parking areas, and a landscaping company in the remaining portion of the Project site.

Small patches of non-native horticultural plant species are scattered around the buildings in the developed/landscaped parts of the BSA. Several patches of ornamental trees, primarily eucalyptus (*Eucalyptus* sp.), occur near fence lines and buildings. Wildlife that occurs in developed/landscaped portions of the site includes species that are typically accustomed to urban environments and high levels of disturbance from human activities.

Regulated Trees

As discussed above, the County's Tree Ordinance requires projects involving the removal of trees at least 10 feet tall and 2-inches DBH obtain an encroachment permit from the County. An ordinance-sized valley oak tree is present on unincorporated County land within the Project site.

The Dublin Heritage Tree Ordinance outlines requirements for removal of any heritage tree. There are approximately eight red willow trees and a eucalyptus tree within the Project site in Dublin. However, these trees are not considered heritage tree species under the ordinance and are smaller than the 24-inch size requirement. No trees occur in the small portion of the Project site that falls within Livermore's jurisdiction.

Wildlife Corridors

Urban sprawl, roads, conversion of wildlands, and other anthropogenic influences are fragmenting habitat throughout California. Habitat fragmentation is one of the greatest threats to biodiversity because it impedes or prevents the exchange of individuals and genetic material among populations of wildlife and plants, thereby reducing genetic diversity. Genetic diversity is important in a population because it increases the chances that individuals can survive catastrophic events such as fire, disease, drought, or invasion by nonnative species. Moreover, entire populations may disappear by chance or from a catastrophic event. Habitat fragmentation may prevent suitable habitat from being recolonized from healthy populations after such an event. For larger species of mammals, long-distance movement and dispersal is an important aspect of their basic biology and is critical for their long-term survival. Habitat connectivity and wildlife linkages are particularly important in the current setting of climate change; species need to disperse to find suitable habitat they can tolerate, which is fluctuating due to shifting climate patterns. Maintaining and preserving wildlife corridors is critical to the persistence and survival of many species.

Wildlife linkages are defined as habitat areas that may allow for the long-distance movement of wildlife from one area to another. Linkages can be anything from narrow strips of habitat that function as a tunnel or conduit (i.e., only permit movement but not breeding or foraging) to a large area of intact habitat that is used for movement or dispersal and other life functions. Some species require linkages for periodic migrations among different habitat types used for breeding, birthing, feeding, or roosting. Wildlife movement from one important habitat area to another may vary from daily to seasonal migration depending on the species. The second need for a linkage is the permanent immigration or emigration of individuals among habitat patches, allowing for gene flow[85] and recolonization after local extinction.

[85] Gene flow refers to the movement of individuals, and/or the genetic material they carry, from one population to another.

All EACCS focal species (discussed under **Section 2.4.5, Threatened and Endangered Species**), to some degree, rely on habitat linkages to maintain populations and their genetic integrity. Linkage requirements differ greatly from species to species. Specific characteristics of linkages, such as dimensions, location, and quality of habitat, can influence wildlife use. The EACCS identifies three wildlife linkage categories based on an assessment of the movement needs of the focal species:

- Grassland corridors
- Aquatic-upland connectivity
- Riparian/stream connectivity

Grassland Corridors

Grassland Corridors have several land cover types, such as California annual grasslands, which make up this corridor. Several wildlife species, such as the San Joaquin fox, American badger; and perhaps, in some instances, California red-legged frog; along with several other generalist wildlife species, use grassland corridors as linkages to their grassland habitats. The primary kit fox range in Alameda and Contra Costa Counties is in the Diablo Range along the eastern portion of the two counties. Alameda County also supports a relatively large population of nesting golden eagles, which use annual grasslands as their primary foraging habitat. They are sensitive to fragmentation of this habitat, and smaller patch sizes may lead to declines in prey populations.

Aquatic-Upland Connectivity

Several special-status reptiles and amphibians rely on both aquatic and upland habitats to complete their life cycle. These species use ponds, streams, and other aquatic habitats that are interspersed within the annual grassland/oak woodland/chaparral complex in eastern Alameda County. Connectivity between ponds and streams is important for species such as the California tiger salamander and California red-legged frog that can move between aquatic features. Parts of the EACCS study area, with a higher density of aquatic features, that are "connected" have a higher probability that individual red-legged frogs or tiger salamanders could interact with other members of the local populations. The exception to that rule occurs along the I-580 corridor where the distance between aquatic resources is enough to provide reasonable connectivity to species, but the barrier that I-580 precludes that connectivity in most cases.

Riparian/Stream Connectivity

At a landscape level, stream and riparian habitats connect the BSA and serve and the primary source of nutrient movement through natural systems. At the species level, the primary functions of stream and riparian habitats are for movement and cover. As discussed above and depicted in **Figure 2.4-1**, the Project site contains several perennial streams, perennial streams, and other riparian areas. Aquatic features are described further in **Section 2.4.2, Wetlands and Other Waters**.

ENVIRONMENTAL CONSEQUENCES

Build Alternative

Natural Communities

Table 2.4-3 provides a summary of temporary and permanent impacts to non-aquatic natural communities within the BSA resulting from the Build Alternative. Permanent impacts to these non-sensitive communities would occur through pavement and roadway construction, while temporary impacts would occur from construction access, movement of equipment, and grading. As California annual grassland is classified as an EACCS focal habitat, construction impacts to California annual Grassland would be minimized through implementation of **Measure BIO-1,** which would apply avoidance and minimization measures (AMMs) prescribed by the EACCS. Permanent impacts to California annual grassland would also be minimized through compensatory mitigation to address impacts to habitat of focal animal species under the EACCS and federally threatened species as discussed in **Section 2.4.4, Animal Species** and **Section 2.4.5, Threatened and Endangered Species**.

Table 2.4-3 Impacts to Natural Communities within the BSA

Habitat Type	Temporary (acres)	Permanent (acres)	Total (acres)
California annual grassland	51.69	21.67	73.36
Landscaped/Developed	2.18	2.17	4.35
Total	**53.87**	**23.84**	**77.71**

Source: H. T. Harvey & Associates, 2019

Regulated Trees

The Build Alternative would preserve the ordinance-sized valley oak tree on the Project site, and thus, no encroachment permit from the County would be required. Although eight red willow trees and a eucalyptus tree would be removed with the Dublin's jurisdiction, these trees are not considered heritage tree species under the ordinance and are smaller than the 24-inch size requirement. Therefore, a tree removal permit would not be required. As no trees occur in the area of the Project site that falls within Livermore's jurisdiction, the Build Alternative would not impact any regulated trees within Livermore.

Wildlife Corridors

Grassland Corridors

The majority of the BSA consists of California annual grassland habitat (121.31 acres) which may contribute to regional grassland corridors. Nearby physical constraints currently create barriers that impede wildlife movement in the Project vicinity, such as urbanized development in Dublin and Livermore, and the I-580 alignment south of the Project site. However, the Build Alternative would bisect and fragment currently contiguous annual grassland habitat in the BSA by isolating

habitat between the Project site and the I-580 alignment. **Measure BIO-2** would minimize this effect by requiring compensatory mitigation.

Construction disturbance during the avian breeding season (February 1 through August 31 for most species) could result in the incidental loss of eggs or nestlings, either directly through the destruction or disturbance of active nests or indirectly by causing the abandonment of nests. Impacts to grassland corridors are discussed in terms of the EACCS focal species and federally threatened species impacted as described in **Section 2.4.4, Animal Species** and **Section 2.4.5, Threatened and Endangered Species**. **Measure BIO-3** would minimize this effect through preconstruction surveys, work exclusion areas, and seasonal work windows.

Aquatic-upland Connectivity

The Build Alternative would indirectly impact aquatic-upland connectivity during construction and operation. The Project site contains aquatic features with California tiger salamander and California red-legged frog habitat. While suitable breeding ponds are absent from the BSA, perennial and ephemeral stream, perennial marsh, and seasonal wetland habitats on-site (see **Section 2.4.2, Wetlands and other Waters**) may provide suitable dispersal and foraging habitat for the species, while California annual grasslands in the BSA support California ground squirrel and pocket gopher colonies whose burrows can provide suitable refugia for California tiger salamander. Thus, the Build Alternative would bisect existing aquatic-upland connectivity areas in BSA by isolating habitat between the Project site and the existing I-580 alignment. **Measure BIO-2** would minimize this effect by requiring compensatory mitigation. Direct and indirect impacts on California tiger salamander and California red-legged frog habitat are discussed in **Section 2.4.5, Threatened and Endangered Species**.

Riparian/Stream Connectivity

The Project site contains several perennial streams, perennial streams, and other riparian areas. Implementation of the Build Alternative would not significantly affect riparian connectivity, because the use of a free-span bridge over Cottonwood Creek and culverts at all other drainages would allow California red-legged frogs and California tiger salamanders to continue to move back and forth under the new road.

Downstream barriers prevent anadromous fish, such as Chinook salmon (*Oncorhynchus tshawytscha*) and Coho Salmon (*Oncorhynchus kisutch*) from entering the aquatic areas on the Project site. Thus, no fish passage exists in the Project site, and the Build Alternative would not result in impacts to fish passage.

No-Build Alternative

Under the No-Build Alternative, no changes would be made at the Project site. No construction activities would occur, and Dublin Boulevard would continue to terminate at Fallon Road in Dublin. The No-Build Alternative would have no effect on natural communities, regulated trees, wildlife corridors, or fish passage.

AVOIDANCE, MINIMIZATION, AND/OR MITIGATION MEASURES

Measure BIO-1: The general AMMs detailed in the EACCS and the associated Programmatic Biological Opinion (PBO) shall be implemented. Implementation of the General Minimization Measures listed in the PBO for the EACCS will further avoid impacts and are required for all EACCS-compliant projects. These AMMs include general measures that apply to all work, activity-specific measures designed to address anticipated effects of certain work activities or types of resources, and standard best management practices. Specifically, the Project would implement EACCS Measure GEN-1 through GEN-17, and PBO General Minimization Measure 1 through 19. These measures are listed in **Table 2.4-4**.

Measure BIO-2: Compensatory mitigation for the permanent direct and indirect loss of California red-legged frog and California tiger salamander habitat would be required in accordance with the measures outlined in Tables 3-7 and 3-8 of the EACCS. Mitigation will take the form of purchase of mitigation credits from a mitigation bank or Project-specific mitigation, or other mitigation plan as approved by the USFWS and CDFW in the Project's permits. The ratio of mitigation to impact varies with the location of the proposed mitigation, and would be 2.5:1 at minimum, but may be as high as 4:1 (acreage of new habitat : acreage of impacted habitat).

Table 2.4-4 EACCS Avoidance and Minimization Measures

Applicable EACCS Avoidance and Minimization Measures	
EACCS Measure GEN-01	Employees and contractors performing construction activities will receive environmental sensitivity training. Training will include review of environmental laws and AMMs that must be followed by all personnel to reduce or avoid effects on covered species during construction activities.
EACCS Measure GEN-02	Environmental tailboard trainings will take place on an as-needed basis in the field. The environmental tailboard trainings will include a brief review of the biology of the covered species and guidelines that must be followed by all personnel to reduce or avoid negative effects on these species during construction activities. Directors, Managers, Superintendents, and the crew foremen and forewomen will be responsible for ensuring that crewmembers comply with the guidelines.
EACCS Measure GEN-03	Contracts with contractors, construction management firms, and subcontractors will obligate all contractors to comply with these AMMs.
EACCS Measure GEN-04	The following will not be allowed at or near work sites for covered activities: trash dumping, firearms, open fires (such as barbecues) not required by the activity, hunting, and pets (except for safety in remote locations).
EACCS Measure GEN-05	Vehicles and equipment will be parked on pavement, existing roads, and previously disturbed areas to the extent practicable.
EACCS Measure GEN-06	Off-road vehicle travel will be minimized.
EACCS Measure GEN-07	Vehicles will not exceed a speed limit of 15 miles per hour on unpaved roads within natural land-cover types, or during off-road travel.
EACCS Measure GEN-08	Vehicles or equipment will not be refueled within 100 feet of a wetland, stream, or other waterway unless a bermed and lined refueling area is constructed.
EACCS Measure GEN-09	Vehicles shall be washed only at approved areas. No washing of vehicles shall occur at job sites.
EACCS Measure GEN-10	To discourage the introduction and establishment of invasive plant species, seed mixtures/straw used within natural vegetation will be either rice straw or weed-free straw.
EACCS Measure GEN-11	Pipes, culverts, and similar materials greater than 4 inches in diameter will be stored so as to prevent covered wildlife species from using these as temporary refuges, and these materials will be inspected each morning for the presence of animals prior to being moved.
EACCS Measure GEN-12	Erosion control measures will be implemented to reduce sedimentation in wetland habitat occupied by covered animal and plant species when activities are the source of potential erosion problems. Plastic monofilament netting (erosion

	control matting) or similar material containing netting shall not be used at the Project. Acceptable substitutes include coconut coir matting or tackified hydroseeding compounds.
EACCS Measure GEN-13	Stockpiling of material will occur such that direct effects on covered species are avoided. Stockpiling of material in riparian areas will occur outside of the top of bank, and preferably outside of the outer riparian dripline and will not exceed 30 days.
EACCS Measure GEN-14	Grading will be restricted to the minimum area necessary.
EACCS Measure GEN-15	Prior to ground disturbing activities in sensitive habitats, Project construction boundaries and access areas will be flagged and temporarily fenced during construction to reduce the potential for vehicles and equipment to stray into adjacent habitats.
EACCS Measure GEN-16	Significant earth-moving activities will not be conducted in riparian areas within 24 hours of predicted storms or after major storms (defined as 1 inch of rain or more).
EACCS Measure GEN-17	Trenches will be backfilled as soon as possible. Open trenches will be searched each day prior to construction to ensure no covered species are trapped. Earthen escape ramps will be installed at intervals prescribed by a qualified biologist.
Applicable PBO General Minimization Measures	
PBO General Minimization Measure 1	At least 15 days prior to any ground disturbing activities, the applicant will submit to the United States (US) Fish and Wildlife Service (USFWS) for review and approval the qualifications of the proposed biological monitor(s). A qualified biological monitor means any person who has completed at least four years of university training in wildlife biology or a related science and/or has demonstrated field experience in the identification and life history of the listed species.
PBO General Minimization Measure 2	A USFWS-approved biological monitor will remain on-site during all construction activities in or adjacent to habitat for listed species. The USFWS-approved biological monitor(s) will be given the authority to stop any work that may result in the take of listed species. If the USFWS-approved biological monitor(s) exercises this authority, the USFWS will be notified by telephone and electronic mail within one working day. The USFWS-approved biological monitor will be the contact for any employee or contractor who might inadvertently kill or injure a listed species or anyone who finds a dead, injured, or entrapped individual. The USFWS-approved biological monitor will possess a working wireless/mobile phone whose number will be provided to the USFWS.
PBO General Minimization Measure 3	Prior to construction, a construction employee education program will be conducted in reference to potential listed species on site. At minimum, the program will consist of a brief presentation by persons knowledgeable in endangered species biology and legislative protection (USFWS-approved biologist) to explain concerns to contractors, their employees, and agency personnel involved in the Project. The program will include: a description of the species and their habitat needs; any reports of occurrences in the Project area; an explanation of the status of each listed species and their protection under the Act; and a list of measures being taken to reduce effects on the species during construction and implementation. Fact sheets conveying this information and an educational brochure containing color photographs of all listed species in the work area(s) will be prepared for distribution to the above-

	mentioned people and anyone else who may enter the Project area. A list of employees who attend the training sessions will be maintained by the applicant to be made available for review by the USFWS upon request. Contractor training will be incorporated into construction contracts and will be a component of weekly Project meetings.
PBO General Minimization Measure 4	Pre-construction surveys for listed species will be performed immediately prior to groundbreaking activities. Surveys will be conducted by USFWS-approved biologists. If at any point, construction activities cease for more than five consecutive days, additional pre-construction surveys will be conducted prior to the resumption of these actions.
PBO General Minimization Measure 5	To prevent the accidental entrapment of listed species during construction, all excavated holes or trenches deeper than 6 inches will be covered at the end of each workday with plywood or similar materials. Foundation trenches or larger excavations that cannot easily be covered will be ramped at the end of the workday to allow trapped animals an escape method. Prior to the filling of such holes, these areas will be thoroughly inspected for listed species by USFWS-approved biologists. In the event of a trapped animal is observed, construction will cease until the individual has been relocated to an appropriate location.
PBO General Minimization Measure 6	Translocation will be approved on a project specific basis. The applicant will prepare a listed species translocation plan for the Project to be reviewed and approved by the USFWS prior to Project implementation. The plan will include trapping and translocation methods, translocation site, and post translocation monitoring.
PBO General Minimization Measure 7	Only USFWS-approved biologists will conduct surveys and move listed species.
PBO General Minimization Measure 8	All trash and debris within the work area will be placed in containers with secure lids before the end of each workday in order to reduce the likelihood of predators being attracted to the site by discarded food wrappers and other rubbish that may be left on-site. Containers will be emptied as necessary to prevent trash overflow onto the site and all rubbish will be disposed of at an appropriate off-site location.
PBO General Minimization Measure 9	All vegetation which obscures the observation of wildlife movement within the affected areas containing or immediately adjacent to aquatic habitats will be completely removed by hand just prior to the initiation of grading to remove cover that might be used by listed species. The USFWS-approved biologist will survey these areas immediately prior to vegetation removal to find, capture, and relocate any observed listed species, as approved by the USFWS
PBO General Minimization Measure 10	All construction activities must cease one half hour before sunset and should not begin prior to one half hour after sunrise. There will be no nighttime construction.
PBO General Minimization Measure 11	Grading and construction will be limited to the dry season, typically May-October.

PBO General Minimization Measure 12	BMPs will be used to minimize erosion and effects on water quality and effects on aquatic habitat. If necessary, a Stormwater Pollution Prevention Plan (SWPPP) will be prepared.
PBO General Minimization Measure 13	The applicant will ensure a readily available copy of this PBO is maintained by the construction foreman/manager on the Project site whenever earthmoving and/or construction is taking place. The name and telephone number of the construction foreman/manager will be provided to the USFWS prior to groundbreaking.
PBO General Minimization Measure 14	The construction area shall be delineated with high visibility temporary fencing at least 4 feet in height, flagging, or other barrier to prevent encroachment of construction personnel and equipment outside of the construction area. Such fencing shall be inspected and maintained daily until completion of the Project. The fencing will be removed only when all construction equipment is removed from the site.
PBO General Minimization Measure 15	Silt fencing or wildlife exclusion fencing will be used to prevent listed species from entering the Project area. Exclusion fencing will be at least 3 feet high and the lower 6 inches of the fence will be buried in the ground to prevent animals from crawling under. The remaining 2.5 feet will be left above ground to serve as a barrier for animals moving on the ground surface. The fence will be pulled taut at each support to prevent folds or snags. Fencing shall be installed and maintained in good condition during all construction activities. Such fencing shall be inspected and maintained daily until completion of the Project. The fencing will be removed only when all construction equipment is removed from the site.
PBO General Minimization Measure 16	A USFWS-approved biologist shall ensure that the spread or introduction of invasive exotic plant species shall be avoided to the maximum extent possible. When practicable, invasive exotic plants in the Project areas shall be removed.
PBO General Minimization Measure 17	Project sites shall be revegetated with an appropriate assemblage of native riparian wetland and upland vegetation suitable for the area. A species list and restoration and monitoring plan shall be included with the Project proposal for review and approval by the USFWS and the US Army Corps of Engineers (USACE). Such a plan must include, but not be limited to, location of the restoration, species to be used, restoration techniques, time of year the work will be done, identifiable success criteria for completion, and remedial actions if the success criteria are not achieved.
PBO General Minimization Measure 18	If a work site is to be temporarily dewatered by pumping, intakes shall be completely screened with wire mesh not larger than 5 millimeters. Water shall be released or pumped downstream at an appropriate rate to maintain downstream flows during construction. Upon completion of construction activities, any barriers to flow shall be removed in a manner that would allow flow to resume with the least disturbance to the substrate.
PBO General Minimization Measure 19	A USFWS-approved biologist shall permanently remove, from within the Project area, any individuals of exotic species, such as bullfrogs (Lithobates catesbeianus), crayfish (Pacifastacus leniusculus and Procambarus clarkia), and centrarchid fishes, to the maximum extent possible. The applicant shall have the responsibility to ensure that their activities are in compliance with the California Fish and Game Code.

Source: EACCS, 2011

Measure BIO-3: Project implementation shall include the following measures to comply with the Migratory Bird Treaty Act (MBTA) and California Fish and Game Code and avoid death or injury of special-status birds or their active nests, eggs, or young.

- *Avoidance of the Nesting Bird Season.* If feasible, Project activities will be scheduled to avoid the avian nesting season. If such activities are scheduled to take place outside the nesting season, all impacts on nesting birds, including raptors, protected under the MBTA and California Fish and Game Code, would be avoided. The nesting season for most birds in the County typically extends from February 1 through August 31, although in most years, a majority of birds have finished nesting by August 1.

- *Vegetation Removal during the Non-Nesting Season.* If Project activities will not be initiated until after the start of the nesting season, potential nesting substrate (e.g., bushes, trees, grasses, and other vegetation) that is scheduled to be removed may be removed prior to the start of the nesting season (e.g., prior to 1 February) to reduce the potential for initiation of nests. If it is not feasible to schedule vegetation removal during the nonbreeding season, or where vegetation cannot be removed (e.g., in areas immediately adjacent to the site), then pre-construction surveys for nesting birds will be conducted as described below. Sensitive and/or regulated wetland vegetation would not be removed prior to construction, if feasible.

- *Pre-construction/Pre-disturbance Surveys for Nesting Birds.* If it is not possible to schedule Project activities between September 1 and February 1, then a qualified biologist will conduct pre-construction surveys for nesting birds to ensure that no nests will be disturbed during Project implementation. These surveys will be conducted no more than one week prior to the initiation of Project activities. During this survey, a qualified biologist will inspect all potential nesting habitats (e.g., trees, shrubs, grasslands, and structures) within 300 feet of impact areas for raptor nests and within 100 feet of impact areas for nests of non-raptors. Surveys for burrowing owls and nesting golden eagles will extend out to 0.5 mile from the Project site (to the extent that such areas are accessible).

  Buffers around Active Nests. If an active nest (i.e., a nest with eggs or young, or any completed raptor nest attended by adults) is found sufficiently close to the construction footprint to be disturbed by these activities, the biologist, in consultation with CDFW, will determine the extent of a disturbance-free buffer zone to be established around the nest to ensure that no nests of species protected by the MBTA and California Fish and Game Code will be disturbed during Project implementation. Typical buffers are 0.25 mile (or 0.5-mileline-of-sight) for golden eagles, 250 feet for burrowing owls, 300 feet for other raptors, and 50-100 feet for non-raptors. Because most of the site is already subject to disturbance by vehicles and pedestrians, activities that will be prohibited from occurring within the buffer zone around a nest will be determined on a case-by-case basis by a qualified biologist. In general, activities prohibited within such a buffer while a nest is active will be limited to new construction-related activities (i.e., activities that were not ongoing when the nest was constructed) involving significantly greater noise, human presence, or vibrations than were present prior to nest initiation.

- *Nest Deterrence.* If necessary, to avoid impacts to active nests, nest starts may be removed on a regular basis (e.g., every second or third day), starting in late January or early February to prevent active nests from becoming established.

CUMULATIVE IMPACTS

Natural communities surrounding the Project site, including California annual grassland, have been impacted by several past development projects within the Dublin area. Natural communities within the BSA may continue to be impacted by future development. Each prior development was required to mitigate for impacts to California annual grassland in project-specific California Environmental Quality Act (CEQA) analysis and regulatory permitting, while future development that may occur due to road construction will be required to mitigate all impacts to natural communities. As developed/landscaped areas are not considered sensitive natural communities and impacts to California annual grassland would be minimized through mitigation measures outlined in this document, the Project would not substantially contribute to a cumulative impact on sensitive natural communities or EACCS focal habitat.

2.4.2 WETLANDS AND OTHER WATERS

REGULATORY SETTING

Federal

Wetlands and other waters are protected under several laws and regulations. At the federal level, the Federal Water Pollution Control Act, more commonly referred to as the Clean Water Act (CWA) (33 US Code [USC] 1344), is the primary law regulating wetlands and surface waters. One purpose of the CWA is to regulate the discharge of dredged or fill material into waters of the United States (US), including wetlands. Waters of the US include navigable waters, interstate waters, territorial seas, and other waters that may be used in interstate or foreign commerce. The lateral limits of jurisdiction over non-tidal water bodies extend to the ordinary high-water mark, in the absence of adjacent wetlands. When adjacent wetlands are present, CWA jurisdiction extends beyond the ordinary high-water mark to the limits of the adjacent wetlands. To classify wetlands for the purposes of the CWA, a three-parameter approach is used that includes the presence of hydrophytic (water-loving) vegetation, wetland hydrology, and hydric soils (soils formed during saturation and/or inundation). All three parameters must be present, under normal circumstances, for an area to be designated as a jurisdictional wetland under the CWA.

Section 404 of the CWA establishes a regulatory program that provides that discharge of dredged or fill material cannot be permitted if a practicable alternative exists that is less damaging to the aquatic environment or if the nation's waters would be significantly degraded. The Section 404 permit program is run by the USACE with oversight by the US Environmental Protection Agency.

The USACE issues two types of 404 permits: General and Individual. There are two types of General permits: Regional and Nationwide. Regional permits are issued for a general category of activities

when they are similar in nature and cause minimal environmental effect. Nationwide permits are issued to allow a variety of minor project activities with no more than minimal effects.

Ordinarily, projects that do not meet the criteria for a Regional or Nationwide Permit may be permitted under one of USACE's Individual permits. There are two types of Individual permits: Standard permits and Letters of Permission. For Individual permits, the USACE decision to approve is based on compliance with US EPA's Section 404(b)(1) Guidelines (40 Code of Federal Regulations 230), and whether permit approval is in the public interest. The Section 404 (b)(1) Guidelines (Guidelines) were developed by the US EPA in conjunction with the USACE, and allow the discharge of dredged or fill material into the aquatic system (waters of the US) only if there is no practicable alternative which would have less adverse effects. The Guidelines state that the USACE may not issue a permit if there is a "least environmentally damaging practicable alternative" (LEDPA) to the proposed discharge that would have lesser effects on waters of the US, and not have any other significant adverse environmental consequences.

The Executive Order for the Protection of Wetlands (EO 11990) also regulates the activities of federal agencies regarding wetlands. Essentially, EO 11990 states that a federal agency, such as Federal Highway Administration and/or the California Department of Transportation [Caltrans], as assigned, cannot undertake or provide assistance for new construction located in wetlands unless the head of the agency finds: (1) that there is no practicable alternative to the construction and (2) the proposed project includes all practicable measures to minimize harm. A Wetlands Only Practicable Alternative Finding must be made.

Regional

The Regional Water Quality Control Boards (RWQCBs) were established under the Porter-Cologne Water Quality Control Act to oversee water quality. Discharges under the Porter-Cologne Act are permitted by Waste Discharge Requirements and may be required even when the discharge is already permitted or exempt under the CWA. In compliance with Section 401 of the CWA, the RWQCBs also issue water quality certifications for activities which may result in a discharge to waters of the US. This is most frequently required in tandem with a Section 404 permit request. Please see **Section 2.3.1, Water Quality and Storm Water Runoff** for more details.

Local

East Alameda County Conservation Strategy

Dublin adopted the EACCS as guidance for public infrastructure and capital improvement projects and uses the document to provide input on managing biological resources and conservation priorities during public project-level planning and environmental permitting. The EACCS identifies the aquatic habitats of seasonal wetlands and mixed riparian woodland as focal habitat (**Table 2.4-4**). Impacts to these land cover types must be avoided, minimized, and mitigated through implementation of measures listed in the EACCS.

AFFECTED ENVIRONMENT

The study area for wetlands and other waters includes water bodies within the BSA that could be affected by the Project. The BSA contains eight biotic habitats described below and shown on **Figure 2.4-1**: California annual grassland, seasonal wetland, perennial stream, ephemeral stream, perennial marsh, mixed riparian woodland, riparian grassland, and developed/landscaped habitat. Wetland delineation surveys conducted during April and May of 2018 identified four habitats within the BSA that may be protected under Section 404 of the CWA: seasonal wetlands, perennial marsh, perennial streams, and ephemeral streams. (**Table 2.4-5** and **Figure 2.4-1**).

The Preliminary Delineation of Jurisdictional Waters was sent by the City of Dublin to USACE on February 21, 2019. A wetland verification site visit attended by USACE and HT Harvey occurred on April 10, 2019. The City received a preliminary jurisdictional determination letter from the USACE on October 31, 2019 concurring that the Project footprint includes a 2.1-acre area of potentially jurisdictional waters. The *Delineation of Wetlands and other Waters* documents correspondence received from USACE. The discussion below addresses all potentially jurisdictional wetlands and waters within the BSA, inclusive of those within the Project footprint.

Seasonal Wetlands

Large wetland patches scattered in the western portion of the BSA comprise the seasonal wetland complex. The seasonal wetlands occur in low-lying areas and the largest patch is directly connected to the perennial marsh habitat that runs parallel to Fallon Road (**Figure 2.4-1**). Native forbs and grasses dominate the seasonal wetland vegetation. Several species of non-native grasses are common in the more limited seasonal wetlands scattered along ephemeral drainages across the BSA. Seasonal wetlands can provide habitat for a unique array of special-status and common wildlife species that rely specifically on the features they provide. However, because the seasonal wetlands in the BSA are regularly disturbed by grazing cattle that compress soils and inhibit use by wetland-associated invertebrate and amphibian species that might take refuge in the moist soils, the habitat provided by these features is functionally similar to the adjacent grasslands and perennial marsh from the perspective of wildlife use.

Perennial Streams

The Project site includes Cottonwood Creek and three unnamed streams, which are all perennial streams and comprise the perennial stream habitat in the BSA. These four perennial streams are in the western portion of the BSA and shown on **Figure 2.4-1**. They generally convey water year-round, and either do not contain vegetation due to ponding and flows or contain vegetation that is consistent with the adjacent perennial marsh areas (described below). Although perennial streams in the County can provide habitat for a variety of fish and wildlife species, perennial stream habitat in the BSA provides limited habitat for fish and aquatic wildlife species for the reasons discussed below.

Table 2.4-5 Potential Jurisdictional Waters within the BSA

Habitat Type	Jurisdiction	Total Area (acre)
Perennial stream	Waters of the US/state	0.33
Ephemeral stream	Waters of the US/state	0.13
Perennial marsh (Section 404/401)	Waters of the US/state	0.07
Seasonal wetland (Section 404/401)	Waters of the US/state	10.43
Subtotal		**10.96**
In-stream seasonal wetland (stream bed)	Waters of the state	0.14
Riparian vegetation	Waters of the state	3.42
Grand Total		**14.52**

Source: H. T. Harvey & Associates, 2019

Cottonwood Creek

Cottonwood Creek is a perennial stream with a connection to groundwater and flows overland through the eastern portion of the BSA. The portion of Cottonwood Creek through the BSA is shallow, steeply incised, unshaded, and contains little to no in-stream vegetation, which limits its value for fish and aquatic wildlife. Numerous erosional features were apparent during surveys. No fish were observed within Cottonwood Creek during reconnaissance surveys, and the creek's shallow waters and lack of large pools make it unsuitable for most fish species. Small fish adapted to warm waters, such as the native California roach (*Hesperoleucus symmetricus*) and non-native mosquitofish (*Gambusia affinis*), may occur in limited numbers within the creek.

Unnamed Tributaries

The Project site also contains three unnamed tributaries:

- A small perennial stream located along the western portion of Croak Road. A portion of this stream has been culverted and capped with concrete for roughly 350 linear feet. Substantial flows of water emanated from a culvert outlet in both 2017 and 2018 where the stream daylights, and a portion of this stream spills into the northern portion of the wetland complex immediately east of Fallon Road. This aboveground, wetted streambed supports perennial marsh vegetation (described below) and flows southward, parallel to western Croak Road.
- To the west of the eastern portion of Croak Road, a small perennial stream emerges from the hills and flows into a seasonal wetland swale as the topography becomes less steep.
- The southwest corner of the BSA includes a perennial stream that drains into the southern portion of the large wetland complex. The stream crosses to the west under Fallon Road and runs outside the BSA parallel to I-580 before discharging to a culvert under the highway

and entering a flood control channel. This channel then drains to Arroyo Las Positas to the south.

The unnamed tributaries in the western portions of the Project site along Fallon/Croak Road are shallow, generally holding no more than a few inches water. Nevertheless, in-stream vegetation along this tributary provides habitat for common amphibians and reptiles, as well as small numbers of non-native mosquitofish. Aquatic reptiles, such as the common garter snake (*Thamnophis sirtalis*) and western pond turtle (*Actinemys marmorata*), may forage and disperse along this stream. Common amphibians such as the native Sierran chorus frog (*Pseudacris sierrae*), as well as the non-native bullfrog, were observed in shallow pools and may utilize these streams for breeding and dispersal.

Ephemeral Streams

Four ephemeral streams occur in the BSA. These streams convey water during and immediately following rain events and dry out during the summer months. Most ephemeral stream banks found on the Project site are vegetated with plants found in the surrounding California annual grasslands. The ephemeral nature of these drainages precludes the presence of fish. Similarly, aquatic wildlife species are not expected to occur regularly within these drainages but may utilize this habitat for dispersal when water is present. Wildlife using adjacent habitats is expected to forage and take shelter in the vegetation within the drainage. However, due to the limited extent of this habitat type within the BSA, it is not expected to support wildlife species not found in the adjacent, more extensive, habitat types (i.e., California annual grassland and seasonal wetland).

Perennial Marsh

The perennial marsh habitat in the BSA is confined to a narrow roadside channel within the OHWM of the perennial stream along Fallon/Croak Road. The marsh supports strongly hydrophytic[86], emergent[87] plants. The marsh contains surface water, which was evident during all survey dates, and is vegetated with native rushes, including Mexican rush (*Juncus mexicanus*), iris-leaved rush (*Juncus xiphioides*), and hard-stemmed bulrush (*Schoenoplectus acutus*). Along the fence line, dominant vegetation included hard-stemmed bulrush along with other California natives (alkali bulrush [*Bolboschoenus maritimus*], water parsnip [*Berula erecta*]), and non-natives (creeping buttercup [*Ranunculus repens*], water speedwell [V*eronica anagallis-aquatica*]). None of these species are rare or otherwise special-status.

As the perennial marsh habitat is confined to a narrow roadside channel, many wildlife species that inhabit more extensive marshes, such as the Virginia rail (*Rallus limicola*), are not expected to be

[86] Hydrophytic plans grow wholly or partly submerged in water

[87]Emergent plants are rooted in the lake bottom, but their leaves and stems extend out of the water

present. Nevertheless, the presence of water in the marsh and existing vegetation support a diverse and abundant invertebrate fauna, which provides ample foraging opportunities for insectivores. Aerial insectivores such as the cliff swallow (*Petrochelidon pyrrhonota*), violet-green swallow (*Tachycineta thalassina*), and free-tailed bat (*Tadarida brasiliensis*) frequently forage over marsh habitats.

Riparian Grassland

Riparian grasslands occur within the top of the bank of Cottonwood Creek and the unnamed perennial stream to the west of Croak Road, totaling about 3 acres. The understory of mixed riparian woodlands integrates with the surrounding habitats, and the areas of riparian grassland lacking tree cover support similar species to the surrounding California annual grassland, with species such as soft chess (*Bromus hordeaceus*) and Italian ryegrass (*Lolium multiflorum*).

East Alameda County Conservation Strategy High Priority Natural Communities

Although the EACCS identifies mixed riparian woodland and seasonal wetlands as focal habitat (**Table 2.4-4**), surveys of the BSA did not find plant species associated with these natural communities as defined by the EACCS. Thus, the mixed riparian woodland and seasonal wetlands located within the BSA would not be considered focal habitat under the EACCS.

ENVIRONMENTAL CONSEQUENCES

As wetlands and other waters cross the proposed alignment of the Project, no practicable alternative exists that would avoid impacts to these resources. However, as described in **Section 2.4.2, Avoidance, Minimization, and/or Mitigation Measures,** measures to minimize harm to aquatic resources would be included in the Project design.

Build Alternative

Permanent and temporary effects to wetlands and waters are summarized below and quantified in **Table 2.4-6** and shown in **Figure 2.4-1**.

- The Project would result in direct permanent effects to 0.10 acres and 749 linear feet of stream habitats through culverting of five streams that intersect the proposed road alignment, and placement of fill through grading and road construction.
- The Project would result in direct temporary impacts to 0.03 acres of stream habitats due to construction access, movement of equipment and personnel, and a temporary crossing of Cottonwood Creek.[88]

[88]The Cottonwood Creek crossing may be clearspan across the low flow channel, or it may be constructed with temporary fill such as rock placed within the OHWMs to create a temporarily

- The Project would result in 0.12 acres of direct permanent impacts to seasonal wetlands (including 249 linear feet of in-channel seasonal wetlands) as a result of pavement or road construction.
- The Project would result in 0.33 acres of direct temporary impacts to perennial marsh (<0.01 acres) and seasonal wetlands (0.33 acres) due to grading and construction access.

Table 2.4-6 Project Impacts to Section 404 Aquatic Resources

Habitat Category	Temporary Impact (acres)	Permanent Impact (acres)	Total Impact (acres)
Perennial stream (US/State)	0.01	0.02	0.03
Ephemeral stream (US/State)	0.02	0.08	0.10
Perennial marsh (US/State)	<0.01	0	<0.01
Seasonal wetland (US/State)	0.33	0.12	0.45
Subtotal:	**0.37**	**0.22**	**0.58**
Mixed riparian woodland (State)	0.05	0.11	0.16
Riparian grassland (State)	2.83	0.02	2.85
Total:	**3.25**	**1.03**	**3.46**

Source: H. T. Harvey & Associates, 2018

The Project design incorporates measures to avoid impacts to Section 404 aquatic resources. For example, the Project has been carefully designed to not interrupt hydrology to wetlands and streams to the south of the proposed road through appropriately sized and placed culverts, and a clearspan bridge over Cottonwood Creek that avoids placement of bridge supports within the OHWMs of the creek. In addition, the culvert conveying the perennial stream along the east side of the western portion of Croak Road has been carefully designed as a native channel bottom, wide box culvert to allow water to flow out into the field wetland complex, as it does today.

All impacts to wetlands and waters have been designed to be the minimum necessary. Work areas in wetlands and streams would be restricted to areas immediately adjacent to permanent impact

culverted access road. Indirect impacts could include interruption or alteration of hydrology to waters downstream of the Project improvements, or reduction in water quality of downstream waters.

locations. **Measures BIO-2**, **BIO-4,** and **BIO-5** would ensure no adverse effect occurs. These measures include compensatory mitigation for habitat loss, consistent with the EACCS, to ensure suitable habitat continues to be available for protected species. In addition to compensatory mitigation for permanent habitat loss, on-site restoration of temporary impact areas is required. The mitigation provides construction controls to delineate and avoid wetlands, requires implementation of EACCS avoidance and minimization measures in wetland areas, and provides seasonal work windows.

Required permits

Project Implementation would require the following permits relating to wetlands and other waters:

- USACE, Individual Permit, Section 404, CWA
- California Department of Fish and Wildlife (CDFW), 1602, Lake and Streambed Alteration Agreement
- National Pollutant Discharge Elimination System and General Construction permit
- Municipal Regional Stormwater National Pollutant Discharge Elimination System Permit
- RWQCB, Section 401 Certification ad Individual Permit

No-Build Alternative

Under the No-Build Alternative, no changes would be made at the Project site. No construction activities would occur, and Dublin Boulevard would continue to terminate at Fallon Road in Dublin. The No-Build Alternative would have no effect on wetlands and other waters.

AVOIDANCE, MINIMIZATION, AND/OR MITIGATION MEASURES

Measure BIO-2 (described in Section 2.4.1)

Measure BIO-4: The Project proponent or their contractor will implement the following practices to minimize the potential impacts to waters of the US:

- All wetlands and streams shall be clearly depicted on final Project plans. Areas to be avoided shall be indicated and protected at the site using orange sensitive area fencing to ensure inadvertent impacts do not occur.
- Final grading plans shall be developed that minimize grading-related fill and cut in wetlands and streams to the maximum extent feasible to achieve Project goals and improvements.
- Work within streams and wetlands would be restricted to the dry season from April 15 to October 15 (or as directed by regulatory permitting agency) to protect water quality.
- All appropriate AMMs listed in the EACCS that would apply to and protect these aquatic habitats will be enacted.

- No bioswales or other stormwater infrastructure, or non-critical Project elements such as landscaping, will be placed in wetlands or streams.
- All temporary fills placed in the Cottonwood Creek low-flow channel for construction access will be clean fills (such as clean rock) of a size that can be fully removed from the low-flow channel and the channel then restored to its former topography.
- The Project applicant will implement BMPs as recommended or required by the state or RWQCB to protect water quality. These measures will include, but are not limited to the following:
    - No debris, soil, silt, sand, bark, slash, sawdust, cement, concrete, washings, petroleum products or other organic or earthen material will be allowed to enter into or be placed where it may be washed by rainfall or runoff into waters of the US or state. No equipment will be operated in the live stream channel.
    - Equipment staging and parking areas shall occur within established access areas in upland habitat above the top of bank.
    - Machinery or vehicle refueling, washing, and maintenance shall occur at least 60 feet from the top-of-bank. Equipment shall be regularly maintained to prevent fluid leaks. Any leaks shall be captured in containers until the equipment is moved to a repair location. A spill prevention and response plan will be prepared prior to construction and will be implemented immediately for cleanup of fluid or hazardous materials spills.
    - Standard erosion control and slope stabilization measures will be required for work performed in any area where erosion could lead to sedimentation of a waterbody.
    - The Project will comply with the Municipal Regional Permit and General Construction permit to prevent increases in peak flow, erosion, or reduction in water quality for downslope waters.

Measure BIO-5: The permanent loss of waters and wetlands shall be mitigated per the EACCS. Mitigation will be provided via preservation, enhancement, and management as per EACCS guidelines. This may be purchased as bank credits or managed as a Project-specific mitigation site. Because all wetland and stream habitats in the Project site provide habitat for focal species, the mitigation ratio for the impacts will be at least 2.5:1 (acreage of new habitat : acreage of impacted habitat). Because the wetland and stream habitats all provide dispersal and foraging habitat for California red-legged frog and California tiger salamander, the final mitigation ratio must be as high as the determined EACCS requirements for focal species. The required mitigation ratio will vary based on the location and quality of the mitigation lands, which have not been selected yet. Additionally, compensatory mitigation for wetlands and waters must be provided in-kind (wetlands for wetlands and streams for streams).

Temporary impacts to these waters and wetlands will be restored in place at a 1:1 ratio through re-establishment of original contours in stream channels and wetlands, decompaction of compacted soils where necessary, and seeding with a native wetland seed mix developed by a qualified restoration ecologist containing species such as alkali barley and Mexican rush. Temporary impact

areas will be monitored for 2 years and the criteria for success will be 75 percent vegetation cover or more compared to pre-Project conditions and no more than 5 percent cover of Cal-IPC-rated moderate and high impact weed species (excluding Cal-IPC-rated annual grasses).

CUMULATIVE IMPACTS

Wetlands, streams, and riparian habitat surrounding the Project site have been impacted by several past development projects within the Dublin area. Wetlands and riparian habitat within the BSA may also be impacted by future development. Each prior development was required to mitigate for impacts to wetlands, waters, and riparian habitat in project-specific environmental analysis and regulatory permitting, while future development will be required to mitigate impacts to wetlands and waters based on project-specific environmental analysis. Impacts from the Project will be fully mitigated as required by the EACCS, which addresses biological resources at a regional level, and no adverse effect would occur. Therefore, this Project will not have a cumulatively considerable contribution to impacts on wetlands and waters.

WETLANDS ONLY PRACTICABLE ALTERNATIVE FINDING

As described above under Regulatory Setting, E.O. 11990 regulates the activities of federal agencies with regard to wetlands. If a project will include new construction within wetlands, the lead agency must make a Wetlands Only Practicable Alternative Finding. This section provides the basis for making this finding for the Project.

The Project has been developed to meet the previously identified purpose and need while avoiding or minimizing environmental effects. The Project alignment was chosen based on the multiple planning efforts listed in **Chapter 1, Project Description**, which considered site constraints such as sensitive biological habitats and the existing grade and topography of the area. The Project was developed with a goal to provide developable parcels of a reasonable size. The selected roadway alignment, and the proposal to connect Dublin Boulevard to North Canyons Parkway, is supported by the General Plan documents of Dublin, the County, and Livermore.

Due to the hills and ridgeline to the north and I-580 to the south, Cottonwood Creek, and the location of existing parcel lines, the roadway alignment selected for the Project best meets the Project purpose and need and best aligns with Dublin's planning efforts for eastern Dublin. Project alternatives considered but rejected are summarized in **Section 1.3.4, Alternatives Considered but Eliminated**. Three alignment alternatives were considered: widening the east-west alignment of Croak Road and Collier Canyon Road, a Northerly Alignment closer to the hills, and a Southerly Alignment closer to I-580. Due to the location of wetlands in the BSA, both the widening and Southerly Alignment options would increase the area of wetlands effected by the Project. The Northerly Alignment would have similar or slightly greater areas of effect to wetlands, particularly west of the north-south alignment of Croak Road.

The Project would affect wetlands in the following way:

- The Project would result in direct permanent effects to 0.10 acres and 749 linear feet of stream habitats through culverting of five streams that intersect the proposed road alignment, and placement of fill through grading and road construction.
- The Project would result in direct temporary impacts to 0.03 acres of stream habitats due to construction access, movement of equipment and personnel, and a temporary crossing of Cottonwood Creek.[89]
- The Project would result in 0.12 acres of direct permanent impacts to seasonal wetlands (including 249 linear feet of in-channel seasonal wetlands) as a result of pavement or road construction.
- The Project would result in 0.33 acres of direct temporary impacts to perennial marsh (<0.01 acres) and seasonal wetlands (0.33 acres) due to grading and construction access.

As described in the section above, detailed measures will be implemented to minimize Project effects on wetlands. While complete avoidance of all wetlands is not possible, temporary measures will be undertaken during construction to minimize effects and all permanent loss of wetlands will be fully mitigated based on the EACCS. This will result in no net loss of wetlands.

Based on the above considerations, it is determined that there is no practicable alternative to the proposed construction in wetlands and that the proposed action includes all practicable measures to minimize harm to wetlands that may result from such use.

2.4.3 PLANT SPECIES

REGULATORY SETTING

Federal

The USFWS is responsible for the protection of federally listed special-status plant species. "Special-status" species are selected for protection because they are rare and/or subject to population and habitat declines. "Special status" is a general term for species that are provided varying levels of regulatory protection. The highest level of protection is given to threatened and endangered species; these are species that are formally listed or proposed for listing as endangered or threatened under FESA. Please see the **Section 2.4.5, Threatened and Endangered Species** in this

[89]The Cottonwood Creek crossing may be clearspan across the low flow channel, or it may be constructed with temporary fill such as rock placed within the OHWMs to create a temporarily culverted access road. Indirect impacts could include interruption or alteration of hydrology to waters downstream of the Project improvements, or reduction in water quality of downstream waters.

document for detailed information about protected animal species. This section of the document discusses all federally protected special-status plant species, including USFWS candidate species.

The regulatory requirements for FESA can be found at 16 USC Section 1531, et seq. See also 50 Code of Federal Regulations Part 402.

Local

East Alameda County Conservation Strategy

The Dublin adopted the EACCS as guidance for public infrastructure and capital improvement projects and uses the document to provide input on managing biological resources and conservation priorities during public project-level planning and environmental permitting. The EACCS identifies the following species as focal plant species: Livermore tarplant, San Joaquin spearscale, and palmate-bracted bird's-beak. Impacts to these focal species must be avoided, minimized, and mitigated through implementation of measures listed in the EACCS.

AFFECTED ENVIRONMENT

The NES identified 81 special-status plant species previously known to occur within the Project region, and eliminated 59 plant species as unlikely to occur within the BSA based on the following criteria:

- Absence of suitable habitat types
- Lack of specific habitat or soil requirements
- Elevational range of the species being outside of the elevation range in the BSA, which is approximately 380 feet to 410 feet above sea level
- The species is presumed to be extirpated from the Project vicinity, which includes a 5-mile radius around the BSA.

Of the 22 special-status plant species with some potential to occur in the BSA, three species could be present in the BSA because prior surveys in the vicinity confirmed their presence. These three species are Congdon's tarplant (*Centromadia parryi* ssp. *congdonii*), San Joaquin spearscale (*Extriplex joaquiniana*), and prostrate vernal pool navarretia (*Navarretia prostrata*). Congdon's tarplant and San Joaquin spearscale are considered focal species under the EACCS**.** None of these species are federally protected. The remaining 19 species are eliminated from consideration due to a lack of suitable habitat within the BSA or negative survey results following surveys in 2002, 2017, and 2018. Refer to the NES for a complete discussion of plant species considered absent from the BSA.

Focused rare plant surveys completed on June 29, 2018 confirmed the presence of Congdon's tarplant in the BSA. The survey observed approximately 77,000 plants distributed over 8.2 acres in the seasonal wetlands along the southern edge of the BSA (**Figure 2.4-1**). Smaller numbers occurred in scattered areas to the west of the main population. Focused surveys in 2017 and 2018

did not observe San Joaquin spearscale nor prostrate vernal pool navarretia, however, both species have a long-lived seed bank. Therefore, this analysis assumes both species may still be present within the BSA as seed banks.

Because San Joaquin spearscale and prostrate vernal pool navarretia are adapted to alkaline wetlands, it is very likely the seed banks do not extend into the construction footprint, as alkalinity lessens to the north. The maximum extent of the anticipated seed bank distribution of either species, based on habitat suitability, would be the northernmost extent of the Congdon's tarplant that was mapped on the site.

ENVIRONMENTAL CONSEQUENCES

Build Alternative

Project construction would result in 0.45 acres of direct and indirect temporary impacts to Congdon's tarplant and its seed banks (and seed banks of San Joaquin spearscale or prostrate vernal pool navarretia, if these occur in the construction footprint). Impacts would result from construction access needed to remove utility line and poles, which would then be relocated outside of the Congdon's tarplant population. This could directly affect up to approximately 400 Congdon's tarplant individuals and indirectly affect up to 2,000 plants within 50 feet of the direct impact area, though it should be noted that annual plant populations fluctuate over time in response to climate and other factors. No permanent impacts to these species are anticipated to occur from the Project.

The Project could result in direct temporary impacts such as trampling or crushing of individual plants, or indirect impacts resulting from alteration of hydrology, dust coverage to foliage from nearby work activities, or a decrease in water quality within wetland areas supporting these species downslope of the Project site. The implementation of General Construction Permit conditions would be required for dust control, such as watering and control of stormwater and dust onsite during construction. Following construction, water quality would be protected in downslope habitats through implementation of stormwater treatment features such as bioswales or other C.3-approved measures allowed by the National Pollutant Discharge Elimination System. However, the Project could still result in direct or indirect impacts to special-status plants. Impacts to EACCS focal species would be minimized through implementation of **Measures BIO-1**, **BIO-6,** and **BIO-7** These measures include construction-period controls to avoid and minimize disturbance or damage to the species, including those in the EACCS, along with post-construction monitoring to evaluate species recovery.

No-Build Alternative

Under the No-Build Alternative, no changes would be made at the Project site. No construction activities would occur, and Dublin Boulevard would continue to terminate at Fallon Road in Dublin. The No-Build Alternative would have no effect federally-listed special-status or EACCS focal plant species.

AVOIDANCE, MINIMIZATION, AND/OR MITIGATION MEASURES

Measure BIO-1 (described above in Section 2.4.1)

Measure BIO-6: The following measures shall be implemented to avoid and minimize impacts to special-status plant species and to the other special-status plants that have seed banks that may overlap the construction footprint:

- To the extent feasible, Project construction will avoid all occupied habitat for Congdon's tarplant (which is also potential seed bank area for San Joaquin spearscale or prostrate vernal pool navarretia) plus a 50-foot buffer.
- The mapped areas of Congdon's tarplant will be clearly shown on all construction plans.
- To avoid special-status plants, a buffer of at least 50 feet will be clearly delineated from the active work areas through installation of environmental sensitive area fencing to prevent inadvertent access. The work area for utility line removal will be bound by environmental sensitive area fencing. A qualified plant ecologist shall oversee fencing placement.
- Work to remove the existing utility line for relocation within the Project site will proceed using the least impactful equipment necessary to minimize crushing, soil compaction, and erosion.

Measure BIO-7: To track recovery of temporarily impacted special-status plant populations, the actual area of impacts will be mapped and monitored for at least three years by a qualified plant ecologist. Prior to Project construction, an area to the south, outside the construction footprint and of a similar size and similar density of Congdon's tarplant to the area to be impacted, will be identified and used as a reference area. Objectives during the monitoring will include removing any weed populations that may have become introduced due to disturbance, and to encourage grazing that benefits Congdon's tarplant. By year three, if the Congdon's tarplant density within the impacted area is not at least 50 percent of the reference area, or if there is more than 5 percent cover of Cal-IPC high or moderate ecological impact invasive plants within the recovery area (not including non-native grasses), the portion of the population impacted by the Project will be considered permanently impacted and the Project will then be required to mitigate for the impacts as per the EACCS, which would require preservation in perpetuity and management per EACCS guidelines of a similar-sized area and number of plants at a 5:1 ratio (number of new plant individuals : number of impacted plant individuals).

CUMULATIVE IMPACTS

Rare plant occurrences surrounding the Project site have been impacted by several past development projects within the Dublin area. The Congdon's tarplant, San Joaquin spearscale, or prostrate vernal pool navarretia populations within the BSA may also be impacted by future development. Each prior development was required to address impacts to these species in project-specific environmental analysis. Also, because the EACCS requires existing populations of focal species to be preserved, it is expected that future projects developed will be required to retain at

least a portion of the existing Congdon's tarplant population in the BSA, which overlaps suitable habitat for the other two species. The Project would not result in an adverse effect related to listed plant species. Therefore, the Project would not result in a cumulatively considerable contribution to listed plant species impacts.

2.4.4 ANIMAL SPECIES

REGULATORY SETTING

Federal

Many federal laws regulate impacts to wildlife. USFWS and the National Oceanic and Atmospheric Administration's National Marine Fisheries Service (NOAA Fisheries Service) are responsible for implementing these laws. This section discusses potential impacts and permit requirements associated with animals not listed or proposed for listing under the federal Endangered Species Act. Species listed or proposed for listing as threatened or endangered are discussed in the **Section 2.4.5, Threatened and Endangered Species** below. All other federally protected special-status animal species are discussed here, including USFWS or NOAA Fisheries Service candidate species.

Federal laws and regulations relevant to wildlife include the following:

- National Environmental Policy Act
- Migratory Bird Treaty Act (MBTA)
- Fish and Wildlife Coordination Act

Local

East Alameda County Conservation Strategy

Dublin adopted the EACCS as guidance for public infrastructure and capital improvement projects and uses the document to provide input on managing biological resources and conservation priorities during public project-level planning and environmental permitting. The EACCS identifies the following species that have some potential to occur in the biological study area as focal animal species: longhorn fairy shrimp, vernal pool fairy shrimp, California tiger salamander, California red-legged frog, tricolored blackbird, western burrowing owl, golden eagle, San Joaquin kit fox, and American Badger (**Table 2.4-4**).

AFFECTED ENVIRONMENT

Common Species

Perennial Streams

No fish were observed within Cottonwood Creek during reconnaissance surveys, and the creek's shallow waters and lack of large pools make it unsuitable for most fish species. Small fish adapted

to warm waters, such as the native California roach (*Hesperoleucus symmetricus*) and non-native mosquitofish (*Gambusia affinis*) may occur in limited numbers within the creek. Nevertheless, in-stream vegetation along this tributary provides habitat for common amphibians and reptiles, as well as small numbers of non-native mosquitofish. Aquatic reptiles, such as the common garter snake and western pond turtle, may forage and disperse along this stream. Common amphibians such as the native Sierran chorus frog, as well as the non-native bullfrog, were observed in shallow pools and may utilize these streams for breeding and dispersal.

The unnamed tributaries in parcel A and along Fallon and Croak Road are shallow, generally holding no more than a few inches water. Nevertheless, instream vegetation along this tributary provides habitat for common amphibians and reptiles, as well as small numbers of non-native mosquitofish. Aquatic reptiles, such as the common garter snake and western pond turtle may forage and disperse along this stream. Common amphibians such as the native Sierran chorus frog, as well as the non-native bullfrog, were observed in shallow pools and may utilize these streams for breeding and dispersal.

Medium-sized mammals such as the raccoon (*Procyon lotor*), striped skunk (*Mephitis mephitis*), gray fox (*Urocyon cinereoargenteus*), and non-native Virginia opossum may forage in this habitat. Several species of bats and insectivorous birds, including the Yuma bat (*Myotis yumanensis*), Mexican free-tailed bat, and barn swallow (*Hirundo rustica*) commonly forage for insects over stream habitats.

Ephemeral Streams

The ephemeral nature of these drainages precludes the presence of fish. Similarly, aquatic wildlife species are not expected to occur regularly within these drainages but may utilize this habitat for dispersal when water is present. Wildlife using adjacent habitats are expected to forage and take shelter in the vegetation within the drainage. However, due to the limited extent of this habitat type within the study area, it is not expected to support wildlife species not found in the other habitats within the BSA.

Perennial Marsh

Perennial marsh habitat within the BSA is confined to a narrow roadside channel. Thus, many wildlife species that inhabit more extensive marshes, such as the Virginia rail, are not expected to be present. Nevertheless, the presence of water in the marsh and existing vegetation support a diverse and abundant invertebrate fauna, which provides ample foraging opportunities for insectivores. Aerial insectivores such as the cliff swallow, violet-green swallow, and free-tailed bat frequently forage over marsh habitats.

Limited numbers of marsh associated birds, such as song sparrows (*Melospiza melodia*) and red-winged blackbirds (*Agelaius phoeniceus*), may nest in the small stands of bulrush along Fallon and Croak Road. However, most of the marsh vegetation is too short and sparse to host nesting birds, although birds nesting elsewhere in the Project vicinity may forage in this habitat. Common species of waterfowl, such as mallards (*Anas platyrhynchos*), Canada geese (*Branta canadensis),* and American coots (*Fulica americana*), were observed in the perennial marsh habitat during

reconnaissance surveys. Amphibian species like those described above under *Perennial Stream*, and common garter snakes may also occur here.

Seasonal-Wetland

Seasonal wetlands can provide habitat for a unique array of special-status and common wildlife species that rely specifically on the features they provide. However, because the seasonal wetlands in the BSA are regularly disturbed by grazing cattle that compress soils and inhibit use by wetland-associated invertebrate and amphibian species that might take refuge in the moist soils, the habitat provided by these features resembles the adjacent grasslands and perennial marsh from the perspective of wildlife use.

Mixed Riparian Woodland and Riparian Grassland

The extremely limited extent of riparian woodland within the BSA limits its value for wildlife. Riparian woodlands in the BSA consist of isolated trees intergrading into the surrounding habitats. Thus, the species occurring within the surrounding perennial marsh (described above) and California annual grassland (described below) are expected to utilize this habitat as well. The trees themselves provide potential foraging and nesting habitat for a variety of common birds, including the oak titmouse (*Baeolophus inornatus*), chestnut backed chickadee (*Poecile rufescens*), and Anna's hummingbird (*Calypte anna*). These trees may also provide hunting perches and nesting substrate for native raptors, such as the great horned owl (*Bubo virginianus*) and red-tailed hawk (*Buteo jamaicensis*). Trees with cavities or loose bark may provide roosting habitat for bat species, including the pallid bat (*Antrozous pallidus*) and California myotis (*Myotis californicus*), year-round. The riparian grassland provides similar habitat values and functions as the surrounding California annual grassland, though along the outer banks of Cottonwood Creek contained a higher density of California ground squirrel burrows (*Otospermophilus beecheyi*).

California Annual Grassland

The study area for animal species includes all areas of ground disturbance and aquatic disturbance that would occur under the Build Alternative. Small mammals such as California ground squirrels and Botta's pocket gophers (*Thomomys bottae*) are common residents of annual grasslands, and burrows of these species were observed in the BSA. Deer mice (*Peromyscus maniculatus*) and California voles are likely common throughout this habitat. Black-tailed deer (*Odocoileus hemionus columbianus*) are common browsers in this habitat, and coyotes (*Canis latrans*) hunt prey in the grassland portions of the BSA.

Bird species that nest in nearby marsh, woodland, and urban habitats forage within grassland areas during the nesting season; these include the western bluebird (*Sialia mexicana*), violet-green swallow, mourning dove (*Zenaida macroura*), house finch (*Carpodacus mexicanus*), lesser goldfinch (*Carduelis psaltria*), and California scrub-jay (*Aphelocoma californica*). Raptors such as the red-tailed hawk and white-tailed kite (*Elanus leucurus*) may forage for small mammals within grassland habitats.

Several reptile species regularly occur in annual grassland habitat, including the western fence lizard (*Sceloporus occidentalis*), gopher snake (*Pituophis catenifer*), northern Pacific rattlesnake (Crotalus oreganus), and California kingsnake (*Lampropeltis californiae*). Burrows of Botta's pocket gophers provide refuges for these reptile species, as well as for common amphibians such as the western toad (*Anaxyrus boreas*) and Sierran chorus frog.

Developed/Landscaped

Wildlife in developed/landscaped portions of the site includes species that are typically accustomed to urban environments and high levels of disturbance from human activities. These include native bird species such as house finches, non-native European starlings (*Sturnus vulgaris*) and rock pigeons (*Columba livia*). Additional bird species, such as Anna's hummingbird, American robins (*Turdus migratorius*), American crows (*Corvus brachyrhynchos*), and lesser goldfinches, may utilize trees or other vegetation within landscaped areas for nesting. Mammals such as the house mouse (*Mus musculus*), Norway rat (*Rattus norvegicus*) and raccoon can also occur in developed portions of the site. Abandoned buildings, sheds and other structures may also provide habitat for migrating Mexican free-tailed bats or resident pallid bats. Reptiles such as western fence lizards and gopher snakes may bask on the paved surfaces in order to raise their body temperature.

Tricolored Blackbird

Foraging habitat for this species occurs in the perennial marsh, seasonal wetlands, and California annual grassland habitats on the eastern portion of the Project site. Dense stands of emergent vegetation and mustard (*Brassica* sp.) between Fallon and Croak Road and the I-580 off ramp provide marginally suitable habitat for a nesting colony of tricolored blackbirds. Furthermore, the species has been recorded in the BSA and was known to breed in the vicinity. Thus, there is some potential, albeit low, for a breeding colony of tricolored blackbirds to become established in perennial marsh habitat in the southwestern portion of the Project site.

Western Burrowing Owl

Burrowing owls and evidence of their presence (i.e., whitewash and/or pellets) were within the immediate vicinity of the BSA during focused surveys conducted in 2002. Burrowing owls have also been observed in grasslands within 2 miles of the BSA, primarily located on properties to the north. Burrows of California ground squirrels and active ground squirrel colonies were observed during the 2002 habitat assessment of the sites and were also observed during the 2017 and 2018 surveys. Because suitable breeding and foraging habitat for burrowing owls is present throughout the BSA, particularly in the upland grasslands, burrowing owls may utilize California annual grasslands and portions of abandoned developed/landscaped habitats within the BSA.

Golden Eagle

No golden eagle nests are known in the BSA or vicinity and there are no suitably large trees or structures that could support an eagle nest in the BSA or surrounding area. In addition, the EACCS models the BSA as potential foraging habitat for the species but does not model any potential

nesting habitat in the vicinity. Thus, golden eagles may occur as occasional foragers within the BSA but are not expected to nest on or adjacent to the BSA.

American Badger

Badgers are not known to occur within the BSA, and none were observed during reconnaissance level surveys in 2017 or 2018. However, badgers have been recorded in the surrounding vicinity. Suitable denning and foraging habitat for badgers is present in the grassland habitats, although badgers are unlikely to den on site due to the surrounding high levels of human disturbance. Should badgers occur in the BSA, they would most likely represent dispersing or foraging individuals. Nevertheless, there is some potential for badgers to den in the BSA.

Migratory Bird Species

The MBTA and California Fish and Game Code protect migratory birds, including their eggs, nests, and young. Several species of birds protected under the MBTA may nest within or adjacent to the BSA. These include the red-winged blackbird, western meadowlark (*Sturnella neglecta*), mourning dove, Say's phoebe (*Sayornis saya*), song sparrow, black phoebe (*Sayornis nigricans*), Bewick's wren (*Thryomanes bewickii*), Anna's hummingbird, red-tailed hawk, and house finch. MBTA species may also forage within the BSA.

ENVIRONMENTAL CONSEQUENCES

Build Alternative

Tricolored Blackbird

The Project would result in the permanent loss of 22.70 acres of potential tricolored blackbird foraging habitat due to the construction of the roadway. The Project would also result in temporary impacts to 54.25 acres of potential tricolored blackbird foraging habitat that would be used for construction access, staging areas, and grading activities. Although the Project would result in permanent and temporary impacts to foraging habitat for this species, such foraging habitat is regionally abundant and does not limit tricolored blackbird distribution or populations. Therefore, no compensatory mitigation for habitat impacts is necessary.

Tricolored blackbird is not expected to nest in the BSA under current conditions. However, because the hydrology on site appears to have undergone several changes in recent years, there is some potential for dense stands of cattails to regenerate within the construction footprint. If nesting habitat were to improve prior to Project initiation, there is some potential for the loss of suitable tricolored blackbird nesting habitat, loss of active nests, and/or disturbance of active nests, possibly causing the abandonment of eggs or young, as a result of construction activity. **Measure BIO-8** would avoid effects to the tricolored blackbird by requiring pre-construction surveys and seasonal construction protocols if site conditions change before construction occurs.

Western Burrowing Owl

The BSA contains suitable burrowing owl breeding and foraging habitat, particularly in upland areas, California annual grassland, and portions of abandoned developed/landscaped habitats. The Project could permanently impact 22.70 acres of potential burrowing owl habitat due to the installation of the roadway. Project construction could temporarily impact 54.25 acres of potential burrowing owl habitat due to construction vehicles accessing the area, construction staging, and grading.

Areas used for construction access and staging during construction would be subject to grading but would not be paved or otherwise permanently altered. These areas are expected to provide habitat of similar quality to existing conditions shortly (i.e., in less than one year) after the completion of construction. Although there are no recent burrowing owl breeding records for the Project site, the construction footprint could serve as breeding habitat for these species, and these areas may be permanently or temporarily impacted as described above.

If present, the number of burrowing owls that could potentially occur in the construction footprint is low due to the lack of burrows observed on the majority of the BSA. However, individuals could be present in burrows within and nearby the construction footprint. The Project could impact individual burrowing owls as a result of the following:

- Direct mortality during construction as a result of collision with by construction vehicles or equipment
- Increased mortality due to roadkill caused by the construction and vehicular use in and around the vicinity of the Project
- Direct mortality from the collapse of underground burrows, resulting from soil compaction
- Direct mortality or loss of suitable habitat resulting from the loss of breeding, foraging, or dispersal habitat
- Loss of eggs (in the case of burrowing owls) or young (in the case of either species) as a result of abandonment of occupied nests or dens due to construction-related disturbance

Implementation of **Measures BIO-1**, **BIO-2**, **BIO-9**, and **BIO-10** would minimize impacts to burrowing owls. These measures require implementation of EACCS measures and BMPs, along with a pre-construction survey, construction exclusion zones, and seasonal work windows for areas near any active nests to ensure the species is not harmed. Additionally, these measures include compensatory mitigation for habitat loss, consistent with the EACCS, to ensure suitable habitat continues to be available for this species.

American Badger

Should badgers be present within the BSA, they would most likely represent dispersing or foraging individuals; badgers are unlikely to den on-site due to the surrounding high levels of human disturbance. Therefore, the Project could result in the direct loss and indirect disturbance of

American badgers and their habitat. Impacts to American badger individuals and habitat would be identical to the impacts outlined for the burrowing owl. Implementation of **Measures BIO-1** and **BIO-11** would minimize impacts to the American badger. These measures require implementation of EACCS measures and BMPs along with a pre-construction survey to ensure the species is not harmed.

Bird Species – State Listed and Migratory Birds

Suitable habitat is present for the white-tailed kite, loggerhead shrike, and grasshopper sparrow in many areas surrounding the BSA, particularly in the hills north of the BSA. The Project footprint represents a very small fraction of the total breeding habitat available to these species. Therefore, the Project is not expected to substantially reduce these species' populations or habitats and any Project impacts would be minimal.

The golden eagle and the yellow warbler are expected to occur only as occasional foraging birds during the nonbreeding season and are not expected to nest in the BSA. Impacts on the non-developed habitats in the BSA would result in the loss of some foraging habitat and prey production areas as well as a temporary impact on foraging individuals through the alteration of foraging patterns. However, because the Project would not result in substantial changes to the availability of foraging habitat in the area, the Project is not expected to have a substantial long-term impact on foraging habitat or prey availability for golden eagle or yellow warbler.

However, the Project could result in direct take of a special-status individual bird, egg, or nest, should an individual be foraging or nesting within the construction footprint during construction. Application of **MeasuresBIO-1** and **BIO-3** would ensure no adverse effect occurs. These measures require implementation of EACCS measures and BMPs, pre-construction surveys, work exclusion areas to protect active nests, and seasonal work windows to avoid harm to nesting birds.

No-Build Alternative

Under the No-Build Alternative, no changes would be made at the Project site. No construction activities would occur, and Dublin Boulevard would continue to terminate at Fallon Road in Dublin. The No-Build Alternative would have no effect on EACCS focal species or federally-listed special-status species.

AVOIDANCE, MINIMIZATION, AND/OR MITIGATION MEASURES

Measure BIO-1 (described above in Section 2.4.1)

Measure BIO-8: If dense stands of cattails regenerate within the proposed construction footprint prior to Project construction, the Project shall implement the following measures to avoid impacts to tricolored blackbird nesting colonies:

- If work is initiated within the nesting season (i.e., February 1 to August 31), then a preconstruction survey for an active nesting colony of tricolored blackbirds shall be

conducted within all perennial marsh and seasonal wetland habitats on and within 250 feet of the construction footprint.

- (EACCS Measure BIRD-3): If an active nest colony is identified within 250 feet of the construction footprint, work within 250 feet of the colony will be conducted outside of the nesting season (March 15 to September 1).

Measure BIO-9: A qualified biologist shall conduct preconstruction surveys for nesting burrowing owls prior to construction. As feasible, all suitable habitat within 0.5 mile of the Project site shall be surveyed for nesting burrowing owls. The survey should be conducted during the burrowing owl's nesting season, defined by the EACCS as March 15 to September 1. This survey shall consist of two or more site visits, with the biologist examining all potential burrows within 0.5 mile, as access permits, for signs of nesting burrowing owls (i.e., owls, pellets, feathers, and/or whitewash). Should these surveys identify burrowing owls on or near the BSA, avoidance of disturbance to the burrow will be conducted per EACCS Measure BIRD-2, outlined below:

- If an active burrowing owl nest is identified near a proposed work area, work will be conducted outside of the nesting season (March 15 to September 1).
- If an active nest is identified near a proposed work area and work cannot be conducted outside of the nesting season, a qualified biologist will establish a no-activity zone. The no activity zone will be large enough to avoid nest abandonment and will at minimum be 250-foot radius from the nest.
- If burrowing owls are present within the construction footprint during the non-breeding period, a qualified biologist will establish a no-activity zone of at least 150 feet.
- If an effective no-activity zone cannot be established in either case, an experienced burrowing owl biologist will develop a site-specific plan (i.e., a plan that considers the type and extent of the proposed activity, the duration and timing of the activity, and the sensitivity and habituation of the owls, and the dissimilarity of the proposed activity with background activities) to minimize the potential to affect the reproductive success of the owls.

Measure BIO-10: The EACCS identifies burrowing owl nesting habitat as suitable habitat within 0.5 mile of a documented nest occurrence during the previous three years, and it recommends compensatory mitigation in the event of any impacts to such habitat. In the event that burrowing owls are found to be nesting on or within 0.5 mile of the Project site during preconstruction surveys, or if owls need to be evicted from burrows (which can only occur when they are not actively nesting) to implement the Project, compensatory mitigation will be necessary to mitigate for impacts on occupied burrowing owl habitat. If the California red-legged frog and/or California tiger salamander habitat mitigation provides suitable habitat for burrowing owls as well, then no additional mitigation for impacts to burrowing owls would be necessary. Otherwise, additional habitat mitigation will be necessary, in the form of purchase of mitigation credits from a mitigation bank or Project-specific mitigation in an area that supports such habitat. The EACCS prescribes

mitigation ratios of 3:1 to 3.5:1 (acreage of new habitat : acreage of impacted habitat), depending on the location of the mitigation site.

Measure BIO-11: A qualified biologist shall conduct preconstruction surveys for denning American badgers prior to construction. As feasible, all suitable habitat within 0.5 mile of the Project site shall be surveyed for American badgers. The survey will be conducted for the area in which the qualified biologist can access. This survey can be conducted concurrently with the burrowing owl survey outlined in **Measure BIO-9**. This survey shall consist of two or more site visits, with the biologist examining all potential burrows within 0.5 mile, as access permits, for American badger dens. Should these surveys identify American badgers on or near the BSA, avoidance of disturbance to the den will be conducted per EACCS Measure MAMM-1 outlined in **Measure BIO-12** (see **Section 2.4.5 Threatened and Endangered Species**).

CUMULATIVE IMPACTS

Since both the potential direct and indirect effects to the special-status animal species would be avoided, and habitat impacts would be offset through the measures described in **Section 2.4.4, Avoidance, Minimization, and/or Mitigation Measures**, the Project is not expected to result in adverse effects to special-status animal species. Therefore, the Project would not have a cumulatively considerable contribution to adverse effects to special-status animal species.

2.4.5 THREATENED AND ENDANGERED SPECIES

REGULATORY SETTING

The primary federal law protecting threatened and endangered species is FESA: 16 USC Section 1531, et seq. See also 50 Code of Federal Regulations Part 402. This act and later amendments provide for the conservation of endangered and threatened species and the ecosystems upon which they depend. Under Section 7 of this act, federal agencies, such as Federal Highway Administration (and Caltrans, as assigned), are required to consult with the USFWS and the NOAA Fisheries Service to ensure that they are not undertaking, funding, permitting, or authorizing actions likely to jeopardize the continued existence of listed species or destroy or adversely modify designated critical habitat. Critical habitat is defined as geographic locations critical to the existence of a threatened or endangered species. The outcome of consultation under Section 7 may include a Biological Opinion with an Incidental Take statement or a Letter of Concurrence. Section 3 of FESA defines take as "harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect, or any attempt at such conduct."

Another federal law, the Magnuson-Stevens Fishery Conservation and Management Act of 1976, was established to conserve and manage fishery resources found off the coast, as well as anadromous species and Continental Shelf fishery resources of the United States, by exercising (A) sovereign rights for the purposes of exploring, exploiting, conserving, and managing all fish within the exclusive economic zone established by Presidential Proclamation 5030, dated March 10, 1983, and (B) exclusive fishery management authority beyond the exclusive economic zone over such anadromous species, Continental Shelf fishery resources, and fishery resources in special areas.

AFFECTED ENVIRONMENT

The study area for listed animal species includes all areas of ground disturbance and aquatic disturbance that would occur as a result of the Project. Caltrans intends to begin consultation with the USFWS in accordance with Section 7 of FESA in February 2020. USFWS-listed species potentially occurring within the BSA were received in February 2020. Because there is no habitat for federally listed fish species or essential fish habitat within the BSA, consultation with NOAA Fisheries Service is not required.

Proposed effect findings for federally threatened or endangered species with the potential to occur within the Project vicinity are summarized in **Table 2.4-7**. Most species are not anticipated to occur within the BSA due to the lack of suitable habitat within the BSA, their absence in site-surveys described in the NES and BA, or the lack of recorded occurrences of species within the Project region. However, critical habitat exists for the California red-legged frog in the BSA, while non-critical habitat exists for the California Tiger Salamander and the San Joaquin kit fox.

Table 2.4-7 Summary of Effect Findings for Federally Listed Species

Scientific Name	Common Name	Federal Status	Potential Effect Under FESA
Plants			
Cordylanthus palmatus	Palmate-bracted bird's beak	Endangered	No effect
Invertebrates			
Branchinecta longiantenna	Longhorn fairy shrimp	Endangered	May affect, not likely to adversely affect
Lepidurus packardi	Vernal pool fairy shrimp	Endangered	May affect, not likely to adversely affect
Branchinecta conservatio	Conservancy fairy shrimp	Endangered	No effect
Speyeria callippe	Callippe silverspot	Endangered	No effect
Desmocerus californicus dimorphus	Valley elderberry longhorn beetle	Threatened	No effect
Callophrys mossii bayensis	San Bruno elfin butterfly	Endangered	No effect
Fish			
Oncorhynchus mykiss	Central California Coast steelhead	Threatened	No effect
Hypomesus transpacificus	Delta smelt	Threatened	No effect
Reptiles			
Masticophis lateralis euryxanthus	Alameda whipsnake	Threatened	No effect

Scientific Name	Common Name	Federal Status	Potential Effect Under FESA
Birds			
Sterna antillarum browni	California least tern	Endangered	No effect
Amphibians			
Rana draytonii	California red-legged frog	Threatened	May affect, likely to adversely affect
Ambystoma californiense	California tiger salamander	Threatened	May affect, likely to adversely affect
Mammals			
Vulpes macrotis mutica	San Joaquin kit fox	Endangered	May affect, not likely to adversely affect

Source: H. T. Harvey & Associates, 2019

ENVIRONMENTAL CONSEQUENCES

Build Alternative

Longhorn Fairy Shrimp and Vernal Pool Fairy Shrimp

There are several wetland areas to the south of the Project footprint adjacent to I-580. These are seasonal depressions and provide potentially suitable habitat for longhorn fairy shrimp and vernal pool fairy shrimp. Extensive surveys for vernal pool fairy shrimp were conducted in these wetlands and wetlands in surrounding project sites from 1997 – 2004,[90] all of which were negative for longhorn fairy shrimp and vernal pool fairy shrimp. Additionally, The EACCS does not map potential longhorn or vernal pool fairy shrimp habitat within the biological study area.

However, because no recent surveys have been conducted, there is a very small possibility that longhorn fairy shrimp or vernal pool fairy shrimp may have colonized one or more of these potentially suitable wetlands. If any of the potentially suitable wetlands are currently occupied by longhorn fairy shrimp or vernal pool fairy shrimp, there is still no potential for the Project to negatively impact these habitats. This is because the Project has been designed to avoid any direct permanent or temporary impacts within 250 feet or more of all potentially suitable longhorn and vernal pool fairy shrimp habitat. The potentially suitable areas would be protected from indirect impacts to water quality (see **Section 2.3.1, Water Quality and Stormwater Runoff** for additional discussion of water quality). Additionally, the Project would implement construction-period and post-construction storm water requirements to protect off-site wetlands and has been designed specifically to not interrupt the existing hydrology of the site. With implementation of the Project, stormwater would continue to flow from north to the south across the BSA, and the potentially

[90] H. T. Harvey & Associates 1999; Entomological Consulting Services 2001; Condor Country Consulting 2002, 2003; Sycamore Associates 2002b; WRA 2004; and Helm Biological Consultants 2004

suitable habitat areas within these wetlands would remain unaltered. No additional measures are needed to prevent Project-related mortality or habitat degradation for these species.

San Joaquin Kit Fox

Because California annual grasslands in the BSA offer ostensibly suitable San Joaquin kit fox foraging habitat, and because there is a recorded occurrence of San Joaquin kit fox near the Project site, individual kit foxes could appear within the construction footprint. If present, San Joaquin kit foxes would likely pass through the Project site infrequently and are not expected to den on-site due to the high level of human disturbance. If an individual San Joaquin kit fox were present at the site when construction occurs, there is some potential for mortality from a vehicle or equipment strike. However, implementation of **Measures BIO-1** and **BIO-12** would minimize the potential for mortality of San Joaquin kit foxes. These measures require implementation of EACCS measures and BMPs, along with a pre-construction survey, construction exclusion zones, and evaluation of potential dens by a qualified biologist to ensure the species is not harmed.

California Red-Legged Frog and California Tiger Salamander

Construction Temporary Direct Impacts

Construction access and staging would temporarily impact up to 37.12 acres of potential California red-legged frog and California tiger salamander habitat. The impacted area includes 22.52 acres of California red-legged frog critical habitat. These areas could be subject to grading but would not be paved or otherwise permanently altered and could provide habitat of similar quality to existing conditions shortly (i.e., in less than one year) after the completion of construction.

The Project could impact individual California red-legged frogs and California tiger salamanders as a result of:

- Direct mortality during construction as a result of trampling by construction personnel or equipment
- Increased mortality due to roadkill caused by the construction and vehicular use in and around the vicinity of the Project
- Direct mortality from the collapse of underground burrows, resulting from soil compaction
- Direct mortality or loss of suitable habitat resulting from the loss of dispersal habitat and refugia.

No known or potential California red-legged frog or California tiger salamander breeding habitat would be directly or indirectly impacted by Project construction, as no breeding habitat is present in or downslope from the BSA.

Operation: Permanent Direct Impacts

Up to 22.70 acres of potential California red-legged frog and California tiger salamander foraging, dispersal and upland refugial habitat would be permanently lost due to the construction of the roadway. Of this permanent impact area, approximately 11.44 acres is considered California red-legged frog critical habitat.

Operation: Permanent Indirect Impacts

Up to 133.47 acres of potential California red-legged frog and California tiger salamander foraging, dispersal, and upland refugial habitat south of the Project may be indirectly but permanently impacted as a result of being disconnected from existing breeding sites north of the Project. Although the habitat in these areas would continue to be ostensibly suitable for use by California red-legged frogs and California tiger salamanders following Project implementation, individual frogs or salamanders associated with breeding habitat north of the Project site would no longer be able to use the habitat between the Project site and I-580. This represents an effective loss of habitat. In the unincorporated County portion of the Project, the use of a free-span bridge over Cottonwood Creek would allow California red-legged frogs and California tiger salamanders to continue to move back and forth under the new road from their aquatic habitat to the north.

Given the above, the Project could impact California red-legged frog and California tiger salamander. However, Dublin would provide compensatory mitigation for both direct (construction-footprint) and indirect (south of the new roadway) California red-legged frog and California tiger salamander habitat loss, using the EACCS mitigation scoresheet so that California red-legged frog and California tiger salamander mitigation will be provided appropriately. This would ensure that suitable habitat remains available for these species.

Additionally, implementation of **Measures BIO-1**, **BIO-2**, **BIO-13** and **BIO-14** would minimize impacts on these species. These measures would avoid and minimize impacts to the species through pre-construction survey, an on-site monitor at critical points during construction to ensure the species is not present or harmed, and other construction safety measures to avoid harm. Additionally, the mitigation measures provide compensatory mitigation for habitat loss, consistent with the EACCS, to ensure suitable habitat continues to be available for this species.

No-Build Alternative

Under the No-Build Alternative, no changes would be made at the Project site. No construction activities would occur, and Dublin Boulevard would continue to terminate at Fallon Road in Dublin. The No-Build Alternative would have no effect on the longhorn fairy shrimp, vernal pool fairy shrimp, San Joaquin kit fox, California red-legged frog, or California tiger salamander.

AVOIDANCE, MINIMIZATION, AND/OR MITIGATION MEASURES

Measure BIO-1 (described above in Section 2.4.1)

Measure BIO-2 (described in Section 2.4.1)

Measure BIO-12: A qualified biologist shall conduct a preconstruction survey for San Joaquin kit fox and their dens prior to the start of construction activities. In the event that the species is detected during the preconstruction survey, avoidance of impacts to occupied kit fox dens will be implemented per the *Standardized Recommendations for Protection of The San Joaquin Kit Fox Prior To Or During Ground Disturbance* (USFWS 1999) and EACCS Measure MAMM-1 (outlined below):

- If potential dens are present, their disturbance and destruction will be avoided.
- If potential dens are located within the construction footprint and cannot be avoided during construction, a qualified biologist will determine if the dens are occupied or were recently occupied using methodology coordinated with the USFWS and CDFW. If unoccupied, the qualified biologist will collapse these dens by hand in accordance with USFWS procedures (USFWS 1999).
- Exclusion zones will be implemented following USFWS procedures (USFWS 1999) or the latest USFWS procedures available at the time. The radius of these zones will follow current standards, or the following standards listed in the PBO for the EACCS:
- Potential Den – A total of 4-5 flagged stakes will be placed 50 feet from the den entrance to identify the den location;
    - Known Den – Orange construction barrier fencing will be installed between the construction work area and the known den site at a minimum distance of 100 feet from the den. The fencing will be maintained until all construction-related disturbances have been terminated. At that time, all fencing will be removed to avoid attracting subsequent attention to the den
    - Natal or Pupping Den – The USFWS will be contacted immediately if a natal or pupping den is discovered at or within 200 feet from the boundary of the construction area.
- Pipes will be capped, and trenches will contain exit ramps to avoid direct mortality while construction areas are active.

Measure BIO-13: The Project will incorporate the following species-specific avoidance and minimization prescribed by the EACCS Measure AMPH-2:

- A qualified biologist will conduct pre-construction surveys prior to activities. If individuals are found, work will not begin until they are moved out of the construction zone to a USFWS/CDFW approved relocation site.
- A USFWS/CDFW-approved biologist shall be present for initial ground disturbing activities.
- If the work site is within the typical dispersal distance of potential breeding habitat, barrier fencing will be constructed around the worksite to prevent amphibians from entering the work area. Contact USFWS/CDFW for latest research on this distance for species of interest. Barrier fencing will be removed within 72 hours of completion of work. The Project site is

known to be within dispersal distance of potential breeding habitat for California red-legged frog and California tiger salamander, and therefore barrier fencing consisting of silt fence and orange construction zone fencing will be installed on the northern and southern boundaries of the Project site where construction activities border grassland habitat. The barrier fencing will be at least 3 feet high and the lower 6 inches of the fence will be buried in the ground to prevent animals from crawling under. The remaining 2.5 feet will be left above ground to serve as a barrier for animals moving on the ground surface.

- No monofilament plastic will be used for erosion control.
- Construction personnel will inspect open trenches in the morning and evening for trapped amphibians.
- A qualified biologist possessing a valid FESA Section 10(a)(1)(A) permit or USFWS-approved under an active biological opinion, will be contracted to trap and to move amphibians to nearby suitable habitat if amphibians are found inside a fenced area. No trapping, such as the use of upland traplines for California red-legged frogs or California tiger salamanders, is proposed for this Project. However, a biologist approved by the USFWS under the Project's Biological Opinion and by the CDFW under the Project's Incidental Take Permit will survey for and relocate any individuals found within the impact area. The applicant will prepare a relocation plan for the Project to be reviewed and approved by the USFWS and CDFW prior to the onset of construction.
- Work within suitable habitat will be avoided from 15 October (or the first measurable fall rain of 1 inch or greater) to 1 May.

Measure BIO-14: Compensatory mitigation for the permanent direct and indirect loss of California red-legged frog and California tiger salamander habitat would be required in accordance with the measures outlined in Tables 3-7 and 3-8 of the EACCS. Mitigation will take the form of purchase of mitigation credits from a mitigation bank or Project-specific mitigation, or other mitigation plan as approved by the USFWS and CDFW in the Project's permits. The ratio of mitigation to impact varies with the location of the proposed mitigation, and would be 2.5:1 at minimum, but may be as high as 4:1 (acreage of new habitat : acreage of impacted habitat).

CUMULATIVE IMPACTS

Future development activities in Dublin, and around the BSA, will result in impacts on the same types of habitats and species that will be affected by the Project. The Project, in combination with other projects in the area and other activities that impact the species that are affected by this Project, could have cumulative effects on sensitive habitats and special-status species.

However, the EACCS contains conservation measures that would benefit biological resources, as well as measures to avoid, minimize, and mitigate impacts on these resources. Projects in the region that impact resources similar to those impacted by the Project will be subject to environmental requirements, and many will necessitate regulatory permits as well. It is expected that such projects will mitigate their impacts on sensitive habitats and special-status species through the

incorporation of mitigation measures and compliance with permit conditions. Required mitigation values under the EACCS for indirect effects to parcels within Dublin between the road extension and I-580 will be provided by Dublin under this Project as this habitat will be indirectly but permanently impacted by the roadway extension. With mitigation as described above, the Project would not result in an adverse effect to threatened or endangered species. Thus, the Project would not have a cumulatively considerable contribution to cumulative effects on threatened or endangered species.

2.4.6 INVASIVE SPECIES

REGULATORY SETTING

On February 3, 1999, President William J. Clinton signed EO 13112 requiring federal agencies to combat the introduction or spread of invasive species in the US The order defines invasive species as "any species, including its seeds, eggs, spores, or other biological material capable of propagating that species, that is not native to that ecosystem whose introduction does or is likely to cause economic or environmental harm or harm to human health." Federal Highway Administration guidance issued August 10, 1999 directs the use of the state's invasive species list, maintained by the California Invasive Species Council to define the invasive species that must be considered as part of NEPA analysis for a proposed project.

AFFECTED ENVIRONMENT

The study area for invasive species includes all areas of ground disturbance and aquatic disturbance that would occur under through implementation of the Project. No invasive animal species were observed within the BSA. However, several non-native, invasive plant species occur in the BSA throughout the California annual grassland and developed/landscaped habitat areas. Of these, fennel (*Foeniculum vulgare*), poison hemlock (*Conium maculatum*), bull thistle (*Cirsium vulgare*), and black mustard (*Brassica nigra*) are the most abundant and are rated as having moderate ecological impacts by the California Invasive Plant Council.

ENVIRONMENTAL CONSEQUENCES

Build Alternative

Project construction would require ground disturbing activities in areas where invasive weeds are present. Project construction could spread invasive plant species to areas where they are absent within and outside of the BSA if invasive plants are removed during clearing, grubbing, and construction and are not disposed of or transported correctly. Invasive plant species may also colonize areas where bare ground remains after ground disturbance. Implementation of **Measure BIO-15** would minimize the potential for construction activities to spread or introduce invasive plants elsewhere. **Measure BIO-15** would require the planting of native plants on disturbed areas within the BSA and the washing of construction equipment to prevent the spread of invasive plant material.

No-Build Alternative

Under the No-Build Alternative, no changes would be made at the Project site. No construction activities would occur, and Dublin Boulevard would continue to terminate at Fallon Road in Dublin. The No-Build Alternative would have no effect on the spread of invasive plant species.

AVOIDANCE, MINIMIZATION, AND/OR MITIGATION MEASURES

Measure BIO-15: The Project proponent or their contractor will implement the following practices to minimize the potential to introduce or spread invasive plant species:

- Prior to access to the Project site, all construction equipment will be washed to prevent the introduction of new infestations. Prior to being used at another construction site, the equipment will be washed again, to prevent spread of invasives from the Project footprint to new locations. If equipment if washed on site, it will be done in such a manner that soil, weed seeds, and other materials are collected and not allowed to drain into avoided areas, or into sensitive and regulated habitats.
- Following proposed Project implementation, native seed from a local source (within the same watershed if practicable) will be planted on all disturbed ground or ground denuded of vegetation by proposed Project activities.

CUMULATIVE IMPACTS

The cumulative impacts setting includes invasive species within and surrounding the BSA. Cumulative effects to invasive species would occur if planned and foreseeable development in the area, when taken in combination with the Project, would result in the spread or distribution of invasive species. All federally funded projects would comply with EO 13112, which requires all federal agencies prevent the introduction of invasive species and provide for restoration of native species. Additionally, the Project would minimize the potential to spread or introduce invasive species and plant native species through implementation of **Measure BIO-15**. Therefore, the Project would not result in an adverse effect related to invasive species. The Project would not have a cumulatively considerable contribution to the potential spread or introduction of invasive plants in the immediate region.

CHAPTER 3 COMMENTS AND COORDINATION

3.1 DOCUMENT COORDINATION

Early and continuing coordination with the general public and public agencies is an essential part of the environmental process. It helps the Project team determine the necessary scope of environmental documentation and the level of analysis required, and to identify potential impacts and avoidance, minimization, and/or mitigation measures and related environmental requirements. Agency consultation and public participation for the Project have been accomplished through a variety of formal and informal methods, including Project development team (PDT) meetings, interagency coordination meetings, and public meetings. This chapter summarizes the results of the Project team's efforts to fully identify, address, and resolve Project-related issues through early and continuing coordination.

3.2 SCOPING PROCESS

Separate documents have been prepared for the Project under CEQA and NEPA. This Draft EA has been produced to meet the requirements of NEPA, while the CEQA process was completed in August 2019 with certification of the Final EIR.

3.2.1 CEQA PROCESS

Upon preliminary review of the Project and a determination that an EIR would be required under CEQA, Dublin published a notice of preparation (NOP) on May 18, 2017 to inform the public and responsible agencies that a Draft EIR was being prepared. The NOP was circulated for a 30-day scoping period that concluded on June 19, 2017. A scoping meeting was conducted at Dublin's City Hall on May 31, 2017 to inform the public and interested agencies of the Project, solicit comments, and identify areas of concern.

A total of 36 comments were received from public agencies and individuals during the NOP circulation period. NOP comments primarily included concerns related to potential impacts to biological resources, changes to site hydrology, and potential increases in traffic congestion. Dublin considered these comments in determining the final scope and content of the Draft EIR.

On March 6, 2019, Dublin filed a Notice of Completion (NOC) with the State Office of Planning and Research to begin the public review period of the Draft EIR. The Draft EIR was available for public review for 45 days, from March 6, 2019, to April 22, 2019. To further facilitate review of the Draft EIR, Dublin hosted a public meeting to solicit comments on the Draft EIR on April 3, 2019. A total of

ten comment letters were received on the Draft EIR, and comments primarily related to waters of the U.S., mitigation for biological resources, the proposed bridge over Cottonwood Creek, and non-CEQA questions and requests. After addressing comments received on the Draft EIR, Dublin certified the Final EIR on August 20, 2019.

3.2.2 NEPA PROCESS

Federal regulations do not require the circulation of draft EAs for public comment. However, a Public Notice and copies of this Draft EA have been sent to all cooperating and participating agencies, groups and individuals who have requested the document, and the State Clearinghouse (Governor's Office of Planning and Research), as listed in **Chapter 5, Distribution List**.

A public hearing will be held to encourage public agencies and all other interested members of the public to comment on this Draft EA. The hearing will be held on March 19 at the Program Room, 200 Civic Plaza, Dublin, CA from 6:00 to 8:00 p.m. This Draft EA will also be available online for reviewing and commenting here: https://dublin.ca.gov/1919/Dublin-Boulevard-Extension. Comments received on this Draft EA will be evaluated, and substantive comments will be responded to in the Final EA.

3.3 CONSULTATION AND COORDINATION WITH PUBLIC AGENCIES

Consultation and coordination with other local agencies, state agencies, and federal agencies has been ongoing throughout the CEQA and NEPA process. An overview of these efforts is provided below.

3.3.1 LOCAL AGENCIES

The City of Dublin has formally and informally coordinated with Alameda CTC, Alameda County, and the City of Livermore throughout the environmental process. An MOU between Dublin and Livermore was established in April 2002 and updated in March of 2016 regarding the Project. Ongoing coordination has included email, phone, and in-person correspondence, and recurring check-in meetings where all parties are welcome to participate.

3.3.2 STATE AND FEDERAL AGENCIES

Representatives from CDFW and USFWS were contacted for early coordination in late 2016. An initial site visit was conducted in April 2018, and these agencies were invited to comment on the NOP and Draft EIR. After email and phone coordination, a field review was completed with USFWS in October 2019. Formal consultation is proposed to be initiated in February 2020.

The Preliminary Delineation of Jurisdictional Waters was sent by HT Harvey to USACE in August of 2018. A wetland verification site visit attended by USACE and HT Harvey occurred on April 18, 2019. Caltrans received a preliminary jurisdictional determination letter from the USACE on October 31, 2019 concurring that the Project footprint includes a 2.1-acre area of potentially jurisdictional waters.

On November 7, 2019, the California Office of Historic Preservation concurred with Caltrans' determination that the Project site does not contain architectural resources eligible for listing on the National Register of Historic Places.

3.3.3 NATIVE AMERICAN CONSULTATION

On January 31, 2017, the NAHC was contacted by email to request information on known Native American traditional or cultural properties at or near the Project site, through a search of the Sacred Lands File. This communication included a request for a list of individuals or groups with cultural affiliation to the study area. A Sacred Lands file search was completed and did not identify any tribal cultural resources in the study area. However, records maintained by the NAHC and CHRIS are not exhaustive, and these searches do not preclude the existence of tribal cultural resources. A list of interested Native American tribal representatives with traditional lands or cultural places within Alameda County was included in the NAHC response.

In February 2017, certified letters were sent to all Native American contacts provided by the NAHC describing the Project, providing a location map, and requesting any information and concerns the Tribes may have regarding the Project or study area. No written responses were received. In March 2017, a first round of follow up phone calls was completed and included all Native American contacts provided by the NAHC. The following contacts responded with requests:

- Coastanoan Rumsen Carmel Tribe: Mr. Tony Cerda requested a copy of the geotechnical report, a plan for unanticipated discoveries, and asked that he be notified if any cultural resources were encountered.
- Indian Canyon Mutsun Band of Costanoan Indians: Ms. Ann Marie Sayers asked for a phone call once the survey had been completed and recommended that a Native American monitor and archaeological monitor be present during any earth movement.
- Muwekma Ohlone Indian Tribe of the San Francisco Bay Area: Ms. Rosemary Cambra asked to be contacted immediately if any cultural resources were found.

An additional round of follow-up phone calls was made in March 2017 and follow-up emails were sent to Ms. Irene Zwierlein, Mr. Andy Galvan and Ms. Perez.

No responses have been received as of January 2020. In summary, consultation with the NAHC and with interested Native American individuals and groups provided by the NAHC has resulted in no additional information about specific cultural resources or sacred sites within the APE.

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CHAPTER 5 DISTRIBUTION LIST

This Draft EA was distributed to the following responsible and trustee agencies and elected officials. Distribution of this Draft EA included hard copy, electronic media, reference to the web site in which the document is available, or a combination of these. Agency names marked with an asterisk (*) received copies through the State Clearinghouse.

In addition to the following list, local officials, stakeholders, community groups, businesses, and interested persons on the Project mailing list were notified of the availability of this document and public meetings as described in **Chapter 3, Comments and Coordination**. Furthermore, all property owners/occupants within a 300-foot radius of the Project site received a Project mailer informing them of the availability of the Draft EA.

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APPENDICES

APPENDIX A: SECTION 4(F)

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RESOURCES EVALUATED RELATIVE TO THE REQUIREMENTS OF SECTION 4(F): NO USE DETERMINATION

INTRODUCTION

Section 4(f) of the Department of Transportation Act of 1966, codified in federal law at 49 USC 303, declares that "it is the policy of the United States Government that special effort should be made to preserve the natural beauty of the countryside and public park and recreation lands, wildlife and waterfowl refuges, and historic sites."

Section 4(f) specifies that the Secretary [of Transportation] may approve a transportation program or project requiring the use of publicly owned land of a public park, recreation area, or wildlife and waterfowl refuge of national, State, or local significance, or land of an historic site of national, State, or local significance (as determined by the federal, state, or local officials having jurisdiction over the park, area, refuge, or site) only if:

- There is no prudent and feasible alternative to using that land; and
- The program or project includes all possible planning to minimize harm to the park, recreation area, wildlife and waterfowl refuge, or historic site resulting from the use.

Section 4(f) further requires consultation with the Department of the Interior and, as appropriate, the involved offices of the Department of Agriculture and the Department of Housing and Urban Development in developing transportation projects and programs that use lands protected by Section 4(f). If historic sites are involved, then coordination with the State Historic Preservation Officer (SHPO) is also needed.

The environmental review, consultation, and any other action required in accordance with applicable federal laws for this project is being, or has been, carried out by Caltrans under its assumption of responsibility pursuant to 23 USC 327.

This analysis discusses parks, recreational facilities, wildlife refuges and historic properties found within or next to the Build Alternatives' project limits that do not trigger Section 4(f) protection because either: 1) they are not publicly owned, 2) they are not open to the public, 3) they are not eligible historic properties, 4) the project does not permanently use the property and does not hinder the preservation of the property, or 5) the proximity impacts do not result in constructive use.

BACKGROUND

A "use" of a Section 4(f) resource occurs in the following circumstances:

Permanent Use

A permanent use of a Section 4(f) resource occurs when property is permanently incorporated into a transportation facility. This might occur as a result of partial or full acquisition, permanent easements, or temporary easements that exceed limits for temporary use, as noted below.

Temporary Use

A temporary use of a Section 4(f) resource occurs when there is a temporary occupancy of property that is considered adverse in terms of the preservationist purposes of the Section 4(f) statute. A temporary occupancy of property does not constitute a use of a Section 4(f) resource when the following conditions are satisfied:

- Duration must be temporary, i.e., less than the time needed for construction of the project, and there should be no change in ownership of the land;
- Scope of the work must be minor, i.e., both the nature and the magnitude of the changes to the Section 4(f) property are minimal;
- There are no anticipated permanent adverse physical impacts, nor will there be interference with the protected activities, features, or attributes of the property, on either a temporary or permanent basis;
- The land being used must be fully restored, i.e., the property must be returned to a condition which is at least as good as that which existed prior to the project; and
- There must be documented agreement of the official(s) with jurisdiction over the Section 4(f) resource regarding the above conditions.

Constructive Use

A constructive use of a Section 4(f) resource occurs when a transportation project does not permanently incorporate land from the resource, but the proximity of the project results in impacts (e.g., noise, vibration, visual, access, ecological) that are so severe that the protected activities, features, or attributes that qualify the resource for protection under Section 4(f) are substantially impaired. Substantial impairment occurs only if the protected activities, features, or attributes of the resource are diminished. This determination is made through the following:

- Identifying the current activities, features, or attributes of the resource that qualify it for protection under Section 4(f) and may be sensitive to proximity impacts.
- Analyzing the potential proximity impacts on the resource.
- Consulting with the appropriate officials having jurisdiction over the resource.

Consideration of Future Section 4(f) Resources

Section 4(f) applies to planned parks, recreation areas, and wildlife refuges when the land is already publicly owned and the public agency that owns the property has formally designated and determined it to be significant for park, recreation area, or wildlife and waterfowl refuge purposes. Evidence of formal designation would be the inclusion of the publicly owned land, and its function as a Section 4(f) property into a city or county Master Plan. A mere expression of interest or desire is not sufficient. For example, when privately held properties of these types are formally designated into a Master Plan for future park development, Section 4(f) is not applicable. The key is whether the planned facility is presently publicly owned, presently formally-designated for Section 4(f) purposes, and presently significant. When this is the case, Section 4(f) would apply.

Given this criteria, there are no future Section 4(f) resources at the project site or vicinity. The project site is comprised entirely of privately owned land, and is surrounded by privately owned land. Planned bike lanes along the project alignment and nearby would be Class II bike lanes, and therefore would not qualify as a Section 4(f) resource even if the land was currently publicly owned. The planned open space north of the project site is privately owned, and is not formally designated for Section 4(f) purposes. There are no other planned parks, recreation areas, or Class I bike lanes in the project vicinity.

PROJECT DESCRIPTION

The City of Dublin (Dublin), in cooperation with the City of Livermore (Livermore), Alameda County (County), Alameda County Transportation Commission (Alameda CTC), and the California Department of Transportation (Caltrans) as assigned by the Federal Highway Administration (FHWA), proposes to extend Dublin Boulevard approximately 1.5 miles eastward through eastern Dublin and an unincorporated portion of the County, terminating at the boundary between the County and Livermore city limits (project).

The roadway extension would start from the current terminus of Dublin Boulevard at the Dublin Boulevard/Fallon Road intersection in Dublin and would end at the Doolan Road/North Canyons Parkway intersection along the boundary of the County and Livermore. This roadway extension would provide four to six travel lanes and bicycle and pedestrian facilities (i.e., sidewalks and bike lanes). Beginning at Fallon Road, the roadway extension would have six travel lanes (three in each direction). Continuing eastward, the roadway extension would transition to four travel lanes (two in each direction) before or at the intersection with Croak Road. From Croak road to Doolan Road, the roadway extension would remain in the four lane configuration.

The permanent area needed for the Build Alternative, including the roadway, sidewalks, intersections, and land acquired for right-of-way is estimated at 29 acres. Future ADT along the roadway extension is projected to be 17,000-19,000 vehicles per day. The purpose, need, and description of the Build Alternative are further discussed in **Chapter 1, Proposed Project**, of the Dublin Boulevard/North Canyons Parkway Extension Draft EA.

RESOURCES EVALUATED RELATIVE TO THE REQUIREMENTS OF SECTION 4(F)

Public Parks

Dublin, Pleasanton, and Livermore have an extensive park system offering a diverse range of outdoor facilities to meet the needs of the communities. **Table 1** lists public parks located within 2 miles of the proposed Build Alternative (see **Figure 1**). The County does not have park facilities within 2 miles of the proposed Build Alternative. Of these, three parks are within 0.5 miles of the Build Alternative: Fallon Sports Park, Jordan Ranch Park, and Bray Commons. All three parks are located in Dublin. Las Positas Golf Club, a public golf course in Livermore, is located 0.2-mile south of the proposed roadway extension, beyond I-580. All of these parks and recreational facilities are protected under the provisions of Section 4(f) of the Department of Transportation Act.

Table 1: Public Parks in Close Proximity to the Project Site

No.[a]	Name of Park	Address	Size	Approximate Distance from Build Alternative[b]
	Dublin			
1	Jordan Ranch Park	4299 Jordan Ranch Dr.	4.4 acres	0.5 mile
2	Fallon Sports Park	4605 Lockhart St.	60 acres	0.3 mile
3	Bray Commons	3300 Finnian Way	4.8 acres	0.6 mile
4	Passatempo Park	3200 Palermo Way	5.1 acres	0.6 mile
5	Sean Diamond Park	4801 La Strada Drive	5.0 acres	0.8 mile
6	Devany Square	4405 Chancery Lane	2 acres	0.7 mile
7	Positano Hills Park	2301 Valentano Dr.	5.1 acres	1.2 miles
8	Ted Fairfield Park	3400 Antone Way,	6.9 acres	1.1 miles
9	Emerald Glen Park	4201 Central Pkwy.	48.2 acres	1.3 miles
	Livermore			
10	Las Positas Golf Course	917 Clubhouse Dr.	200 acres	0.2 mile
11	Henry Park	1525 Mendocino Rd.	5.3 acres	1.8 miles
	Pleasanton			
12	Meadows Park	3301 W. Las Positas Blvd.	5.5 acres	0.8 mile
13	Amaral Park	3400 Dennis Dr.	4.6 acres	1.2 miles
14	Fairlands Park	410 Churchill Dr.	10+ acres	1.1 miles

Source: City of Dublin, 2018, City of Livermore, 2018, Google Earth, 2018
[a] Numbering relates to Figure 12 (Dublin Parks)
[b] Distances were measured using Google Earth

Property of the nearby parks identified above in **Table 1** would not be acquired as part of the proposed Build Alternative, thereby avoiding direct effects. No temporary construction work would occur on these properties. As such, construction of the Build Alternatives would not disturb wildlife, vegetation, facilities, functions, or accessibility of the parks. Additionally, due to the relative distance between the parks and limits of the Build Alternative (greater than 1,000 feet), the construction and operation of the Build Alternative would not result in any aesthetic, air quality, noise, or water quality impacts to the nearby parks. The Build Alternative would therefore not result in any use or adverse effects on the parks. Therefore, the provisions of Section 4(f) are not triggered.

Trails and Bikeways

Bicycle facilities include the following general types:

- Class I: Shared Use Path - These facilities provide a separate right-of-way and are designated for the exclusive use of bicycles and pedestrians with vehicle cross-flow minimized.

- Class II: Bicycle Lane - Bicycle lanes provide a restricted right-of-way and are designated for the use of bicycles for one-way travel with a striped lane on a street or highway. Bicycle lanes are generally a minimum of 5 feet wide. Vehicle parking and vehicle/pedestrian cross-flow are permitted.

- Class III: Bicycle Route with Sharrows - These bikeways provide right-of-way designated by signs or pavement markings for shared use with motor vehicles. These include sharrows or "shared lane markings" to highlight the presence of bicyclists.

Class II and Class III bicycle lanes are generally used for transportation purposes (traveling from Point A to Point B), and are not protected as recreational resources under the provisions of Section 4(f) of the Department of Transportation Act. Class I trails are protected under the provisions of Section 4(f) because they are publicly owned and designated or functioning primarily for recreational purposes.

Class 1, off-street bikeways or multiuse paths within Dublin, Pleasanton, and Livermore are mostly found on regional trails that were constructed by the East Bay Regional Park District and the Livermore Area Recreation and Park District (LARPD). The closest Class I trails follow the natural waterways in the region, which consist of the Tassajara Creek Trail and the Arroyo Mocho Trail. The Iron Horse Trail also runs perpendicular to the Tassajara Creek Trail, generally running in a north-south direction that parallels Owens Drive, before crossing under I-580. These trails are located more than 0.5-mile from the project corridor, beyond I-580 and other major development.

Within the project site and vicinity, there are no designated bicycle routes (signage or striping) on Fallon Road, Dublin Boulevard, N Canyons Parkway or Doolan Road. However, Fallon Road is undergoing upgrades to enhance sidewalks and bicycle facilities along its length as development occurs on parcels fronting the roadway. The closest Class II bicycle lanes exist on Fallon Road north of the Central Parkway intersection and along N Canyons Parkway, east of Airway Boulevard. Both of these locations are outside the footprint of the Build Alternative and are more than 1,000 feet away, where proximity impacts would not reasonably be anticipated. Therefore, the Build Alternative would not result in a use of trails or bikeways protected under Section 4(f). Therefore, the provisions of Section 4(f) are not triggered.

Wildlife and Waterfowl Refuges

There are no wildlife or waterfowl refuges within the project limits. The closest wildlife refuge is Doolan Canyon Regional Preserve, located 2 miles north of the project limits. Owing to the relative distance to the refuge, the Build Alternative would not have any reasonably foreseeable direct, temporary, or constructive use of any wildlife or waterfowl refuge area. Therefore, the provisions of Section 4(f) are not triggered.

Historic Sites

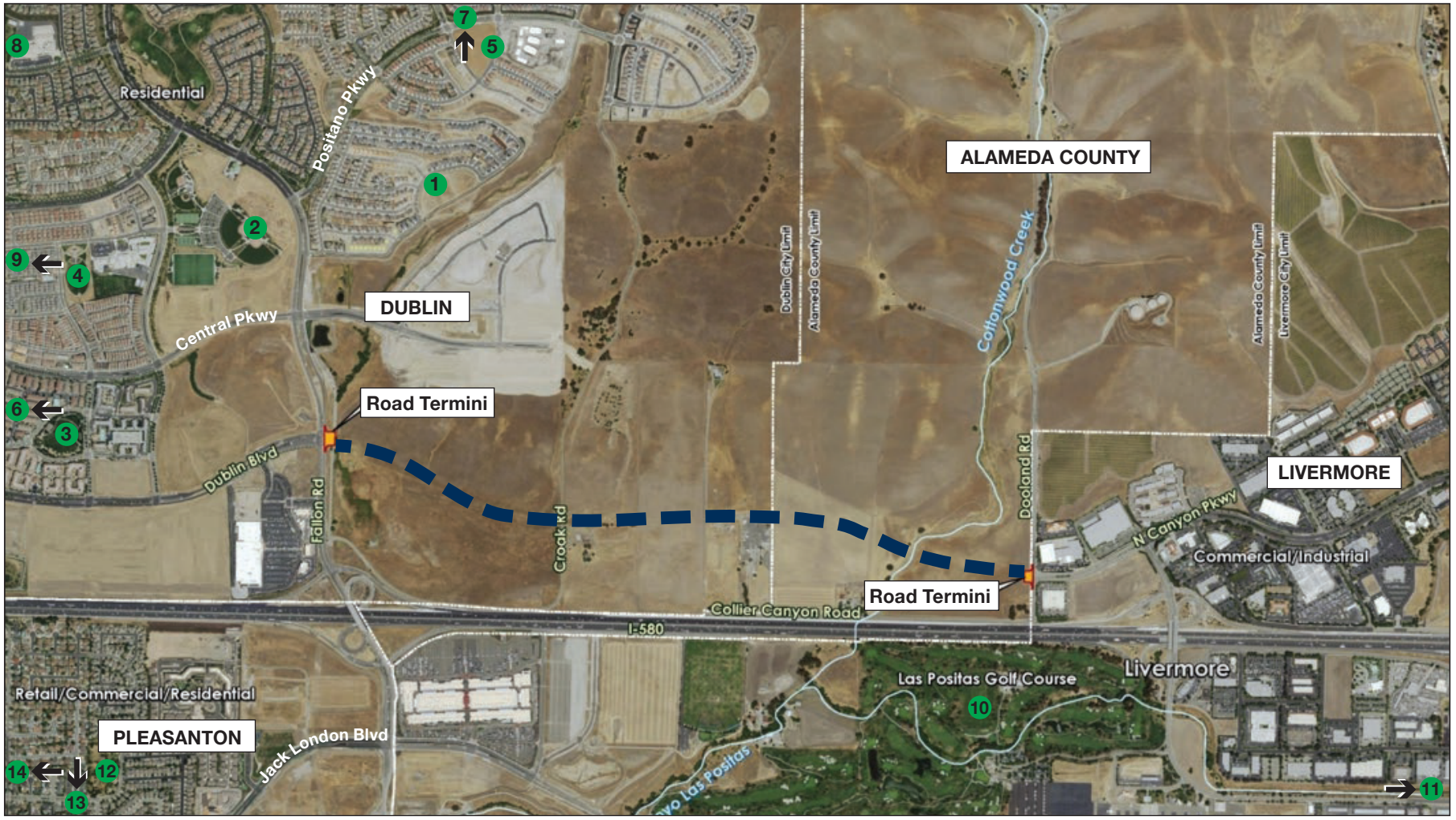
The Historic Property Survey Report (HPSR) and attachments prepared for the project identified two architectural resources that are not eligible for the National Register of Historic Places (NRHP). On November 7, 2019, the California Office of Historic Preservation concurred with Caltrans' determination that the Project site does not contain architectural resources eligible for listing on the National Register of Historic Places.

Two historic-period archaeological resources were identified which are eligible only under NRHP criterion D. Criterion D resources are considered valuable only in terms of the data that can be recovered. For such resources, it is generally assumed that there is minimal value attributed to preserving such resources in place. Conversely, resources eligible under criteria A, B, or C, are considered to have value intrinsic to the resource's location. Section 4(f) applies to archeological sites that are on or eligible for the NRHP and that warrant preservation in place; Section 4(f) does not apply to a site if it is important chiefly because of what can be learned by data recovery and has minimal value for preservation in place.[1] As the resources within the APE have been identified as potentially eligible for the NRHP under criterion D only, the provisions of Section 4(f) are not triggered.

No Build Alternative

Under the No-Build Alternative, no changes would be made within the overall project limits. No construction activities would occur, and there would be no change in the operations of the existing freeway facility. The No-Build Alternative would have no effect on public parks; recreational facilities; wildlife and waterfowl refuges; or historic sites.

[1] FHWA, Section 4(f) Policy Paper, 2012. Accessible at: https://www.environment.fhwa.dot.gov/legislation/section4f/4fpolicy.aspx



Legend

- Project Alignment
- Parks & Open Space
- Indicates Park Facility more than 0.5-mile from Project

Parks & Recreational Facilities			
1	Jordan Ranch Park	8	Ted Fairfield Park
2	Fallon Sports Park	9	Emerald Glen Park
3	Bray Commons	10	Las Positas Golf Course
4	Passatempo Park	11	Henry Park
5	Sean Diamond Park	12	Meadows Park
6	Devany Square	13	Amaral Park
7	Positano Hills Park	14	Fairlands Park

N

0 500 1,000 2,000
FEET

Parks and Recreational Facilities

Figure 1

Source: Circlepoint, 2018

(back of Figure 1)

APPENDIX B: TITLE VI POLICY STATEMENT

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Making Conservation a California Way of Life.

November 2019

NON-DISCRIMINATION POLICY STATEMENT

The California Department of Transportation, under Title VI of the Civil Rights Act of 1964, ensures "*No person in the United States shall, on the ground of race, color, or national origin, be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any program or activity receiving federal financial assistance.*"

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To obtain this information in an alternate format such as Braille or in a language other than English, please contact the California Department of Transportation, Office of Business and Economic Opportunity, at 1823 14th Street, MS-79, Sacramento, CA 95811; (916) 324-8379 (TTY 711); or at Title.VI@dot.ca.gov.

Toks Omishakin
Director

APPENDIX C: AVOIDANCE, MINIMIZATION, AND/OR MITIGATION SUMMARY

Project Effects and Avoidance, Minimization, and Mitigation Measures

Affected Resource	Potential Effects		Avoidance and Minimization Measures
	No-Build Alternative	Build Alternative	
Utilities (2.2.4)	None	Temporary effects to emergency vehicle access during construction.	Please refer to **Measure TRAF-1**, below.
Traffic and Transportation/Pedestrian and Bicycle Facilities (2.2.5)	None	Temporary closures may be required at the Dublin Boulevard/Fallon Road, the Doolan Road/North Canyons Parkway, and the new Dublin Boulevard/Croak Road intersections, which could be an issue for emergency vehicles and emergency trucks.	**Measure TRAF-1:** A TMP shall be prepared during the design phase for the Project, in accordance with all local requirements. The TMP should address traffic impacts from staged construction, detours, and specific traffic handling concerns during construction of the Project, including multi-modal access. The objective of the TMP is to minimize the impacts that construction activities would have on the traveling public. Traffic management strategies that require action by the construction contractor should be presented in detail in the technical specifications of the bid contract and should be considered part of the Project. In implementing the TMP, each jurisdiction should produce and disseminate press releases and other documents, as necessary, to adequately notify and inform motorists, pedestrians and cyclists, business community groups, local entities, emergency services, and elected officials of upcoming road closures and detours. This responsibility includes advance notification to local newspapers, television and radio stations, and emergency response providers. If agreed upon by Dublin, the County, and Livermore, Dublin may lead preparation and implementation of the TMP.
Traffic and Transportation/Pedestrian and Bicycle Facilities (2.2.5)	Under the No-Build Alternative, traffic queues would continue to exceed the available capacity at two intersections:	Two intersections would experience LOS deficiencies: Fallon Road/Dublin Boulevard and Airway Boulevard/North Canyons Parkway. Vehicle queuing	**Measure TRAF-2:** Dublin is to implement the following geometric and signal timing improvements at the intersection of Dublin Boulevard/Fallon Road prior to the opening of the Dublin Boulevard Extension: ▪ Implement the mitigation measures described in the Kaiser Environmental Impact Report (EIR) which includes the construction of an additional left turn lane for both the northbound and eastbound approaches. This improvement is the obligation of Kaiser and the City shall build and seek reimbursement from

Affected Resource	Potential Effects		Avoidance and Minimization Measures
	No-Build Alternative	**Build Alternative**	
	Fallon Road/Dublin Boulevard and Murietta Boulevard/ Portola Avenue.	would exceed the turn lane storage capacity at the intersection of Fallon Road/Dublin Boulevard, Airway Boulevard/North Canyons Parkway, and Isabel Avenue/I-580 Westbound off-ramps.	Kaiser if not built by the time the Dublin Boulevard – North Canyons Parkway Extension Project is built. ▪ In addition to the mitigations proposed for the Kaiser EIR, Dublin shall implement the following improvements: ▪ Northbound – construct at least one northbound right turn lane resulting in the following final lane configuration: 2 left turns, 2 through, and one right turn lane ▪ Eastbound – construct at least one more through lane resulting in the following final lane configuration: 2 left turns, 2 through, and 2 rights ▪ Westbound – construct at least two additional through lanes resulting in the following lane configuration: 1 left turn, 2 through, and a shared through/right ▪ Optimize the signal timing **Measure TRAF-3:** The City of Livermore is requested to implement the following geometric and signal timing improvements at the intersection of Airway Boulevard and North Canyons Parkway prior to Project completion: ▪ Shift the median of Airway Boulevard one lane to the west reducing the southbound lanes from three to two and increasing the northbound lanes from three to four ▪ With the extra northbound lane, convert the northbound approach to Airway Boulevard and North Canyons Parkway to have an exclusive left, shared left/through, and two right turn lanes ▪ Add an additional westbound through lane resulting in two left turns, one exclusive through, and a shared through/right ▪ Optimize the signal timing **Measure TRAF-4:** Caltrans is to optimize the traffic signal timing at Isabel Avenue and I-580 Westbound Ramps by the year 2035 to increase the green time for the westbound right turn movement.
Visual/Aesthetics (2.2.6)	None	Implementation of the Build Alternative would	**Measure VIS-1: Revegetation Planting Measures**

Affected Resource	Potential Effects		Avoidance and Minimization Measures
	No-Build Alternative	**Build Alternative**	
		result in a new visual element within view of a State Scenic Highway and could potentially degrade views of scenic hillsides. Additionally, the Build Alternative would introduce a new source of nighttime lighting.	*Avoidance of Effects to Classified Landscaped Freeway and Eligible State Scenic Highway during Operation* All landscaping and new plantings along the Dublin Boulevard Extension must be selected and implemented to maintain the eligibility of I-580 as a State Scenic Highway. The final selection of plantings must ensure that new planting would not impede views of memorable landscape that showcase the natural beauty or agricultural of California. Landscaping plans will be coordinated with Caltrans to ensure compatibility. *Avoidance of Effects to Scenic Hillsides* Construction areas disturbed for equipment access and staging will be returned to their pre-Project condition. This may include minor regrading or sweeping and revegetation. Graded areas to the north of the permanent Project footprint will be vegetated to minimize the visual change to the hillside and ensure that the graded areas blend with the surrounding natural hillside environment to the extent feasible. Where retaining walls are used, the measures listed under "VIS-2: Retaining Wall Measures" will be implemented. **Measure VIS-2: Retaining Wall Measures** *Avoidance and Minimization of aesthetic effects to viewers during operation* Retaining walls constructed on behalf of the project, if deemed necessary, would adhere to the following design components: ▪ To reduce the visual impact of new retaining walls, aesthetic treatments consisting of color, texture and/or patterning will be applied to reduce visual impacts. The aesthetic treatment shall be context sensitive to the location. If concrete drainage ditches are required along the top of and behind the retaining walls, the ditch shall be stained to match the overall color of the wall. Aesthetic treatments will also reduce glare and deter graffiti and shall be developed during the final design phases and be approved by Caltrans. ▪ Where required, retaining wall cable safety railing should have black or brown vinyl cladding to make them less visually obtrusive and help them blend with the setting. ▪ Concrete safety-shaped barriers should be sand blasted to a medium finish to minimize glare and deter graffiti. Barriers at the bottom of retaining walls are

Affected Resource	Potential Effects		Avoidance and Minimization Measures
	No-Build Alternative	Build Alternative	
			required to be stained or are required to match the overall wall color through techniques such as staining. **Measure VIS-3: Light and Glare Measures** Appropriate light and glare screening measures, including the use of downward cast lighting, will be used at the construction staging and laydown areas along Doolan Road.
Cultural Resources (2.2.7)	None	There are two historic-era archaeological resource sites within the archaeological APE, one of which is considered eligible for the NRHP. This site, the Farmstead Site, will be designated as an environmentally sensitive area. There is some potential to encounter human remains during construction, however, there are no known human remains within the Project site or APE. There are also no known tribal cultural resources within	**Measure CUL-1**: If cultural materials are discovered during construction, all earth-moving activity within and around the immediate discovery area will be diverted until a qualified archaeologist can assess the nature and significance of the find. **Measure CUL-2:** If human remains are discovered, California Health and Safety Code (H&SC) Section 7050.5 states that further disturbances and activities shall stop in any area or nearby area suspected to overlie remains, and the County Coroner contacted. If the remains are thought by the coroner to be Native American, the coroner will notify the Native American Heritage Commission (NAHC), who, pursuant to PRC Section 5097.98, will then notify the Most Likely Descendent (MLD). At this time, the person who discovered the remains will contact a Caltrans Professionally Qualified Staff (PQS) Archaeologist so that they may work with the MLD on the respectful treatment and disposition of the remains. Further provisions of PRC 5097.98 are to be followed as applicable. **Measure CUL-3:** The following measures shall be implemented to ensure that any tribal cultural objects or items encountered during project construction are properly identified and evaluated and avoided or preserved. ▪ A culturally affiliated Native American with knowledge of cultural resources shall be identified and agreed upon by the City of Dublin and local tribes listed by the NAHC and shall be present to monitor all ground-disturbing activities. ▪ If tribal cultural objects or items are encountered, the treatment of those objects or items shall be considered in coordination with culturally affiliated Native Americans. If avoidance or preservation in place is preferred, avoidance or preservation in place will be completed where feasible and agreed upon by culturally affiliated Native Americans and the local jurisdiction. ▪ Tribal cultural objects or items encountered during project construction shall be treated with culturally appropriate dignity, considering the tribal cultural values and meaning of the resource.

Affected Resource	Potential Effects		Avoidance and Minimization Measures
	No-Build Alternative	**Build Alternative**	
		the Project site or APE.	▪ The disposition of recovered tribal cultural items that are not burial-associated shall be coordinated in consultation with culturally affiliated Native Americans. **Measure CUL-4:** The Environmentally Sensitive Area (ESA) Action Plan approved for the Project in September 2019 shall be implemented. Implementation of the ESA Action Plan will ensure that portions of one archaeological resource site are protected from any potential effects during construction, by requiring protective measures such as signage, protective high-visibility temporary fencing, access restrictions, periodic monitoring by Caltrans PQS archaeologist or qualified consultant archaeologist, and specific contractual language to ensure that construction contractors comply with the ESA Action Plan.
Geology/ Soils/ Seismic/ Topography (2.3.2)	The No-Build Alternative would be subject to the same geologic, soils, and seismic hazards as the Build Alternative.	The Project would include fill slopes constructed of predominantly clayey materials, which can be prone to surficial slumping, especially when not properly vegetated after grading operations. Existing clayey soils on the Project site could cause slope instability, potentially exposing construction workers and travelers during operation. Soils on the Project site may exhibit	**Measure GEO-1:** As part of the final design phase, preparation of a design-level geotechnical and geologic report would be required and would include subsurface field work and laboratory testing. Site specific subsurface soil conditions and slope stabilities within the Project site would be verified during the preparation of this report to determine the appropriate final design for the Project. Recommendations from the design-level report would be incorporated into the Project design. Future subsurface exploration would include soil borings at approximate 500-foot intervals along the roadway extension. Soil borings would determine the geologic stability of soils underlying the Project site. In addition, borings would specifically be performed for cut slopes over 8 feet, at retaining wall locations, at bridge support locations, and at culvert crossing locations. Additional borings may be necessary for other Project components, at the discretion of the City of Dublin or the Responsible Agency in their jurisdiction and on the recommendation of professionally qualified specialists. The field investigation would consider Project design details to provide design recommendations. Key considerations shall include the following: ▪ *Liquefaction*. The design-level geotechnical report shall evaluate liquefaction potential at the Cottonwood Creek crossing to determine the need for foundation elements deeper than those required for structural loading purposes. ▪ *Slope Stability.* The Project would include cuts and fills throughout the Project site. Cut/fill slopes would be addressed in the design-level geotechnical report to evaluate the need for selective grading provisions to mitigate the potential for clayey materials in fill slopes, which could create slope stability issues. Selective grading provisions, if necessary, would avoid this risk. In addition,

Affected Resource	Potential Effects		Avoidance and Minimization Measures
	No-Build Alternative	**Build Alternative**	
		expansive and corrosive properties. The Project area could be exposed to strong earthquake shaking and non-seismic related erosion. Liquefaction could affect areas around Cottonwood Creek.	the design-level geotechnical report would also evaluate the suitability of existing soils for re-use as fill material. If soils are not suitable to use as fill material, imported fill would be used where needed to ensure stability. ▪ *Corrosive Soils.* The design-level geotechnical report would investigate for the presence of corrosive soils within the Project site. If corrosive soils are identified at locations where new subsurface facilities are proposed (e.g. bridge foundations, culverts, etc.) specially coated rebar, or alternative pipe culverts would be specified in the contract documents. ▪ *Expansive Soils.* The design-level geotechnical report would investigate for the presence of expansive soils within the Project site. Depending on the extent of expansive soils and level of expansion potential, supplemental design measures such as lime-treatment, selective grading, or select import fill materials may be necessary. ▪ *Erosion Potential.* The design-level geotechnical report would characterize the risk of increased erosion as a result of topography, soil characteristics, and Project design.
Paleontology (2.3.3)	None	Deeper excavations associated with the Build Alternative could encounter Quaternary sedimentary deposits with a high potential to yield paleontological resources.	**Measure PALEO-1:** Consistent with Federal and State law, if fossils are discovered during grading, an approved Paleontologist must be called to the site to develop mitigation measures to protect those resources. Based on the information in the PIR, the Paleontologist shall determine when and where monitoring would be required, and who would conduct it. The following measures will ensure that any paleontological resources encountered during Project construction would be properly handled, evaluated, and curated to ensure their value to paleontological research is preserved: ▪ The principal paleontologist or another mitigation program staff member shall coordinate with appropriate construction contractor personnel to provide information regarding applicable requirements concerning protecting paleontological resources. Contractor personnel, particularly heavy equipment operators, shall also be briefed on procedures to be followed in the event that fossil remains and/or a currently unrecorded fossil site is encountered by earthmoving activities, particularly if a paleontological construction monitor is not present on the site at the time of the discovery. Additional briefing shall be presented to new contractor personnel as necessary. Names and telephone

Affected Resource	Potential Effects		Avoidance and Minimization Measures
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			numbers of the monitor and other appropriate mitigation program personnel shall be provided to appropriate contractor personnel. ▪ When required, monitoring shall consist of visually inspecting freshly exposed cuts and spoil piles for the discovery and recovery of larger fossil remains, and periodically dry test screening to allow for the discovery and recovery of smaller fossil remains. If larger vertebrate fossils are noted by construction workers or monitors, excavation there will cease, and the monitor will be notified. ▪ The monitor and recovery staff will salvage all larger vertebrate fossil remains, as soon as practicable and as quickly as possible, following Society of Vertebrate Paleontology protocols. The monitor shall document the location and proper geologic context of any recovered fossil occurrence or rock or sediment samples. Any recovered rock or sediment sample shall be processed to allow for the recovery of smaller fossil remains that normally are too small to be observed by the monitor. ▪ If the principal paleontologist or monitor determines that the fossil site is too unproductive or the fossil remains not worthy of recovery by the monitor, no further action will be taken to preserve the fossil site or remains, and earthmoving activities shall be allowed to proceed through the site immediately. ▪ The monitor shall maintain daily monitoring logs that include the particular tasks accomplished, the earthmoving activity monitored, the location where monitoring was conducted, the rock unit(s) encountered, the fossil specimens recovered, and associated specimen data and corresponding geologic and geographic site data. A final technical report of results and findings shall be prepared by the principal paleontologist in accordance with any local jurisdictional requirements (including those of the City of Dublin, Alameda County, and City of Livermore as appropriate) and archived at a repository mutually approved by the jurisdiction and principal paleontologist. ▪ Consistent with Federal and State law, if fossils are discovered during grading, the principal paleontologist must be called to the site to develop a mitigation plan to protect those resources.

Affected Resource	Potential Effects		Avoidance and Minimization Measures
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			▪ All fossil specimens recovered as a result of mitigation, including those recovered as the result of processing rock or sediment samples, will be treated (i.e., prepared, identified, curated, catalogued) in accordance with designated museum repository requirements. Rock or sediment samples will be submitted to commercial laboratories for microfossil, pollen, radiometric dating, or other analysis, as appropriate. The Project site lies in Alameda County. If paleontological specimens are encountered and collected at the site during mitigation, they become property of the County and should be properly curated at an approved facility (local to the Project location or a museum) and preserved for future research.
Hazardous Waste/ Materials (2.3.4)	None	Soils adjacent to the project corridor may contain naturally occurring asbestos or pesticides from previous agricultural land uses. Vehicle tire and brake wear, oil, grease, and exhaust from vehicular traffic on roadways within the Project area may have contaminated surface soils in the immediate vicinity with aerially deposited lead (ADL) and other heavy metals. The former existence of above-ground	**Measure HAZ-1:** Prior to issuance of any demolition, grading, or building permit, a limited soil investigation would be completed within the construction area to identify potential contamination from past petroleum hydrocarbons and any agrichemical contamination from agricultural use. ▪ Soil samples would be collected and tested for residual pesticides by a qualified professional. Concentrations of agricultural contaminants would be compared to applicable State Water Quality Control Board Environmental Screening Levels. ▪ Dublin shall prepare and submit a comprehensive report to the ACDEH, signed by a qualified environmental professional, documenting the presence or lack of petroleum hydrocarbons, agrichemicals, or other contaminants on the Project site. ▪ If the soil investigation finds contaminants are present, Dublin, in cooperation with the County if needed, shall create and implement a remediation plan that ensures workers and future users of the Project are not exposed to concentrations in excess of screening levels or other risks associated with soil contamination in accordance with regulatory standards. ▪ Potential safety measures could include soil removal and treatment, or protective work attire requirements for construction workers. ▪ The remediation plan shall also include provisions to outline safe transportation and disposal techniques and would prevent the handling of

Affected Resource	Potential Effects		Avoidance and Minimization Measures
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		diesel storage tanks within the Project site indicates a potential for diesel fuel contamination, which represent a potential risk to construction worker health.	hazardous materials[1] nearby sensitive educational facilities by delimiting work areas and hauling routes within 0.25 mile of a school. **Measure HAZ-2:** If petroleum-impacted soils or USTs are unexpectedly encountered during any construction activities, work in the area shall be temporarily halted and the corresponding jurisdiction (City of Dublin, the County, or Livermore) shall coordinate with the ACDEH to determine appropriate treatment and removal of the UST and contaminated soil.
Air Quality (2.3.5)	None	Regional and project-level conformity achieved. No considerable net increase of any criteria pollutant Construction activities associated with the project would be relatively short in duration and intensity and would result in temporary increases in daily emissions.	**Measure AQ-1:** The construction contractor must comply with the Department's Standard Specifications and the dust control measures specified in the contract specifications. ▪ Water or dust palliative would be applied to the site and equipment as often as necessary to control fugitive dust emissions. Fugitive emissions generally must meet a "no visible dust" criterion either at the point of emissions or at the right-of-way line depending on local regulations. ▪ Soil binder would be spread on any unpaved roads used for construction purposes, and on all project construction parking areas. ▪ Trucks would be washed as they leave the right-of-way as necessary to control fugitive dust emissions. ▪ Construction equipment and vehicles would be properly tuned and maintained. All construction equipment would use low sulfur fuel as required by California Code of Regulations Title 17, Section 93114. ▪ A dust control measure would be developed documenting sprinkling, temporary paving, speed limits, and timely revegetation of disturbed slopes as needed to minimize construction impacts to existing communities.

[1] In this context, *hazardous materials* include ahazardous substance (as defined in California Public Resources Code Section 21151.4) or a mixture containing extremely hazardous substances in a quantity equal to or greater than the state threshold specified pursuant to subdivision (j) of Section 25532 of the Health and Safety Code.

Affected Resource	Potential Effects		Avoidance and Minimization Measures
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			▪ Equipment and materials storage sites would be located as far away from residential and park uses as practicable. Construction areas would be kept clean and orderly. ▪ Track-out reduction measures, such as gravel pads at project access points to minimize dust and mud deposits on roads affected by construction traffic, would be used. ▪ All transported loads of soils and wet materials would be covered before transport, or adequate freeboard (space from the top of the material to the top of the truck) would be provided to minimize emission of dust (particulate matter) during transportation. ▪ Dust and mud that are deposited on paved, public roads due to construction activity and traffic would be promptly and regularly removed to decrease particulate matter. ▪ To the extent feasible, construction traffic would be scheduled and routed to reduce congestion and related air quality impacts caused by idling vehicles along local roads during peak travel times.
Noise (2.3.6)	None	There would be no substantial increase in permanent noise levels. Construction activities associated with the project would be relatively short in duration and intensity and would potentially result in temporary increases in noise levels.	**Measure NOI-1:** To reduce the potential for noise impacts resulting from construction of the Build Alternative, the following measures should be implemented during Project construction. ▪ As a requirement of the construction contract, the Project contractor shall submit a Construction Noise Management Program that identifies measures proposed to minimize construction noise impacts on existing residents. ▪ All construction equipment will conform to Section 14-8.02, Noise Control, of the latest Standard Specifications. ▪ In Dublin, all construction operations shall comply with local noise standards and be limited to normal daylight hours where feasible. All stationary equipment shall be adequately muffled and located away from sensitive receptors. The construction contractor shall limit all on-site noise-producing construction activities, including deliveries and warming up of equipment, to the daytime hours of 7:00 a.m. to 7:00 p.m., daily, where feasible. If work is necessary outside of these hours, the contractor shall acquire appropriate permits from the local jurisdiction and implement a construction noise

Affected Resource	Potential Effects		Avoidance and Minimization Measures
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			monitoring program, providing additional mitigation where practical and feasible. ▪ In the County and Livermore, construction activities generating excessive noise will be limited to the hours specified in the appropriate local ordinance, where feasible. If work is necessary outside of these hours, the contractor shall acquire appropriate permits from the local jurisdiction and implement a construction noise monitoring program, providing additional mitigation where practical and feasible. ▪ Pile driving activities in all jurisdictions will be limited to daytime hours only, when feasible. If pile driving outside of typical construction hours specified in this measure is required, the contractor shall acquire appropriate permits from the local jurisdiction and implement a construction noise monitoring program, providing additional mitigation where practical and feasible. ▪ Equip all internal combustion-engine driven equipment with manufacturer recommended intake and exhaust mufflers that are in good condition and appropriate for the equipment. ▪ Locate stationary noise generating equipment and self-powered lighting systems as far as possible from sensitive receptors when sensitive receptors adjoin or are near the construction footprint. ▪ Utilize "quiet" air compressors and other "quiet" equipment where such technology exists. ▪ Prohibit unnecessary idling of internal combustion engines within 100 feet of residences. ▪ Avoid staging of construction equipment within 200 feet of noise-sensitive uses. ▪ The construction contractor shall designate a noise disturbance coordinator who would be responsible for responding to any local complaints about construction noise. When a complaint is received, the disturbance coordinator shall notify Dublin within 24 hours of the complaint and determine the cause of the noise complaints (starting too early, bad muffler, etc.) and institute reasonable measures warranted to correct the problem, as deemed acceptable by the City of Dublin Community Development Department. The

Affected Resource	Potential Effects		Avoidance and Minimization Measures
	No-Build Alternative	**Build Alternative**	
			construction contractor shall conspicuously post the contact name and telephone number for the noise disturbance coordinator at the construction site.
Biological Resources (2.4.1-2.4.6)	None	Sensitive habitats could be impacted due to habitat fragmentation and cumulative effects. Removal of trees during nesting season could reduce nesting habitat for migratory birds. Potential temporary and permanent impacts (3.46 acres) to water quality of Section 404 Aquatic Resources. There would also be impacts to special-status plant species and to special-status animal species.	**Measure BIO-1:** The general AMMs detailed in the EACCS and the associated Programmatic Biological Opinion (PBO) shall be implemented. Implementation of the General Minimization Measures listed in the PBO for the EACCS will further avoid impacts and are required for all EACCS-compliant projects. These AMMs include general measures that apply to all work, activity-specific measures designed to address anticipated effects of certain work activities or types of resources, and standard best management practices. Specifically, the Project would implement EACCS Measure GEN-1 through GEN-17, and PBO General Minimization Measure 1 through 19. These measures are listed in Table 2.4-4. **Measure BIO-2:** Compensatory mitigation for the permanent direct and indirect loss of California red-legged frog and California tiger salamander habitat would be required in accordance with the measures outlined in Tables 3-7 and 3-8 of the EACCS. Mitigation will take the form of purchase of mitigation credits from a mitigation bank or Project-specific mitigation, or other mitigation plan as approved by the USFWS and CDFW in the Project's permits. The ratio of mitigation to impact varies with the location of the proposed mitigation, and would be 2.5:1 at minimum, but may be as high as 4:1 (acreage of new habitat : acreage of impacted habitat). **Measure BIO-3:** Project implementation shall include the following measures to comply with the Migratory Bird Treaty Act (MBTA) and California Fish and Game Code and avoid death or injury of special-status birds or their active nests, eggs, or young. ▪ *Avoidance of the Nesting Bird Season.* If feasible, Project activities will be scheduled to avoid the avian nesting season. If such activities are scheduled to take place outside the nesting season, all impacts on nesting birds, including raptors, protected under the MBTA and California Fish and Game Code, would be avoided. The nesting season for most birds in the County typically extends from February 1 through August 31, although in most years, a majority of birds have finished nesting by August 1. ▪ *Vegetation Removal during the Non-Nesting Season.* If Project activities will not be initiated until after the start of the nesting season, potential nesting substrate (e.g., bushes, trees, grasses, and other vegetation) that is scheduled to be removed may be removed prior to the start of the nesting season (e.g.,

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			prior to 1 February) to reduce the potential for initiation of nests. If it is not feasible to schedule vegetation removal during the nonbreeding season, or where vegetation cannot be removed (e.g., in areas immediately adjacent to the site), then pre-construction surveys for nesting birds will be conducted as described below. Sensitive and/or regulated wetland vegetation would not be removed prior to construction, if feasible. ▪ *Pre-construction/Pre-disturbance Surveys for Nesting Birds.* If it is not possible to schedule Project activities between September 1 and February 1, then a qualified biologist will conduct pre-construction surveys for nesting birds to ensure that no nests will be disturbed during Project implementation. These surveys will be conducted no more than one week prior to the initiation of Project activities. During this survey, a qualified biologist will inspect all potential nesting habitats (e.g., trees, shrubs, grasslands, and structures) within 300 feet of impact areas for raptor nests and within 100 feet of impact areas for nests of non-raptors. Surveys for burrowing owls and nesting golden eagles will extend out to 0.5 mile from the Project site (to the extent that such areas are accessible). ▪ *Buffers around Active Nests.* If an active nest (i.e., a nest with eggs or young, or any completed raptor nest attended by adults) is found sufficiently close to the construction footprint to be disturbed by these activities, the biologist, in consultation with CDFW, will determine the extent of a disturbance-free buffer zone to be established around the nest to ensure that no nests of species protected by the MBTA and California Fish and Game Code will be disturbed during Project implementation. Typical buffers are 0.25 mile (or 0.5-mile line-of-sight) for golden eagles, 250 feet for burrowing owls, 300 feet for other raptors, and 50-100 feet for non-raptors. Because most of the site is already subject to disturbance by vehicles and pedestrians, activities that will be prohibited from occurring within the buffer zone around a nest will be determined on a case-by-case basis by a qualified biologist. In general, activities prohibited within such a buffer while a nest is active will be limited to new construction-related activities (i.e., activities that were not ongoing when the nest was constructed) involving significantly greater noise, human presence, or vibrations than were present prior to nest initiation. ▪ *Nest Deterrence.* If necessary, to avoid impacts to active nests, nest starts may be removed on a regular basis (e.g., every second or third day), starting

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			in late January or early February to prevent active nests from becoming established. **Measure BIO-4**: The project proponent or their contractor will implement the following practices to minimize the potential impacts to waters of the US: ▪ All wetlands and streams shall be clearly depicted on final Project plans. Areas to be avoided shall be indicated and protected at the site using orange sensitive area fencing to ensure inadvertent impacts do not occur. ▪ Final grading plans shall be developed that minimize grading-related fill and cut in wetlands and streams to the maximum extent feasible to achieve Project goals and improvements. ▪ Work within streams and wetlands would be restricted to the dry season from April 15 to October 15 (or as directed by regulatory permitting agency) to protect water quality. ▪ All appropriate AMMs listed in the EACCS that would apply to and protect these aquatic habitats will be enacted. ▪ No bioswales or other stormwater infrastructure, or non-critical Project elements such as landscaping, will be placed in wetlands or streams. ▪ All temporary fills placed in the Cottonwood Creek low-flow channel for construction access will be clean fills (such as clean rock) of a size that can be fully removed from the low-flow channel and the channel then restored to its former topography. ▪ The Project applicant will implement BMPs as recommended or required by the state or RWQCB to protect water quality. These measures will include, but are not limited to the following: ▪ No debris, soil, silt, sand, bark, slash, sawdust, cement, concrete, washings, petroleum products or other organic or earthen material will be allowed to enter into or be placed where it may be washed by rainfall or runoff into waters of the US or state. No equipment will be operated in the live stream channel. ▪ Equipment staging and parking areas shall occur within established access areas in upland habitat above the top of bank.

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Affected Resource	Potential Effects		Avoidance and Minimization Measures
	No-Build Alternative	Build Alternative	
			Measure BIO-6: The following measures shall be implemented to avoid and minimize impacts to special-status plant species and to the other special-status plants that have seed banks that may overlap the construction footprint: ▪ To the extent feasible, Project construction will avoid all occupied habitat for Congdon's tarplant (which is also potential seed bank area for San Joaquin spearscale or prostrate vernal pool navarretia) plus a 50-foot buffer. ▪ The mapped areas of Congdon's tarplant will be clearly shown on all construction plans. ▪ To avoid special-status plants, a buffer of at least 50 feet will be clearly delineated from the active work areas through installation of environmental sensitive area fencing to prevent inadvertent access. The work area for utility line removal will be bound by environmental sensitive area fencing. A qualified plant ecologist shall oversee fencing placement. ▪ Work to remove the existing utility line for relocation within the Project site will proceed using the least impactful equipment necessary to minimize crushing, soil compaction, and erosion. **Measure BIO-7**: To track recovery of temporarily impacted special-status plant populations, the actual area of impacts will be mapped and monitored for at least three years by a qualified plant ecologist. Prior to Project construction, an area to the south, outside the construction footprint and of a similar size and similar density of Congdon's tarplant to the area to be impacted, will be identified and used as a reference area. Objectives during the monitoring will include removing any weed populations that may have become introduced due to disturbance, and to encourage grazing that benefits Congdon's tarplant. By year three, if the Congdon's tarplant density within the impacted area is not at least 50 percent of the reference area, or if there is more than 5 percent cover of Cal-IPC high or moderate ecological impact invasive plants within the recovery area (not including non-native grasses), the portion of the population impacted by the Project will be considered permanently impacted and the Project will then be required to mitigate for the impacts as per the EACCS, which would require preservation in perpetuity and management per EACCS guidelines of a similar-sized area and number of plants at a 5:1 ratio (number of new plant individuals: number of impacted plant individuals).

Affected Resource	Potential Effects		Avoidance and Minimization Measures
	No-Build Alternative	Build Alternative	
			Measure BIO-8: If dense stands of cattails regenerate within the proposed construction footprint prior to Project construction, the Project shall implement the following measures to avoid impacts to tricolored blackbird nesting colonies: ▪ If work is initiated within the nesting season (i.e., February 1 to August 31), then a preconstruction survey for an active nesting colony of tricolored blackbirds shall be conducted within all perennial marsh and seasonal wetland habitats on and within 250 feet of the construction footprint. ▪ (EACCS Measure BIRD-3): If an active nest colony is identified within 250 feet of the construction footprint, work within 250 feet of the colony will be conducted outside of the nesting season (March 15 to September 1). **Measure BIO-9:** A qualified biologist shall conduct preconstruction surveys for nesting burrowing owls prior to construction. As feasible, all suitable habitat within 0.5 mile of the Project site shall be surveyed for nesting burrowing owls. The survey should be conducted during the burrowing owl's nesting season, defined by the EACCS as March 15 to September 1. This survey shall consist of two or more site visits, with the biologist examining all potential burrows within 0.5 mile, as access permits, for signs of nesting burrowing owls (i.e., owls, pellets, feathers, and/or whitewash). Should these surveys identify burrowing owls on or near the BSA, avoidance of disturbance to the burrow will be conducted per EACCS Measure BIRD-2, outlined below: ▪ If an active burrowing owl nest is identified near a proposed work area, work will be conducted outside of the nesting season (March 15 to September 1). ▪ If an active nest is identified near a proposed work area and work cannot be conducted outside of the nesting season, a qualified biologist will establish a no-activity zone. The no activity zone will be large enough to avoid nest abandonment and will at minimum be 250-foot radius from the nest. ▪ If burrowing owls are present within the construction footprint during the non-breeding period, a qualified biologist will establish a no-activity zone of at least 150 feet. ▪ If an effective no-activity zone cannot be established in either case, an experienced burrowing owl biologist will develop a site-specific plan (i.e., a plan that considers the type and extent of the proposed activity, the duration and timing of the activity, and the sensitivity and habituation of the owls, and

Affected Resource	Potential Effects		Avoidance and Minimization Measures
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			the dissimilarity of the proposed activity with background activities) to minimize the potential to affect the reproductive success of the owls. **Measure BIO-10:** The EACCS identifies burrowing owl nesting habitat as suitable habitat within 0.5 mile of a documented nest occurrence during the previous three years, and it recommends compensatory mitigation in the event of any impacts to such habitat. In the event that burrowing owls are found to be nesting on or within 0.5 mile of the Project site during preconstruction surveys, or if owls need to be evicted from burrows (which can only occur when they are not actively nesting) to implement the Project, compensatory mitigation will be necessary to mitigate for impacts on occupied burrowing owl habitat. If the California red-legged frog and/or California tiger salamander habitat mitigation provides suitable habitat for burrowing owls as well, then no additional mitigation for impacts to burrowing owls would be necessary. Otherwise, additional habitat mitigation will be necessary, in the form of purchase of mitigation credits from a mitigation bank or Project-specific mitigation in an area that supports such habitat. The EACCS prescribes mitigation ratios of 3:1 to 3.5:1 (acreage of new habitat : acreage of impacted habitat), depending on the location of the mitigation site. **Measure BIO-11**: A qualified biologist shall conduct preconstruction surveys for denning American badgers prior to construction. As feasible, all suitable habitat within 0.5 mile of the Project site shall be surveyed for American badgers. The survey will be conducted for the area in which the qualified biologist can access. This survey can be conducted concurrently with the burrowing owl survey outlined in **Measure BIO-9**. This survey shall consist of two or more site visits, with the biologist examining all potential burrows within 0.5 mile, as access permits, for American badger dens. Should these surveys identify American badgers on or near the BSA, avoidance of disturbance to the den will be conducted per EACCS Measure MAMM-1 outlined in **Measure BIO-12**. **Measure BIO-12**: A qualified biologist shall conduct a preconstruction survey for San Joaquin kit fox and their dens prior to the start of construction activities. In the event that the species is detected during the preconstruction survey, avoidance of impacts to occupied kit fox dens will be implemented per the *Standardized Recommendations for Protection of The San Joaquin Kit Fox Prior To Or During Ground Disturbance* (USFWS 1999) and EACCS Measure MAMM-1 (outlined below): ▪ If potential dens are present, their disturbance and destruction will be avoided. ▪ If potential dens are located within the construction footprint and cannot be avoided during construction, a qualified biologist will determine if the dens are

Affected Resource	Potential Effects		Avoidance and Minimization Measures
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			occupied or were recently occupied using methodology coordinated with the USFWS and CDFW. If unoccupied, the qualified biologist will collapse these dens by hand in accordance with USFWS procedures (USFWS 1999). ▪ Exclusion zones will be implemented following USFWS procedures (USFWS 1999) or the latest USFWS procedures available at the time. The radius of these zones will follow current standards, or the following standards listed in the PBO for the EACCS: ▪ Potential Den – A total of 4-5 flagged stakes will be placed 50 feet from the den entrance to identify the den location: ▪ Known Den – Orange construction barrier fencing will be installed between the construction work area and the known den site at a minimum distance of 100 feet from the den. The fencing will be maintained until all construction-related disturbances have been terminated. At that time, all fencing will be removed to avoid attracting subsequent attention to the den ▪ Natal or Pupping Den – The USFWS will be contacted immediately if a natal or pupping den is discovered at or within 200 feet from the boundary of the construction area. ▪ Pipes will be capped, and trenches will contain exit ramps to avoid direct mortality while construction areas are active. **Measure BIO-13:** The Project will incorporate the following species-specific avoidance and minimization prescribed by the EACCS Measure AMPH-2: ▪ A qualified biologist will conduct pre-construction surveys prior to activities. If individuals are found, work will not begin until they are moved out of the construction zone to a USFWS/CDFW approved relocation site. ▪ A USFWS/CDFW-approved biologist shall be present for initial ground disturbing activities. ▪ If the work site is within the typical dispersal distance of potential breeding habitat, barrier fencing will be constructed around the worksite to prevent amphibians from entering the work area. Contact USFWS/CDFW for latest research on this distance for species of interest. Barrier fencing will be removed within 72 hours of completion of work. The Project site is known to be

Affected Resource	Potential Effects		Avoidance and Minimization Measures
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			within dispersal distance of potential breeding habitat for California red-legged frog and California tiger salamander, and therefore barrier fencing consisting of silt fence and orange construction zone fencing will be installed on the northern and southern boundaries of the Project site where construction activities border grassland habitat. The barrier fencing will be at least 3 feet high and the lower 6 inches of the fence will be buried in the ground to prevent animals from crawling under. The remaining 2.5 feet will be left above ground to serve as a barrier for animals moving on the ground surface. ▪ No monofilament plastic will be used for erosion control. ▪ Construction personnel will inspect open trenches in the morning and evening for trapped amphibians. ▪ A qualified biologist possessing a valid FESA Section 10(a)(1)(A) permit or USFWS-approved under an active biological opinion, will be contracted to trap and to move amphibians to nearby suitable habitat if amphibians are found inside a fenced area. No trapping, such as the use of upland traplines for California red-legged frogs or California tiger salamanders, is proposed for this Project. However, a biologist approved by the USFWS under the Project's Biological Opinion and by the CDFW under the Project's Incidental Take Permit will survey for and relocate any individuals found within the impact area. The applicant will prepare a relocation plan for the Project to be reviewed and approved by the USFWS and CDFW prior to the onset of construction. ▪ Work within suitable habitat will be avoided from 15 October (or the first measurable fall rain of 1 inch or greater) to 1 May. **Measure BIO-14:** Compensatory mitigation for the permanent direct and indirect loss of California red-legged frog and California tiger salamander habitat would be required in accordance with the measures outlined in Tables 3-7 and 3-8 of the EACCS. Mitigation will take the form of purchase of mitigation credits from a mitigation bank or Project-specific mitigation, or other mitigation plan as approved by the USFWS and CDFW in the Project's permits. The ratio of mitigation to impact varies with the location of the proposed mitigation, and would be 2.5:1 at minimum, but may be as high as 4:1 (acreage of new habitat : acreage of impacted habitat). **Measure BIO-15**: The project proponent or their contractor will implement the following practices to minimize the potential to introduce or spread invasive plant species:

Affected Resource	Potential Effects		Avoidance and Minimization Measures
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			▪ Prior to access to the Project site, all construction equipment will be washed to prevent the introduction of new infestations. Prior to being used at another construction site, the equipment will be washed again, to prevent spread of invasives from the Project footprint to new locations. If equipment if washed on site, it will be done in such a manner that soil, weed seeds, and other materials are collected and not allowed to drain into avoided areas, or into sensitive and regulated habitats. ▪ Following proposed Project implementation, native seed from a local source (within the same watershed if practicable) will be planted on all disturbed ground or ground denuded of vegetation by proposed Project activities.

APPENDIX D: LIST OF TECHNICAL STUDIES

Air Quality Technical Report, May 2019

Natural Environment Study, May 2019

Draft Biological Assessment, December 2019

Community Impact Assessment, April 2019

Historic Property Survey Report and Attachments, October 2019

Geotechnical Feasibility Study, July 2018

Phase I Environmental Site Assessment, June 2018

Hydrology Report, July 2018

Water Quality Report, July 2018

Noise Study Report, August 2018

Transportation Impact Analysis, August 2018

Visual Impact Assessment, November 2018

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