Appendix H

Preliminary Environmental Memorandum

March 2, 2017

To: Daniel Carley, Kimley-Horn and Associates, Inc.,
Randy Leptien, LCC Inc.

From: Danae Hall, Circlepoint

Subject: Pacheco Boulevard Improvements Project: Environmental Technical Memorandum

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Enclosed is a brief summary of the potential environmental constraints and regulatory permitting requirements associated with the implementation of the Pacheco Boulevard Improvements Project (project). Information in this memo is intended to provide the project development team with a best-estimate work plan for the level of environmental documentation anticipated to be required for the project under the California Environmental Quality Act (CEQA) and National Environmental Policy Act (NEPA).

Project Description

Background

Pacheco Boulevard, from Blum Road to Morello Avenue, is a north-south arterial roadway running parallel with Interstate 680 (I-680) within the City of Martinez (Martinez) and unincorporated Contra Costa County. This corridor provides for an alternate route to I-680, and is classified as a Route of Regional Significance by the Draft Central County Action Plan because of its high importance to the circulation of the adjacent street network.[1] It is a primary connector between Martinez and other Contra Costa County destinations. Pacheco Boulevard serves industrial, retail, and residential land uses. Within the study corridor, Pacheco Boulevard is a two- lane roadway. North of Arthur Road, there is a two-way, left-turn median lane. There are intermittent sidewalks and bicycle facilities along Pacheco Boulevard throughout the study corridor. North of Falling Star Drive, Pacheco Boulevard travels under the Burlington Northern Santa Fe Railway tracks.

Currently, the project corridor is divided into four distinct study segments:

- Segment 1 - Pacheco Boulevard between Blum Road and Arnold Drive
- Segment 2 - Pacheco Boulevard between Arnold Drive and Arthur Road
- Segment 3 - Pacheco Boulevard between Arthur Road and Camino Del Sol
- Segment 4 - Pacheco Boulevard between Camino Del Sol and Morello Avenue

Description of Work

The proposed project will improve approximately 2 miles of Pacheco Boulevard, from its intersection with Blum Road to approximately 800 feet north of Morello Avenue. The project consists of widening the existing roadway to provide for a continuous two-way left turn median lane for the entire study corridor; bicycle lanes; sidewalks; bus turnouts and stops; stormwater treatment facilities; the conversion of overhead utilities to underground; and organized on-street parking. The roadway widening also provides opportunities for the development of private off-street parking, installation of street lighting, and functional planting and irrigation along the right-of-way, where opportunities exist.

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[1] Contra Costa Transportation Authority. *Draft Central County Action Plan*. 2014. Available at: http://www.ccta.net/sources/detail/12/1; The Draft Central County Action Plan is anticipated to be finalized in 2017.

Each study segment includes two to three design alternatives with variations related to the number of through lanes. The improvements by study segment and alternatives are further described as follows:

- Segment 1
  - Widening Pacheco Boulevard from Blum Road to Arnold Drive, providing continuous two-way median left-turn lane, bicycle lanes, and sidewalks
    - Alternative 1 provides two through lanes in each direction
    - Alternative 2 provides a single through lane in each direction
    - Alternative 3 provides two through lanes southbound and one through lane northbound
  - Installation of a new traffic signal at the Intersection of Pacheco Boulevard with Arnold Drive

- Segment 2
  - Widening Pacheco Boulevard from Arnold Drive to Arthur Road, providing continuous two way left turn lanes, bicycle lanes and sidewalks; one through lane in each direction.
  - Realigning Pacheco Boulevard at the Burlington Northern & Santa Fe Railway tracks
    - Alternative 1 would close the existing roadway to through traffic at the railroad overcrossing; constructing a new cul-de-sac. North of the cul-de-sac, the roadway would be converted into a multi-use path. A new roadway extension would be constructed to the east, along and within the existing flood control channel.
    - Alternative 2 would construct a couplet that would utilize the existing roadway for southbound traffic only, and would construct a new roadway for northbound traffic along the west side of the flood control channel.

- Segment 3
  - Modification of the Pacheco Boulevard/Arthur Road intersection to include a northbound through lane, and convert one of the existing eastbound through lanes to a left-turn lane.
  - Widening Pacheco Boulevard from Arthur Road to Camino Del Sol, including extending the culvert or constructing a bridge over Vine Hill Creek. Providing continuous bicycle lanes and sidewalks.
    - Alternative 1 provides two through lanes in each direction
    - Alternative 2 provides one through lane in each direction

- Segment 4
  - Widening of Pacheco Boulevard between Camino Del Sol and Morello Avenue; providing continuous bicycle lanes and sidewalks.
    - Alternative 1 provides two through lanes in each direction. North of Morello Avenue, a new through lane would be added.
    - Alternative 2 provides one through lane in each direction. North of Morello Avenue, the southbound right-turn lane would be converted to a shared through-right turn lane

Purpose and Need

Purpose

The purpose of the proposed project is*:*

1. To relieve congestion at the intersection at Arnold Drive
2. To improve the capacity of the intersection at Arthur Road
3. To improve the capacity of the roadway where deficiencies exist
4. Improve the safety and reduce congestion at the existing crossing of the BN&SF Railway tracks
5. Eliminate gaps in existing bicycle and pedestrian facilities; and to
6. Provide safe stops for busses along the route
7. Improve overall safety of the roadway for all users

The project will also:

- Improve the quality of rainwater runoff from the roadway
- Improve the safety and appearance of the roadway and property by removing utility poles
- Organize parking
- Provide uniform street lighting during hours of darkness
- Provide smooth transitions from one section the roadway to the next.
- Provide for safer access and egress to properties.

Need

The project is necessary for the following reasons:

1. The existing intersection at Arnold Drive performs below acceptable levels of service (LOS) at peak hours
2. The existing traffic signal at Arthur Road performs below acceptable LOS in northbound and eastbound directions during peak hours
3. Certain segments of Pacheco Blvd from Blum Road to Arnold Drive perform below acceptable LOS during peak hour traffic.
4. The existing underpass at the BN&SF Railway tracks does not have sufficient width to accommodate vehicles, bicycles and pedestrians at the same time
5. There are a number of gaps in bicycle and pedestrian facilities along the route; and
6. Bus stops are not well organized and are not ADA accessible.

Additional project needs include:

- Stormwater runoff from the existing roadway flows untreated to creeks along the route.
- Parking in many areas is not well organized and adds to congestion in some areas.
- Roadway and pavement width varies along the route due to irregular development. Traffic lanes, transitions and parking areas are unimproved and poorly defined in some areas.
- Access and egress to properties in some areas are not well defined.

Environmental Summary

If federal funds are awarded to this project, the California Department of Transportation (Caltrans), as assigned by the Federal Highway Administration (FHWA), will be the lead oversight agency for CEQA and NEPA compliance. As a local agency federal-aid project "off" the State highway system, Caltrans District 4, Office of Local Assistance, will be responsible for approving the environmental documentation for CEQA and NEPA compliance. The local agency is to be the CEQA lead agency.

Aesthetics and Visual Resources

The study corridor is not located within a designated state scenic highway. According to the *City of Martinez 2035 General Plan Draft Environmental Impact Report* (General Plan DEIR), there are no designated scenic vista points within or near the study corridor. The study corridor is already developed within the existing Pacheco Boulevard, and the existing visual character is predominantly developed. The project is likely to increase the dominance of Pacheco Boulevard, without degrading the visual quality of the area.

Alternative 1 would have a larger potential to result in changes to the character of the areas due to the larger footprint, as compared to Alternative 2 and Alternative 3. Alternative 3 would have a slightly larger footprint than Alternative 2, and would therefore have a slightly larger potential to result in changes to the character of Segment 1.

An abbreviated Visual Impact Assessment (VIA) should be prepared for the project, regardless of alternative chosen. A VIA will fully assess project impacts to all potentially affected viewer groups (i.e., drivers, customers of near-by businesses, and people living near the study corridor).

Biological Resources

All segments and alternatives will require the preparation of a Natural Environment Study (NES) in order to determine the specific sensitive habitats and species in and near the project limits. Depending on the findings of the NES, some improvements may require Section 7 interagency consultation to ensure compliance with the Endangered Species Act (ESA) and development of a Habitat Mitigation and Monitoring Plan (HMMP). Section 7 compliance and approvals from the U.S. Fish and Wildlife Service (USFWS) and National Oceanic and Atmosphere Administration (NOAA) may be required if federally protected special-status species are affected. Section 7 compliance and approvals would be issued through the preparation of a biological assessment (BA) and issuance of a biological opinion (BO).

Under the California Endangered Species Act (CESA), certain impacts to state-listed species in the area, such as Western pond turtle, California red-legged frog, and Burrowing owl, would also require an incidental take permit (Section 2081) from the California Department of Fish and Wildlife (CDFW).

There are two unnamed creeks located in the biological study area (BSA), as shown in **Figures 1** and **2**. Drainage 1 in the BSA crosses under Pacheco Boulevard approximately 500 feet west of the Arthur Road intersection. The channel ranges between 20 and 25 feet wide. Drainage 2 is situated parallel to Pacheco Boulevard for a distance of approximately 755 feet. The channel ranges between 25 and 30 feet wide. Some improvements may result in limited impacts to waters of the U.S. A potential wetland occurs just upstream (southeast) of Drainage 2. The wetland appears to be a man-made mitigation wetland, and is hydrologically connected to flow into Drainage 2. All alternatives would require a delineation of jurisdictional wetlands and waters of the U.S. to determine the presence and location of jurisdictional resources in the areas potentially affected by the proposed improvements. Impacts to waters of the U.S. and wetlands as a result of the project, including any temporary impacts during construction, would need to be quantified. If impacts to wetlands or waters of the U.S. are identified, coordination for CWA Section 401 Certification and CWA Section 404 Permit would be required.

Figure 1

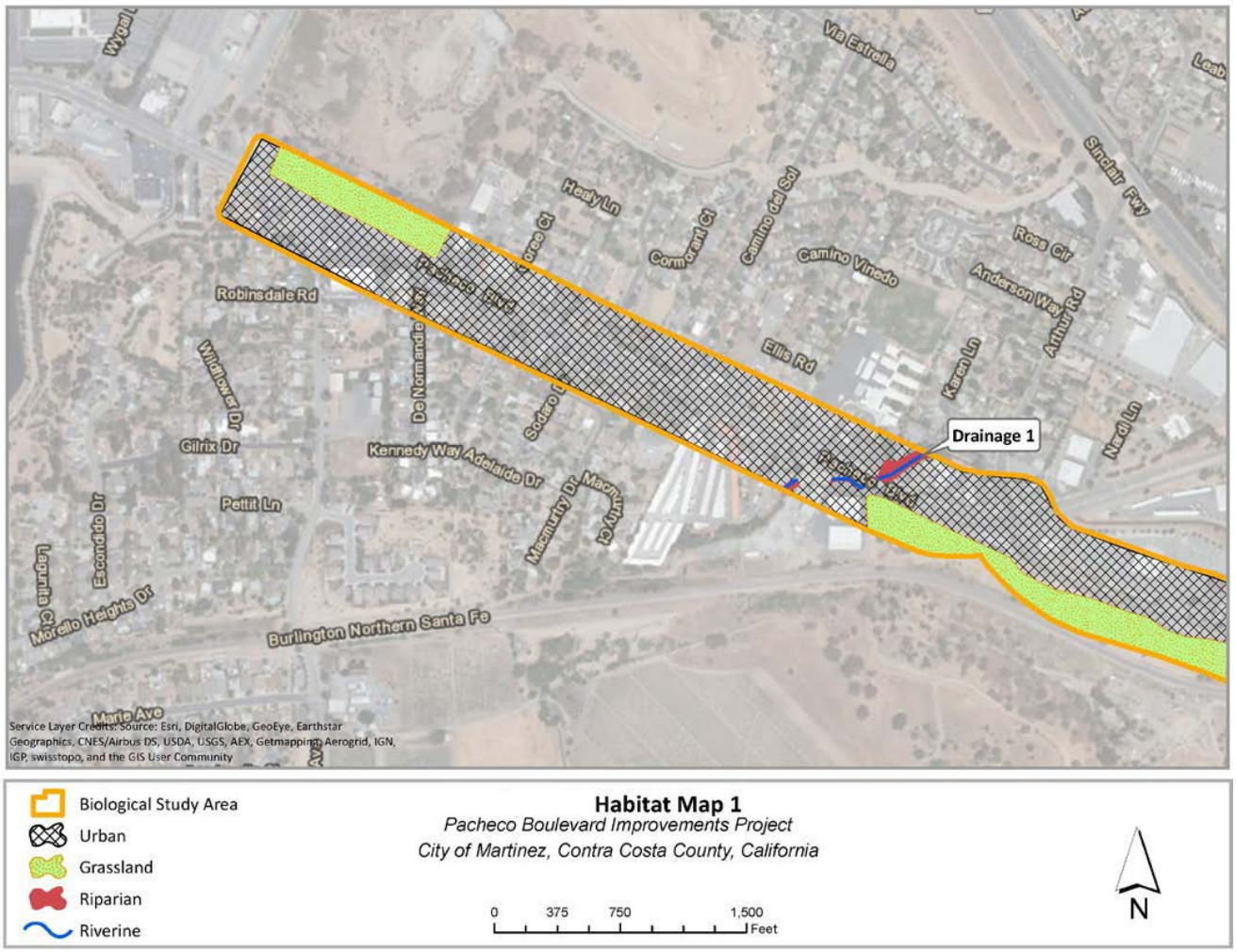
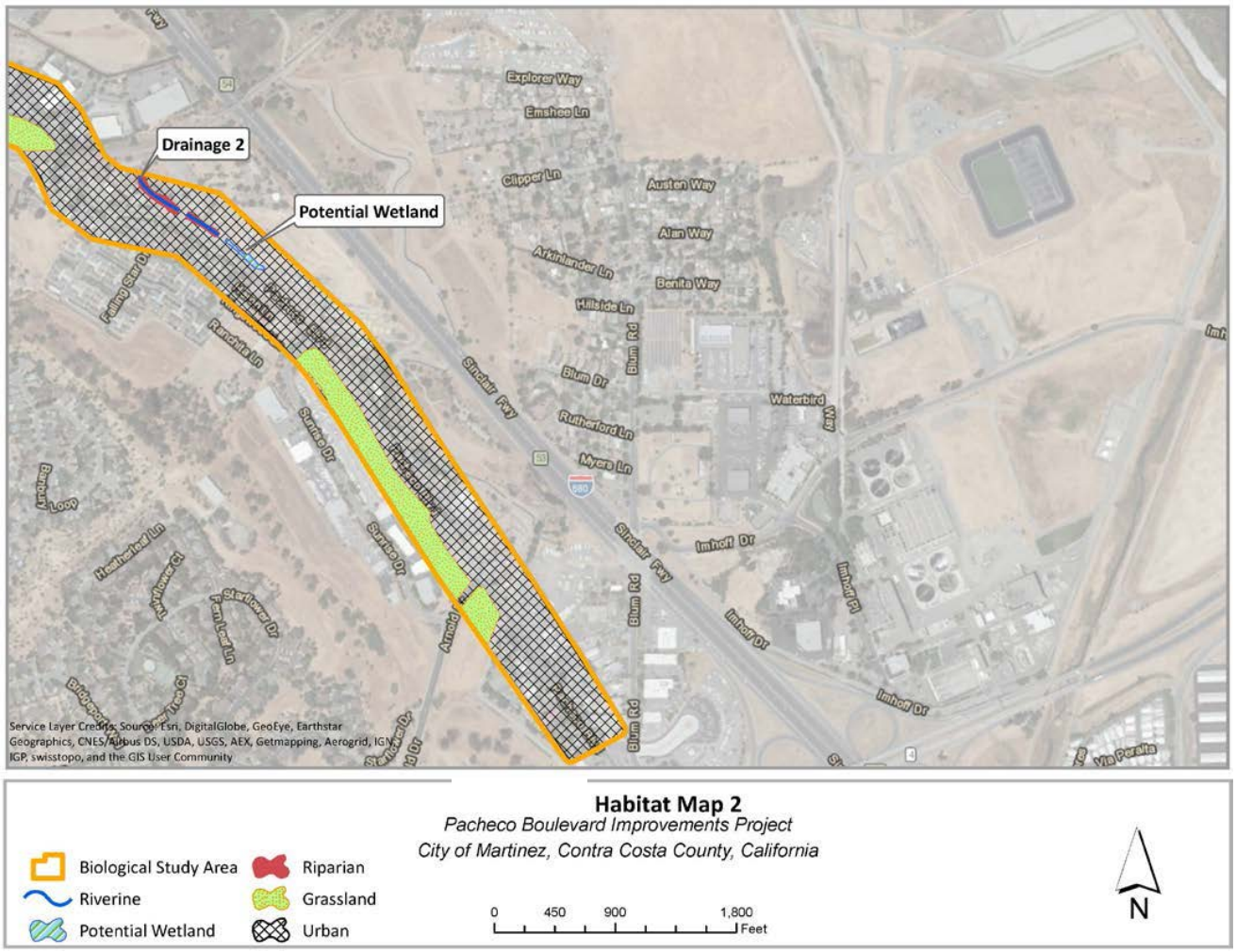

Via Estrella
Sinclair Fwy
Healy Ln
Cormorant Ct
Camino del Sol
Camino Vinedo
Rose Cir
Anderson Way
Arthur Rd
Robinsdale Rd
Pacheco Blvd
Wildflower Dr
De Normandie Ct
Ellis Rd
Karen Ln
Nardi Ln
Drainage 1
Gilrix Dr
Kennedy Way
Adelaide Dr
Pettit Ln
Escondido Dr
Morello Heights Dr
Burlington Northern Santa Fe
Marie Ave
Service Layer Credits: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community
Biological Study Area
Urban
Grassland
Riparian
Riverine
Habitat Map 1
Pacheco Boulevard Improvements Project
City of Martinez, Contra Costa County, California
0
375
750
1,500
Feet
N

Figure 2


Drainage 2
Potential Wetland
Explorer Way
Emshee Ln
Clipper Ln
Austen Way
Alan Way
Arkinlander Ln
Benita Way
Hillside Ln
Blum Rd
Blum Dr
Sinclair Fwy
Waterbird Way
Rutherford Ln
Myers Ln
Imhoff Dr
Imhoff Pl
Rancho Ln
Sunrise Dr
Arnold Dr
Via Peralta
Service Layer Credits: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community
Habitat Map 2
Pacheco Boulevard Improvements Project
City of Martinez, Contra Costa County, California
Biological Study Area
Riverine
Potential Wetland
Riparian
Grassland
Urban
0
450
900
1,800
Feet
N

There are numerous street trees along Pacheco Boulevard. Most are domestic landscape species, but there are also some native trees present, mostly in the riparian corridors of the two drainages.

All alternatives would have the potential to violate the Migratory Bird Treaty Act (MBTA) and California Fish and Game Code (CFGC). Scheduling construction activities to occur during the non-breeding season (generally 1 September – 31 January) would avoid the possibility of disturbing nesting birds to the point of nest abandonment.

Potential biological permits required include a USACE Section 404 permit, a 401 Water Quality Certification, a 1602 Streambed Alteration Agreement, and a tree removal permit from Martinez.

Recommended pre-construction surveys include a botanical survey during the blooming season for bent-flowered fiddleneck, Congdon's tarplant, and Diablo helianthella; tree surveys; and habitat assessment for California red-legged frog.

Given that Alternative 1 has a larger physical footprint than Alternative 2 and Alternative 3, Alternative 1 would have a higher potential to encounter biological resources. Alternative 3 would have a slightly larger footprint than Alternative 2, and would therefore have a slightly larger potential to impact biological resources within Segment 1.

Greenhouse Gas Emissions

At present, the study corridor experiences traffic congestion; such congestion can in turn increase greenhouse gas emissions from vehicles. To the extent a project relieves congestion by enhancing operations and improving travel times in high congestion travel corridors, greenhouse gas emissions may be reduced.

However, Alternatives 1 and 3 would increase the capacity of Pacheco Boulevard by adding through-lanes, which could result in increased vehicle miles traveled (VMT) and related vehicle emissions. Alternative 2 would not increase the capacity of Pacheco Boulevard because it does not propose to construct new through-lanes. Accordingly, Alternative 2 would likely not increase VMT, or associated greenhouse gas emissions.

An appropriate greenhouse gas emissions analysis should be prepared as part of the environmental document for improvements with potential to increase VMT. The environmental document will include a qualitative discussion regarding the project relative to greenhouse gas emission and climate change effects. An Air Quality Report should be prepared, and include a discussion regarding the project relative to greenhouse gas emission and climate change effects in accordance with Caltrans most current guidance at the time of the environmental review.

Land Use Planning and Community Impacts

The majority of the study corridor is within the urban developed areas of Martinez and unincorporated Contra Costa County. **Table 1** notes the General Plan land uses and zoning allowances along the study corridor.

Table 1: Land Uses and Zoning in Study Corridor

Segment	Land Use	Zoning
1	▪ Residential Medium ▪ Light Industrial ▪ Service Commercial	▪ Retail Business ▪ One- and Multi- Family Residential ▪ Multi-Family Residential ▪ Commercial

Segment	Land Use	Zoning
2	▪ Light Industrial ▪ Service Commercial ▪ Agricultural ▪ Residential Medium Low	▪ Mixed Use ▪ Service Commercial ▪ Light Industrial ▪ Neighborhood Commercial ▪ Single Family Residential ▪ Multi-Family Residential ▪ Agricultural Lands
3	▪ Neighborhood Commercial ▪ Open Space Preservation ▪ Central Residential High ▪ Public Elementary School ▪ Commercial and Multi-Family Residential Combined Use Corridor	▪ Retail Business ▪ Commercial ▪ Multi-Family Residential ▪ Light Industrial ▪ Institutional
4	▪ Commercial and Multi-Family Residential Combined Use Corridor	▪ Multi-Family Residential ▪ Retail Business ▪ Heavy Industrial

Source: *City of Martinez 2035 General Plan*; Contra Costa County Assessor

Improvements that propose construction outside of the existing right-of-way may require partial acquisition of private and government properties along the study corridor. Improvements that require the acquisition of property outside of the state right-of-way will require the preparation of a Community Impact Assessment (CIA). Alternatives 1 and 2 would require partial acquisition of land outside of right-of-way in order to accommodate roadway widening, and would require preparation of a CIA accordingly. The project would change the land use of the acquired land to transportation use. However, the project would not propose new land uses to the area, as Pacheco Boulevard is already developed. Given that project would only expand an existing land use to partial portions of adjacent parcels, no major conflicts with existing or planned land uses are anticipated. A CIA should be prepared to include a qualitative discussion of the project's consistency with local plans and policies.

Section 4(f) applies to properties including publicly owned public parks, recreation areas, and wildlife or waterfowl refuges, or any publicly or privately owned historic site listed or eligible for listing on the National Register of Historic Places (NRHP). According to the Federal Highway Administration (FHWA), while the primary purpose of public school playgrounds is generally for structured physical education classes and recreation for students, these properties may also serve significant public recreational purposes and therefore may be subject to Section 4(f) requirements. When a public school playground is open to the public and serves either organized or substantial walk-on recreational purposes, it will be subject to the requirements of Section 4(f).

The Las Juntas Elementary School, located at 4105 Pacheco Boulevard, is eligible for protection under Section 4(f) because the playing fields are open to the public. Additionally, the Contra Costa Canal is eligible for listing on the NRHP, and therefore the Contra Costa Canal is eligible for protection under Section 4(f). The Contra Costa Canal crosses beneath the study corridor, below the ground surface, near the intersection of Morello Avenue and Pacheco Boulevard. Based on preliminary review of the project alignments, no temporary or permanent improvements are anticipated to result in a 'use' of these resources. As such, the

provisions of Section 4(f) are not expected to be triggered. A discussion of these resources in the context of Section 4(f) would be included in the environmental document, would be appended to the environmental document as "Resources Evaluated Relative to the Requirements of Section 4(f)", and would be included in the CIA. Should any improvements be proposed that results in the temporary or permanent use of these resources, a Section 4(f) evaluation would need to be prepared.

Population and Housing

The project would not displace substantial numbers of existing businesses or people. However, the project would add through lanes and turn lanes to Pacheco Boulevard, expanding the capacity of Pacheco Boulevard. The expanded capacity of the road could potentially indirectly induce population growth. While it is unlikely that the project would indirectly induce substantial population growth, a CIA should be prepared to include a qualitative discussion of growth inducement.

Alternative 1 would expand the capacity more than Alternative 2 and Alternative 3, and would have a greater potential to indirectly induce population growth. A discussion of growth should be included in a CIA independent of which alternative is chosen. Within Segment 1, Alternate 3 would have a larger potential to expand capacity than Alternative 2.

Transportation and Traffic

Kimley-Horn and Associates prepared a Traffic Operations Analysis Report (TOAR) for the project in February 2016 in order to review the operations of Pacheco Boulevard between Blum Road and Morello Avenue, and to analyze the effects of the project on traffic conditions. The purpose of the project is to improve the existing traffic congestion and capacity issues along the study corridor. The TOAR found that the project is likely to displace the existing parking along Pacheco Boulevard except for the existing marked on-street parking locations. A parking occupancy study will be required to evaluate existing on-street parking supply and occupancy along the study corridor.

Alternatives 1 and 3 would increase the capacity of Pacheco Boulevard by adding through-lanes, which could result in increased VMT. Alternative 2 would not add new through-lanes and would not increase the capacity of Pacheco Boulevard.

Within Segment 1, Alternatives 1 and 3 would result in improved traffic operations and acceptable LOS levels during peak hours. Alternative 2 would improve traffic operations during the morning peak hours; however, traffic operations in the evening peak hours would remain at unacceptable LOS levels. Within Segment 2, traffic operations are currently at acceptable levels and would continue to operate at acceptable levels under the future scenarios with or without either of the alternatives in the project. Accordingly, the TOAR concluded that no operational improvements are necessary within Segment 2. Within Segments 3 and 4, Alternative 1 would remain at unacceptable LOS levels during peak periods; and Alternative 2 would result in improved traffic operations and acceptable LOS levels during peak hours.

Within Segment 2, the project would construct a new roadway undercrossing at the existing railroad tracks. Alternative 1 would close the existing roadway and direct traffic onto a new two-way roadway that would cross the railroad in a new undercrossing. Alternative 2 would convert the existing roadway undercrossing into a one-way street while directing traffic in the other direction to a new one-way roadway that would cross the railroad in a new undercrossing. As noted above, the traffic operations within Segment 2 would operate at acceptable levels without the project; so while the TOAR does not compare levels of service associated with Alternative 1 or 2 within Segment 2, Alternatives 1 and 2 would operate at acceptable levels during peak hours.

Agriculture and Forestry Resources

There are no farmlands or timberlands surrounding the study corridor. No formal farmlands or timberland impact analysis is needed.

Cultural Resources

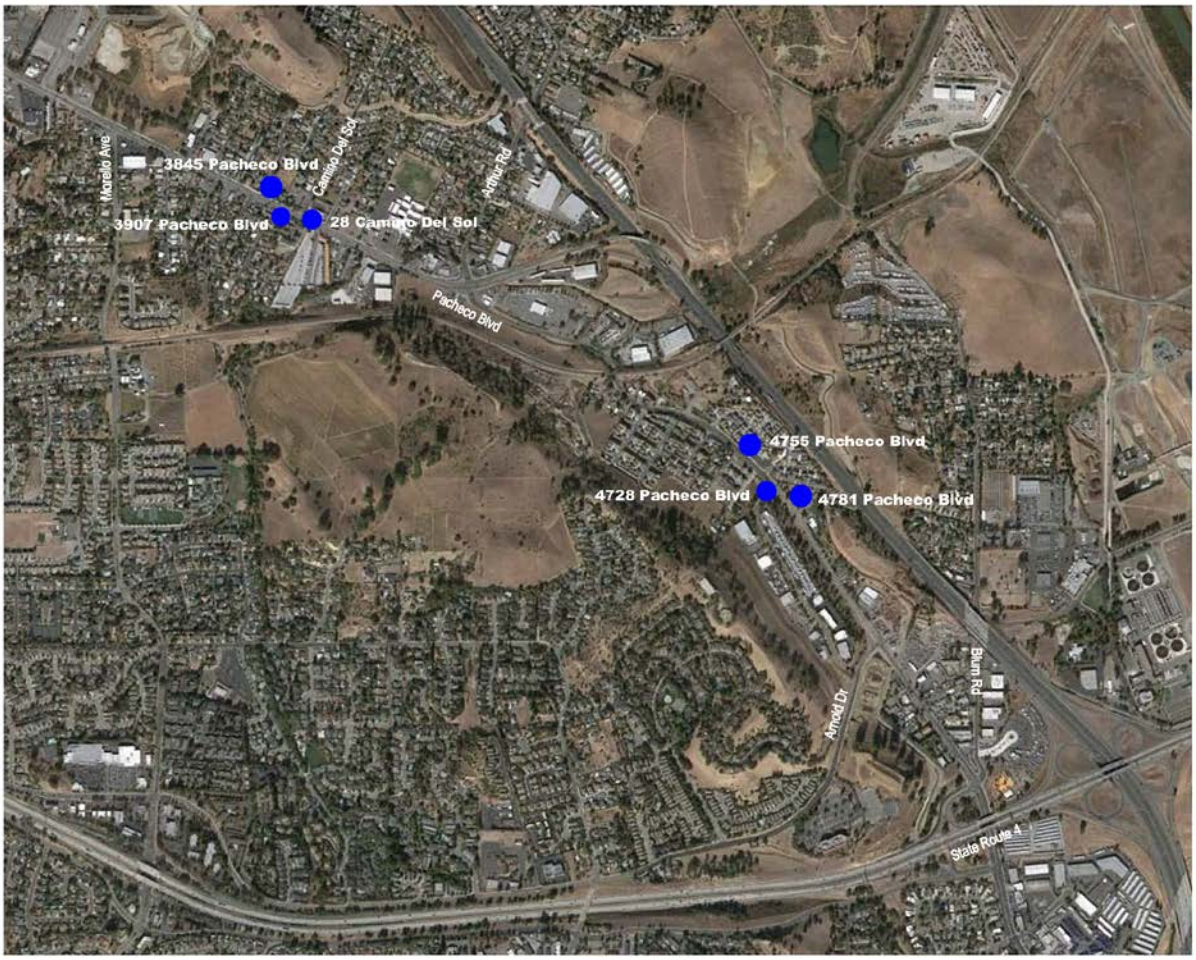
According to a preliminary records search of the Sonoma State University Northwest Information Center (NWIC), California Historic Resources Information System (CHRIS), the study corridor contains no recorded archaeological resources. The State Office of Historic Preservation Historic Property Directory (OHP HPD) (which includes listings of the California Register of Historical Resources, California State Historical Landmarks, California State Points of Historical Interest, and the National Register of Historic Places) lists 10 recorded buildings or structures and one California Historical Landmark within or immediately adjacent to the study corridor. In addition, the NWIC maps show 6 recorded buildings or structures that meet the Office of Historic Preservation's minimum age standard of 45 years and may be of historic value (see **Figure 3**). It is recommended that the agency responsible for Section 106 compliance consult with the Office of Historic Preservation regarding potential impacts to these buildings or structures.

The entire study corridor has a moderate potential for discovering unrecorded Native American resources, and a moderate potential for discovering unrecorded historic-period archaeological resources.

Due to the high sensitivity for cultural resources in the study corridor, several cultural technical reports would be required to fully evaluate potential effects of the project to archeological and built environment resources. An Archaeological Survey Report (ASR) should be prepared, as well as a Historic Resources Evaluation Report (HRER). These should be summarized in a comprehensive Historic Property Survey Report (HPSR), with appropriate findings of effects. The HPSR should be reviewed with appropriate stakeholders, including but not limited to the California State Historic Preservation Officer (SHPO), whose assent may be required in determining findings of effect to both archaeological and historic architectural resources. Certain cultural resources will likely need to be evaluated for eligibility to the National Register of Historic Places (NRHP), and evaluation may involve producing Department of Parks and Recreation (DRP) 523 forms or updates for each potential historic property. Pursuant to California Assembly Bill 52 (AB 52), local Native American tribes should also be consulted and notified in the event of a decision to undertake a project.

Alternative 2 has the smallest physical footprint, as compared to Alternative 1 and Alternative 3, within Segment 1. However, Alternative 1 and Alternative 2 both require deep excavations associated with the railroad undercrossing within Segment 2. Accordingly, Alternative 1 and Alternative 2 both have a higher potential to encounter deep sediments containing unrecorded archaeological resources.

Figure 3: Six Recorded Buildings or Structures of Potential Historic Value



Hazardous Waste and Materials

An Initial Site Assessment (ISA) was prepared for the project by Parikh Consultants, Inc. in 2016. According to a review of aerial photographs and USGS maps, the properties along the proposed right of way was used for agricultural production as early as the 20th century. Pesticides were commonly used in California agriculture until the mid-1970s and have the potential to persist for many decades in shallow soils. While the soil concentration of these pesticides were likely reduced by the mixing of soils during excavation and grading activities for the current roadway alignment and urban development, shallow soils beneath the project corridor may be contaminated with arsenic and/or pesticides.

Lead alkyl compounds were commonly added to gasoline prior to the mid-1980s. As a result, shallow soils adjacent to the roadways within the project corridor could be contaminated with aerially deposited lead. Existing pavement markings consisting of yellow paint and thermoplastic stripes may also contain lead, and will need to be properly handled and disposed during construction.

Prior to project construction, a subsurface investigation (soil sampling) will need to be conducted to determine the presence and extent of hazardous contaminants related to the former agricultural land uses and aerially deposited lead. In the event of contamination, proper health and safety measures should be developed and implemented to ensure that construction workers and others are not exposed to hazards that pose health risks.

The railroad bridge structure located north of Falling Star Drive could contain asbestos and lead-based paint (LBP) in its construction materials. An asbestos and LBP survey of the bridge should be conducted by a Division of Occupational Safety and Health (Cal-OSHA) certified inspector prior to any construction work on the bridge.

Environmental records from regulatory agencies were reviewed to identify known or potential sites associated with hazardous materials within 1 mile of the project corridor. These sites were then evaluated to identify known or potential releases of hazardous materials that could impact soils and/or groundwater beneath the physical footprint of the proposed Alternatives. The following 11 sites near the study corridor were present in the database as hazardous materials release sites:

- 7-Eleven, 4001 Pacheco Blvd
- Property at 4095 Pacheco Blvd.
- ARCO (Current location of Five Start Gas) at 3700 Pacheco Blvd,
- IT Transportation – 4501 Pacheco Blvd.
- BP (Current location of Chevron) 61 Arthur Road
- Shell, 4355 Pacheco Blvd.
- Heinson Construction, 4022 Pacheco Blvd.
- Shell Oil Pipeline, 3575-3700 Pacheco Blvd.
- Chevron Pipeline 4585 Pacheco Blvd.
- IT Transportation, 4501 Pacheco Blvd.
- Landscape Care 4026 Pacheco Blvd.

Surface soils at many of these sites may contain residual levels contaminants related to the documented releases. If the project involves construction activities in these areas, soil samples should be collected from the proposed disturbance areas so that the nature and extent of the hazardous risks can be identified, and proper health and safety measures developed.

Alternative 2 would have the smallest physical footprint and would therefore have the least potential for impacts related to hazard waste and materials. Alternative 1 would have the largest footprint, and would therefore have the highest potential for impacts related to hazardous waste and materials.

Paleontology and Mineral Resources

Much of the study corridor is underlain by geological deposits that have a low to moderate potential for containing significant paleontological resources, according to the General Plan DEIR. The study corridor is located on intertidal deposits, fill material placed on top of coastal marshes, wetlands, and tidal areas that are considered to be paleontologically significant. Additionally, many of the rock formations that surround Martinez contain fossils and it is possible that one or more of these fossil-bearing formations underlie the study corridor at unknown depths. A Paleontological Identification Report/Paleontological Evaluation Report (PIR/PER) should be prepared for any improvement of the project that would be constructed in areas not previously disturbed by the construction of the existing roadway, or with deeper excavation depths. On-site paleontological monitoring may be necessary during construction activities at certain areas of the project corridor.

Alternative 2 has the smallest physical footprint, as compared to Alternative 1 and Alternative 3 under Segment 1. However, Alternative 1 and Alternative 2 both require deep excavations associated with the

railroad undercrossing within Segment 2. Accordingly, Alternative 1 and Alternative 2 both have a higher potential to encounter deep sediments containing paleontological resources.

Public Services

The project would improve congestion, capacity, and safety issues along the study corridor. As such, the project would not result in substantial adverse impacts to fire, police, schools, parks or other public facilities. A qualitative discussion of any temporary construction impacts on the Las Juntas Elementary School should be included in the environmental document.

Utilities and Service Systems

The project would require undergrounding of all power and communications utility lines along the study corridor, and would construct various landscaped areas that would potentially include biofiltration and clean water features. The project would propose increased impervious surface area, and could potentially result in more stormwater runoff than existing conditions. Alternative 1 has a larger physical footprint and would have a larger potential to increase stormwater runoff than Alternative 2 and Alternative 3, however it is unlikely that any of the alternatives would require new stormwater facilities to be constructed that would result in environmental impacts. The environmental document should include a discussion of the proposed utility work and any potential impacts to service systems.

Air Quality

All segments, regardless of alternative chosen, have the potential to result in modifications in traffic patterns, moving localized vehicle emission sources closer to sensitive receptors. Alternatives 1and 3 would add new through-lanes that would increase the capacity of Pacheco Boulevard and traffic emissions related to VMT. An Air Quality Study should be prepared to evaluate potential air quality impacts associated with construction and operation of the project.

On March 10, 2006, the U.S. EPA published a final rule that establishes the transportation conformity criteria and procedures for determining which transportation projects must be analyzed for local air quality impacts in $PM_{2.5}$ and PM_{10} nonattainment and maintenance areas (71 FR 12468). The federal PM_{10} standards have been met in the SF Bay Area, and therefore the project would not be subject to hot spot analysis for PM_{10} for purposes of transportation conformity. The federal $PM_{2.5}$ standards are exceeded in the SF Bay Area and the project will be subject to hot spot analysis for $PM_{2.5}$ for purposes of transportation conformity. MTC's Air Quality Conformity Task Force would review the project, and take action to conclude whether or not it is a Project of Air Quality Concern (POAQC).

Geology, Soils, and Seismicity

According to the General Plan DEIR, the entire San Francisco Bay Area is located in a region of active seismicity primarily related to the San Andreas Fault Zone. Three faults are of primary significance in the Martinez area: the Franklin Fault, the Concord-Green Valley Fault, and the Southampton fault. Seismic hazards with the Martinez area include the possibility of fault rupture and secondary damage from landslides, liquefaction, and ground-shaking. According to the Association of Bay Area governments' Contra Costa County Hazards map, the study corridor is located in a Very Strong shaking severity zone of the Concord-Green Valley Fault. Given these geologic circumstances, a geotechnical site characterization is required for the project.

The risks associated with the local geology and seismic conditions are applicable to all of the segments of the project, regardless of the selected alternative. A geotechnical report should be prepared to evaluate soil limitation and to address any potential issues related to seismic conditions.

Hydrology, Floodplain and Drainage

A report summarizing potential floodplain, stormwater quality, and drainage impacts of the project was prepared by WRECO in 2016. The report identifies several water features in the study corridor. The Contra Costa Canal crosses the project corridor underground between Arnold Drive and Blum Road, and remains relatively parallel to the eastern side of Pacheco Boulevard. Vine Hill Creek crosses the project corridor near Las Juntas Elementary School. Most of the stormwater runoff within the study corridor is allowed to sheet flow to adjacent property or is conveyed in roadside ditches. According to a field visit conducted by WRECO on May 27, 2016, there are approximately 31 existing inlets that generally convey water from the east side of Pacheco Boulevard to the west, or from south to north. However, many of these inlets are compacted by leaf litter and are in need of repair.

Portions of the study corridor are located within a 100 year flood zone according to the Federal Emergency Management Agency's (FEMA) Flood Insurance Rate Maps (FIRM). A location Hydraulic Study (LHS) should be conducted for improvements that propose work within a 100 year flood zone to determine any potential impacts from the project on the floodplain.

The proposed roadway widening and sidewalk improvements under the project would increase impervious surface areas in the project corridor. The project must comply with updated Contra Costa Clean Water Program Stormwater C.3 requirements, including the preparation of a stormwater pollution prevention plan (SWPPP). To address construction related sedimentation and erosion, a water quality technical report should be prepared to identify engineering controls and best management practices that reduce or avoid water quality impacts.

Alternative 1 would have the largest footprint and would therefore introduce more impervious surface area that would be more likely to impact the hydrology of the study area. Alternatives 2 and 3 may also result in hydrological impacts, but potential impacts would be lesser due to the smaller footprint.

Noise and Vibration

Noise and vibration sensitive receptors are generally defined as land with residential uses or other fixed, developed sites of frequent human use occur within approximately 1,000 feet of the project. Sensitive land uses are areas where an excessive amount of noise or vibration would interfere with normal activities (i.e. residential living, worshiping, and learning). Portions of the land surrounding the study corridor is developed with noise and vibration sensitive land uses, including residential developments, the First Light Christian Center church, and Las Juntas Elementary School.

Improvements requiring roadway widening could change existing noise patterns and adversely affect both existing and planned sensitive receptors in the vicinity of the study corridor. For example, traffic could be shifted closer to adjacent noise sensitive receptors, thus increasing the ambient noise environment in those areas.

A noise study would be required to evaluate potential project effects on adjacent land uses. Should substantial noise increases occur as a result of the proposed roadway improvements, a noise abatement decision report would be required to recommend engineering and design features (i.e., noise barriers) to reduce at noise sensitive receptors.

Alternative 1 proposes the largest potential shift in traffic closer to noise sensitive receptors, and in turn, has the highest potential to increase the ambient noise environment in that area. Alternatives 2 and 3 would also shift traffic closer to noise sensitive receptors, but in fewer areas.

Recreation

The project would not cause an increased use of existing local or regional parks or recreational facilities. Under Alternative 1, the existing roadway to through traffic at the railroad overcrossing would be closed and the project would construct a new cul-de-sac. North of the cul-de-sac, the roadway would be converted into a multi-use path. The construction of this multi-use path would likely have no adverse impacts on the environment because the alignment is currently used for vehicle traffic. Alternative 2 would not require the construction or expansion of any recreational facilities. While bike lanes and sidewalks would be constructed under all Alternatives, these facilities would primarily be used for transportation (i.e., part of the local transportation system) and are not considered recreational facilities.

For the reasons discussed above the project is not expected to impacts recreational facilities, and a qualitative discussion of the topic should be included in the environmental document.

Level of Documentation

Each of the project alternatives would have similar constraints and impacts, except that Alternative 2 would have the smallest physical footprint, and would be less likely to impact cultural resources, paleontological resources, and biological resources.

The appropriate level of environmental documentation for improvements with impacts that are able to be mitigated to a less than significant level would be a CEQA Initial Study/Mitigated Negative Declaration (IS/MND). The anticipated NEPA document will be an Environmental Assessment/Finding of No Significant Impact (EA/FONSI). All alternatives are anticipated to require an IS/EA during the environmental review process. If impacts are determined to be significant even after application of mitigation, an environmental impact report (EIR) and/or environmental impact statement (EIS) with findings and a statement of overriding considerations may need to be prepared. This determination should be made during the Project Approval & Environmental Document (PA&ED) phase once technical studies have been completed.