



PRELIMINARY ENVIRONMENTAL ANALYSIS REPORT

1. Project Information

District 04	County Contra Costa	Route SR4	PM 14.3/19.6	EA 1J030
Project Title: State Route 4 Operational Improvements Project				
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2. Project Description

The proposed project will construct freeway improvements along eastbound and westbound State Route 4 (SR4), from just west of the SR4/State Route 242 (SR242) Interchange (PM 14.3) to Bailey Road Interchange (PM19.6). **Figure 1** illustrates the general project location.

The three Build Alternatives considered in this report are: Alternative 1 (maximum footprint), pavement widening on eastbound and westbound SR4 for operational improvements (i.e., auxiliary lanes and extended general purposes lanes); Alternative 2 (part-time HOV lane), which would use the inside shoulder as a travel lane during peak hours [morning (AM) westbound and evening (PM) eastbound]; this is known as an inside shoulder running HOV lane; and Alternative 3 (HOV/general purpose travel lane), which would use the inside should as a travel lane at all hours. In addition to the freeway improvements, interchange improvements at the Port Chicago Highway Interchange and the Willow Pass Interchange; ramp modifications at the San Marco Boulevard Interchange; and a single-lane HOV direct connect ramp between northbound SR242 and eastbound SR4 are identified as part of the corridor improvements. These improvements will require a separate PID prior to proceeding into the Project Approval and Environmental Document (PA&ED) phase.

Purpose and Need

Purpose

Corridor

- Improve traffic operations along SR4 between Interstate 680 (I 680) and Bailey Road in both the eastbound and westbound directions during peak commute periods
- Improve travel time for all users, including users of mixed-flow and high-occupancy vehicle (HOV) freeway lanes, as well as transit users
- Maintain consistency with the provisions defined in the Central County Action Plan (2017), East County Action Plan (2017), and Measure J Strategic Plan to improve operations on SR 4 through central Contra Costa County¹. The Draft Central County Action Plan and Draft East County Action Plan are anticipated to be adopted in December 2017.

Interchange Improvements

- Accommodate increased transportation demand between northbound SR242 and eastbound SR4 and at the Port Chicago Highway Interchange, Willow Pass Road Interchange, and San Marco Boulevard Interchange due to planned development and growth in the Concord, Pittsburg, and Bay Point areas.

Need

Corridor

- **Existing Capacity and Transportation Demand.** SR4, within the project limits, experiences significant congestion and delay during morning westbound and afternoon eastbound peak travel periods, when the corridor serves as a major commute route for people who live in eastern Contra Costa County and work in central and western Contra Costa County and points further west.²

Level of service (LOS) is a measure of traffic operating conditions, which varies from LOS A (indicating free flow traffic conditions with little or no delay) to LOS F (representing over-saturated conditions where traffic flows exceed design capacity resulting in long queues and delays). Currently, during the morning peak

¹ As part of the 2017 update of the Countywide Transportation Plan, the Regional Transportation Planning Committees (RTPCs) are updating their Action Plans for Routes of Regional Significance. The Action Plans are intended to reduce the impact of new development on freeways, arterials, transit and major trails. Each identifies a system of Regional Routes, those freeways, arterials and other facilities that provide the main connections among Contra Costa's communities and to the surrounding region. The Action Plans help local jurisdictions meet the requirement in the Authority's Growth Management Program that local jurisdictions engage in cooperative, multi-jurisdictional planning. The Action Plans for Central and East Contra Costa County were drafted in 2014, and are anticipated to be finalized in 2017. They are available at: <http://www.ctta.net/sources/detail/12/1>; last accessed: March 2, 2015.

² CCTA, 2012. SR-4 Integrated Corridor Analysis, p. 4.

period, westbound SR4 operates at LOS F. During the evening peak period, eastbound SR4 also operates at LOS F. Projections of future conditions on the SR4 corridor, within the project limits, indicate that the traffic demand will continue to increase and far exceed the available capacity during peak periods. By 2040, traffic volumes are projected to increase between 17% and 83% in the westbound AM peak period and between 16% and 56% in the eastbound PM peak period, further reducing travel speeds and creating bottlenecks at constrained locations. By 2040, westbound and eastbound SR4 is expected to continue to operate at LOS F during the morning and evening peak periods.

- **Travel Time Delay for all Users.** Current data on corridor travel speeds indicate that travelers along SR4 experience substantial delays during the weekday peak periods. Future congestion is anticipated to extend well beyond the project construction limits; in order to capture the full extent of mainline congestion, the limits of the traffic study area have been set to extend from Antioch to Martinez in the westbound direction (21 miles) and from Hercules to Pittsburg in the eastbound direction (15 miles). Under free-flow conditions (i.e., traveling at the speed limit), the time required to traverse the traffic analysis study limits is about 19 minutes in the westbound direction and 14 minutes in the eastbound direction. Under current conditions, which include the effects of ramp metering along much of the SR4 study corridor, travelers experience an average travel time of 31 minutes in the westbound direction in the morning peak period (or a delay of 12 minutes), and an average travel time of 23 minutes in the eastbound direction in the evening peak period (a delay of 9 minutes). It is projected that by 2040 the average delay will increase from 12 minutes to 28 minutes in the westbound direction, and from 9 minutes to 56 minutes in the eastbound direction.³

The effect of long delays along SR4 increases the likelihood of drivers that divert onto local roadways within the cities of Pittsburg and Concord in order to avoid heavy freeway congestion within the project limits. Although not addressed quantitatively in this report, it is expected that the operational improvements to SR4 would indirectly decrease the potential for traffic diversion onto local roadways.

- **Operational Deficiencies.** The current lane configuration of SR4 creates challenges for drivers merging from existing auxiliary lanes into the mixed-flow lanes, and for HOV and transit users to efficiently access the HOV lanes. This creates inefficient merging into the mainline mixed-flow lanes which results in friction and increased congestion within the project limits. In addition, HOV and transit users must merge across all lanes of SR4 to access the HOV lanes. This merge creates additional congestion and results in delays for HOV and transit users.

³ The future year No Build travel times assume ramp metering remains on SR 4 and include the travel time benefits associated with the reconstruction of the I-680/SR-4 interchange which will add capacity to SR 4 between I-680 and SR-242.

There are several locations along SR4, within the project study limits, where the freeway travel lane ends, and forces drivers to merge with other adjacent travel lanes. These “lane drops” create a bottleneck effect for traffic upstream.

- **Legislation.** The Central County Action Plan (2017) and East County Action Plan (2017) include SR4 as a Route of Regional Significance and sets Multimodal Transportation Service Objective (MTSOs) that include a maximum Delay Index⁴ and HOV lane utilization rate. Proposed improvements identified in the County Action Plans to meet the MTSOs include the SR4 operational improvement elements presented as part of this current project.⁵

Interchange Improvements

Planned Growth. The County of Contra Costa, including the City of Concord, City of Pittsburg, and Bay Point municipality, anticipates population growth and urban development to occur in coming years. This growth is planned for in the General Plan and will result in an increased transportation demand on freeways and local roadways. Particularly, the SR4/Port Chicago Highway Interchange, SR4/Willow Pass Road Interchange, and SR4/San Marco Boulevard Interchange would require improvements to accommodate future travel demand. Additionally, pedestrian and bicycle use of local roadways would increase with the planned growth and the interchanges would require improvements for pedestrian and bicycle access at the ramp intersections with local roads. The City of Concord intends to construct an extended Delta De Anza Regional Trail as part of the Concord Reuse Project (CRP) in order to alleviate the increased pedestrian and bicycle use of local roads.

As part of the 2017 update of the Countywide Transportation Plan, the Regional Transportation Planning Committees (RTPCs) are updating their Action Plans for Routes of Regional Significance. The Action Plans are intended to reduce the impact of new development on freeways, arterials, transit and major trails. Each identifies a system of Regional Routes, those freeways, arterials and other facilities that provide the main connections among Contra Costa's communities and to the surrounding region. The Action Plans help local jurisdictions meet the requirement in the Authority's Growth Management Program that local jurisdictions engage in cooperative, multi-jurisdictional planning. The Action Plans for Central and East Contra Costa County were drafted in 2014 and are anticipated to be adopted in 2017.

⁴ A measure of delay experienced by motorists on a roadway segment during a peak commute hour in a single direction. The Delay Index is calculated by measuring the time it takes to travel a segment of road during peak-period congested conditions, and comparing it to the time it takes to travel the same segment during uncongested, free-flow conditions.

⁵ The Action Plans for Central and East Contra Costa County were drafted in 2014, are anticipated to be adopted in 2017, and are available at: <http://www.ccta.net/sources/detail/12/1>; last accessed: March 2, 2015.

Description of work

The proposed project will construct freeway improvements along eastbound and westbound SR4, from 0.3 mile west of the SR4/State Route 242 (SR242) Interchange (PM14.3) to Bailey Road Interchange (PM19.6). **Figure 1** illustrates the general project location. The three Build Alternatives considered in this report are: Alternative 1 (maximum footprint), traditional outside pavement widening on eastbound and westbound SR4 for operational improvements (i.e., auxiliary lanes and extended general purposes lanes); Alternative 2 (part-time HOV lane), which would use the inside shoulder as a travel lane during peak hours [morning (AM) westbound and evening (PM) eastbound]; and Alternative 3 (HOV/general purpose travel lane), which would reconstruct and restripe the inside shoulder as a travel lane for use at all hours. All three Build Alternatives also include interchange improvements at Port Chicago Highway and Willow Pass Road; ramp modification at the San Marco Boulevard; and an HOV direct connect ramp between northbound SR242 and eastbound SR4. No major utility relocations are anticipated as a result of the project. The various packages within each of the Build Alternatives are expected to be able to demonstrate independent utility and logical termini, thus enabling them to move forward as independent projects. Combinations of packages from Alternative 1 and 3 may be implemented interchangeably in both the eastbound and westbound directions. Due to the likely need for corridor wide consistency, pilot project requirements, and infrastructure needs to support a peak period part-time HOV lane, selection of an initial package from Alternative 2 may require additional corridor wide analysis and consideration.

Outside shoulder bicycle use in both the eastbound and westbound directions would continue to be allowed along SR4 between Port Chicago Highway and Willow Pass Road under Alternatives 1, 2, and 3 until future planned bicycle facilities are constructed. The City of Concord intends to construct an extended Delta De Anza Regional Trail as part of the CRP.⁶ Traffic safety elements such as rumble strips, buffer striping, etc. should be considered at the mainline shoulder to separate bicyclists from motorists.

Alternatives

The alternatives outlined below constitute the range of alternatives which satisfy the purpose and need of the project for the purpose of establishing project factors which will be studied and evaluated in the next phase of the project. No approval, either implied or expressly granted, has been tendered regarding these alternatives. As noted in the risk registry, there is considerable risk within this range of alternatives. These risks will be further evaluated and resolved in the PA&ED phase.

⁶ The CRP Area Plan was adopted by the Concord City Council in January 2012. The CRP Area Plan features a connected network of linear open spaces, or greenways, on the south side of the SR4 that form part of the area's overall circulation network with integrated pedestrian and bicycle paths parallel to the SR4. The Area Plan would extend the Delta De Anza Regional Trail, which runs parallel to the existing segment of Evora Road and serves pedestrian and bicycle traffic, as a Class I bike path from Willow Pass Road to Port Chicago Highway to provide a continuous, parallel trail through the CRP site north of SR4.

No-Build Alternative

This alternative would not construct any improvements in either the eastbound or westbound directions of SR4. The No-Build alternative assumes the completion of the I-680/SR4 improvements. The No-Build alternative would have an eastbound HOV lane beginning just east of the I-680/SR4 Interchange that ties into the existing HOV lane just east of the SR4/SR242 Interchange. In the westbound direction, there would be three general purpose lanes west of the SR4/SR242 Interchange. Shoulder bicycle use in both the eastbound and westbound directions would continue to be allowed along SR4 between Port Chicago and Willow Pass Road in the No-Build alternative.

The No-Build alternative represents the baseline alternative and offers a basis for assessing the future No-Build conditions and for comparing the build alternatives. The No-Build alternative does not meet the established purpose and need.

Build Alternatives

Interchange Improvements Common to Alternatives 1, 2, and 3: The following improvements are common to all of the Build Alternatives and are expected to have independent utility (i.e., operational benefits to SR4 without the implementation of other improvements in the area) and logical termini, allowing each interchange improvement to proceed as independent project separate from the mainline alternatives. The interchange improvements discussed below are shown in **Figures 2** through **5**. The following improvements could be constructed separately from the elements of the alternatives depending on funding and/or local priorities, and therefore could move forward under separate environmental review:

- **HOV direct connect ramp:** The project would construct a single-lane HOV direct connect ramp between northbound SR242 and eastbound SR4. The ramp would be constructed with a left diverge from northbound SR242, tunnel under existing eastbound SR4 and merge with the eastbound SR4 HOV lane from the existing median of SR4. Improvements include walls and a tunnel under SR4. See **Figure 2** for a layout of the HOV direct connect ramp.
- **Local interchange ramp improvements:** The project would implement interchange improvements to both eastbound and westbound SR4 at Port Chicago Highway and Willow Pass Road.
 - The Port Chicago Highway Interchange would be reconfigured from a cloverleaf (Type L-10) interchange to a partial cloverleaf (Type L-9) interchange. The westbound on- and off-ramp configuration will remain in the similar configuration as the existing ramps. The eastbound loop off-ramp to NB Port Chicago Highway will be eliminated (See **Figure 3**).
 - The Willow Pass Road Interchange would be reconfigured from a compact diamond (Type L-1) interchange to one of the following three alternatives: a partial cloverleaf (Type L-9), "hook" ramp (Type L-6), or a diverging diamond interchange. Depending upon the interchange type selected for the Willow Pass Road Interchange, the interchange modification may

result in changes in Caltrans access control limits, right of way and intersection spacing between ramp intersections and local street intersections. **Figures 4a through 4c** demonstrate the layouts of three options for the Willow Pass Road Interchange.

- The interchange improvements include reconstruction of curb ramps, sidewalks, and signal modification and reconstruction. These improvements would improve pedestrian access at the ramp and local road intersections, as well as provide ADA upgrades per Design Information Bulletin (DIB) 82.
- The San Marco Boulevard Interchange would be improved to provide a preferential lane for HOVs along the westbound on-ramps. The improvements include roadway widening from 2 to 23 feet, and restriping at the westbound on-ramps (see **Figure 5**).

Alternative 1 (Maximum project footprint alternative): Alternative 1 includes several freeway improvements along eastbound and westbound SR4 (see **Figure 6**). These improvements are grouped into individual construction “packages,” which are described below. It is anticipated that each package would have logical termini and independent utility. Packages 1A, 1B, 1C and 1D would be constructed along the eastbound direction; and Packages 1E, 1F, and 1G would be constructed along the westbound direction (see **Figure 6**). Each of the packages would have some benefit to the operations of the freeway, and could be implemented independently, depending on available funding. Each package, therefore, has the potential to move forward as a separate project with its own environmental review, or as a combination of packages (i.e., Package 1A + Package 1B) that would be environmentally cleared together as one project. **Figure 7** demonstrates potential combinations of Alternative 1 packages. Integrated Corridor Management (ICM) elements supporting the operational improvements may be evaluated and may be added as part of the scope of each package.

Eastbound Packages

- **Package 1A** would extend the existing general purpose lane where the existing eastbound SR4 lane drops at Port Chicago Highway. The lane extension would end at a mandatory exit to the Willow Pass Road off-ramp.
- **Package 1B** would construct a new general purpose lane along eastbound SR4, between the Willow Pass Road off-ramp and the Willow Pass Road on-ramp by widening the bridge structure at Willow Pass Road by 12 feet. The new general purpose lane would eliminate the mandatory exit at the Willow Pass Road off-ramp from Package 1A, and would connect to the existing auxiliary lane between the Willow Pass Road on-ramp and the San Marco Boulevard off-ramp. This package would also construct a second exit lane at the eastbound SR4 off-ramp to San Marco Boulevard.
- **Package 1C** would construct an auxiliary lane along eastbound SR4, from the San Marco Boulevard loop on-ramp to the existing deceleration lane at the Bailey Road off-ramp.

- **Package 1D** would construct the following improvements at four different locations along eastbound SR4:
 - extend the general purpose lane from the I-680 on-ramp to the Port Chicago Highway off-ramp
 - construct an auxiliary lane between the Port Chicago Highway on-ramp and the Willow Pass Road off-ramp
 - construct an auxiliary lane between the Willow Pass Road on-ramp and the San Marco Blvd. off-ramp
 - Construct a general purpose lane from the San Marco Boulevard off-ramp to the San Marco Boulevard on-ramp.

Westbound Packages

- **Package 1E** would construct the following improvements at three locations along westbound SR4:
 - construct a general purpose lane from the Willow Pass Road on-ramp to the existing added mainline lane just east of the Port Chicago Highway off-ramp
 - construct a second exit lane at the Port Chicago Highway off-ramp
 - modify one of the mandatory exit lanes to SR242 to an optional exit lane, which would allow three freeway lanes to exit to SR242 and three lanes to continue on westbound SR4
- **Package 1F** would construct a general purpose lane along westbound SR4, between the Willow Pass Road off-ramp and Willow Pass Road on-ramp. The construction of this general purpose lane in combination with Package 1E and the existing auxiliary lane between the San Marco Boulevard on-ramp and Willow Pass Road off-ramp would result in a new general purpose lane between the San Marco Boulevard on-ramp and the SR4/242 diverging branch connector. This package would also construct an auxiliary lane from the Willow Pass Road on-ramp to the second exit lane to Port Chicago Highway.
- **Package 1G** would construct an auxiliary lane along westbound SR4, between the San Marco Boulevard on-ramp to the Willow Pass Road off-ramp. This package would also extend the existing acceleration lane at the Bailey Road on-ramp to the existing auxiliary lane between the San Marco Boulevard on-ramp and the Willow Pass Road off-ramp.

The capital construction cost for this alternative is approximately \$220 million, including \$192 million for roadway and environmental items, \$28 million for structures and \$1 million for right of way and utilities.

Alternative 2 (Part-Time HOV lane): Alternative 2, shown in **Figure 8**, includes converting the inside shoulder to an HOV shoulder running lane during the peak periods (generally from 5AM to 9AM in the westbound direction and from 3PM to 7PM in the eastbound direction), also known as a managed lane, and freeway widening to

accommodate a general purpose lane and an auxiliary lane in the westbound direction, from the Port Chicago Highway Interchange to the Willow Pass Road Interchange.⁷ The HOV lane would be added to the inside shoulder, providing an approximate 1,000-foot transition zone with dual HOV lanes side-by-side, with the existing HOV lane (#1 lane) becoming a general purpose lane during hours of operation. The inside shoulder HOV lane would continue and then merge back to the #1 lane position at the package conform location. The existing 12-foot general purpose lanes and 10-foot inside shoulder on SR4 would be restriped. Existing general purpose lanes numbers 1, 2 and 3 would be narrowed to nonstandard 11-foot lanes (number 4 lane will remain a 12-foot lane), and the existing 10-foot inside shoulder would be widened to a 13-foot shoulder which will allow to use the inside shoulder as a part-time HOV lane. Because the proposed inside shoulders would be narrowed, the horizontal stopping sight distance along eastbound and westbound curves between Willow Pass Road Interchange and San Marco Boulevard Interchange would be nonstandard.

Overhead electronic and static signs would be installed along the project limits to operate and manage the HOV shoulder running lanes during the hours of operation. The HOV lane would be open to HOV traffic during peak periods or when traffic conditions warrant the additional HOV lane operation. During other times, the HOV lane would be closed to all traffic and would operate as a traditional shoulder.

The shoulder running lanes as proposed in Alternative 2 are not a common design in California and the use of shoulders for other than emergency purposes is prohibited by California statute. As such, implementation of Alternative 2 may require an amendment to existing legislation or would need to move forward as a pilot project or projects.” Pilot projects are included in pilot programs as established by Caltrans or the FHWA. These projects test a new or specific feature to determine the benefits to the highway program. Some examples of such programs are the Value Pricing Pilot Program, Caltrans’ Design/Build Program, buses on shoulders, and quiet pavements. A pilot project will be monitored and analyzed for its performance for a period of time.

The project cost of the part-time HOV lane will include the anticipated costs of the following tasks, which are associated with a pilot project: prepare study to assess "Before" and "After" performance of the pilot project and remedy measures; implement remedy measures as recommended by the study including safety recommendations to mitigate nonstandard design features; install and operate Intelligent Transportation System (ITS) and Active Transportation Management (ATM) elements to create a smart corridor; provide tow truck services to clear the shoulder for use as part-time travel lane; implement an enhanced incident and an emergency response plan to be coordinated among Caltrans, California Highway Patrol (CHP) and fire departments in Contra Costa County; and provide an enhanced maintenance plan as well as enhanced enforcement to be coordinated with CHP.

⁷ Managed lanes are defined by FHWA as highway facilities or a set of lanes where operational strategies are proactively implemented and managed in response to changing conditions. Examples of managed lanes include High-Occupancy Vehicle (HOV) lanes, High-Occupancy Toll (HOT) lanes, express toll lanes, reversible lanes, shoulder running lanes and bus lanes.

Each of the packages would provide benefit to operations of the freeway, and could be implemented independently, depending on available funding. It is anticipated that each package would have logical termini and independent utility. However, this will need to be verified by detailed traffic studies during PA&ED. If any logical termini or independent utility issues arise, or if there is any controversy over the project, an Environmental Impact Report under CEQA and a Complex EA under NEPA may be required. Each package has the potential to move forward under separate environmental review, or as a combination of packages (i.e., Package 2A + Package 2B) that would be environmentally cleared together as one project. **Figure 9** demonstrates potential combinations of Alternative 2 packages. The operational benefits for shoulder running lanes in Alternative 2 would be similar to, but not be identical to, the operations from Alternative 1 because of the reduction in capacity associated with lane shifts and reduced shoulder widths. Additional general purpose lane management equipment and other ICM elements may be included in each package to manage congestion and increase the efficiency of the system. Depending on the performance of Alternative 2, a decision to terminate the pilot project could be made during or at the end of the pilot period. If the pilot project is terminated, demonstrated ineffective, or if no enabling legislation has been enacted, the freeway shall be restored to its original condition as part of the project cost.

Each of the packages would provide benefit to operations of the freeway, and could be implemented independently, depending on available funding. Each package therefore has the potential to move forward under separate environmental review, or as a combination of packages (i.e., Package 2A + Package 2B). The operations results for shoulder running lanes in Alternative 2 would be similar to but not be identical to the operations from Alternative 1 because of the reduction in capacity associated with lane shifts and reduced shoulder widths.

Additional Considerations for Alternative 2

Unlike the packages described in Alternative 1 and 3, special consideration and analysis will be required for Alternative 2 due to the unique requirements for construction and operation of a part-timelane and implementation of a pilot project. It is likely that construction of an initial package (in either the westbound or eastbound direction) from Alternative 2 will necessitate subsequent packages in the respective eastbound or westbound direction to be part-time lane, or Alternative 2, packages. Thus, corridor wide analysis to verify that Alternative 2 is the preferred directional alternative must be made before an initial package from Alternative 2 is implemented.

Eastbound Packages

- **Package 2A** would convert the eastbound inside shoulder to a part-time HOV lane from just east of the SR4 / SR242 Interchange (PM 14.7) to the Willow Pass Road on-ramp (PM 17.2). This package would provide similar operational improvements during the peak period as Packages 1A and 1B of Alternative 1 by adding a new general purpose lane along eastbound SR4 from where the existing eastbound SR4 lane drops at Port Chicago Highway to the existing auxiliary lane between the Willow Pass Road on-ramp and the San Marco Boulevard off-ramp.

The Willow Pass Road bridge structure will be widened by 12 feet. Package 2A would also add an auxiliary lane from the Port Chicago Highway diagonal on-ramp to Willow Pass Road off-ramp by reconstructing the pavement structural section for the existing 20-foot inside median, and widening the bridge structures at the Port Chicago Highway, Kinne Boulevard, and Willow Pass Road by 12 feet, 24 feet, and 12 feet respectively. Package 2A would construct a second exit lane at the eastbound SR4 off ramp to San Marco Boulevard. The existing mainline pavement would be resurfaced with a thin asphalt overlay.

Package 2B would convert the eastbound inside shoulder to a part-time HOV lane from the San Marco Blvd loop on-ramp (PM 18.8) to just west of the Bailey Road Interchange (PM 19.5). This package would achieve similar operational improvements during the peak periods as Package 1C of Alternative 1 by adding an auxiliary lane along eastbound SR4, from the San Marco Boulevard loop on-ramp to the existing deceleration lane at the Bailey Road off-ramp. Package 2B would also extend the general purpose lane from the San Marco Boulevard off-ramp to San Marco Boulevard on-ramp by narrowing the existing 12-foot freeway travel lanes to 11-foot wide lanes. The existing mainline pavement would be resurfaced with a thin asphalt overlay.

- **Package 2C** would convert the eastbound inside shoulder to a part-time HOV lane from the Willow Pass Road on-ramp (PM 17.2) to the San Marco Boulevard off-ramp (PM 18.8). This package would achieve similar operational improvements during the peak periods as Package 1D of Alternative 1 by adding an auxiliary lane along eastbound SR4, from the Willow Pass Road on-ramp to the San Marco Boulevard off-ramp and a general purpose lane at the San Marco Boulevard Interchange. Improvements under this package would be implemented by restriping the lanes from 12-foot to 11-foot wide lanes, reconstructing the inside shoulder pavement structural section, and widening the San Marco Boulevard bridge structure by 10 feet to accommodate traffic. The existing mainline pavement would be resurfaced with a thin asphalt overlay. Additionally, Package 2C would narrow the existing 10-foot outside and 10-foot inside shoulders to 4-foot and 4-foot, respectively, from the SR242 off-ramp (PM 14.4) to the Port Chicago Highway off-ramp (PM 14.5) to accommodate a new general purpose travel lane. This general purpose travel lane would extend the general purpose travel lane from the I-680 on-ramp to the Port Chicago Highway off-ramp. In addition, Package 2C would add an auxiliary lane from the Port Chicago Highway on-ramp to the Willow Pass Road off-ramp by restriping the pavement constructed as part of Package 2A.

A combination of Packages 2A, 2B, and 2C would achieve similar operational improvements during peak period as Packages 1A, 1B, 1C, and 1D of Alternative 1.

Westbound Packages

- **Package 2D** would construct the following improvements at three locations along westbound SR4 and would be identical to Package 1E of Alternative 1:
 - construct a general purpose lane from the Willow Pass Road on-ramp to the existing added mainline lane just east of the Port Chicago Highway off-ramp
 - construct a second exit lane to the Port Chicago Highway off-ramp
 - widen Kinne Boulevard bridge structure by approximately 33 feet to accommodate the added general purpose lane and second exit lane
 - modify one of the mandatory exit lanes to SR242 to an optional exit lane, which would allow three freeway lanes to exit to SR242 and three lanes to continue on westbound SR4

- **Package 2E** would convert the westbound inside shoulder to a part-time HOV lane from the Willow Pass Road off-ramp (PM 17.2) to just west of the Port Chicago Highway Interchange (PM 16.4), where the existing HOV lane ends. Package 2E would extend the second exit lane to the Port Chicago Highway off-ramp to provide an auxiliary lane from Willow Pass Road on-ramp to Port Chicago Highway off-ramp and add a general purpose lane along the westbound SR4, between the Willow Pass Road off-ramp to the Willow Pass Road on-ramp. This alternative would achieve similar operational improvements during the peak periods as Packages 1F of Alternative 1. Improvements under this package would be implemented by narrowing the existing 12-foot freeway travel lanes to 11-foot wide lanes, reconstructing the inside shoulder pavement structural section to accommodate traffic, and widening the bridge structure at Willow Pass Road by 14 feet. The existing mainline pavement would be resurfaced with a thin asphalt overlay.

- **Package 2F** would convert the westbound inside shoulder to a part-time HOV lane from the Bailey Road Interchange (PM 20.3) to the Willow Pass Road off-ramp (PM 17.2). Package 2F would achieve similar operational improvements during the peak periods as Package 1G of Alternative 1 by adding an auxiliary lane along westbound SR4, between the San Marco Boulevard on-ramp to the Willow Pass Road off-ramp. This package would also extend the existing acceleration lane at the Bailey Road on-ramp to the existing auxiliary lane between the San Marco Boulevard on-ramp and the Willow Pass Road off-ramp by narrowing the existing 12-foot freeway travel lanes to 11-foot, reconstructing the inside shoulder pavement structural section to accommodate traffic, and widening the bridge structure at San Marco Boulevard by 14 feet. The existing mainline pavement would be resurfaced with a thin asphalt overlay.

The capital construction cost for this alternative is about \$195 million, including \$145 million for roadway and environmental items, \$26 million for structures and \$1 million for right of way and utilities, and \$23 million for other Pilot Project implementation.

Alternative 3 (HOV/general purpose travel lane): Alternative 3 would convert the inside shoulder lane to an HOV travel lane during the peak traffic periods; generally 5AM to 9AM in the westbound direction, and 3PM to 7PM in the eastbound direction (See **Figure 10**). During the off-peak traffic periods, the HOV lane would remain open to be used as a general purpose travel lane. A 2-foot inside shoulder would be provided.

The footprint of Alternative 3 is similar to Alternative 2 and both are narrower than Alternative 1. However, the Alternative 2 HOV lanes start approximately 3,000 feet before the Alternative 3 HOV lanes in each direction, and the Alternative 3 HOV lanes would be a permanent lane addition, unlike the Alternative 2 HOV inside shoulder running lanes that would only be active for HOV use during peak periods, but would otherwise be closed to traffic and be a traditional shoulder. Under Alternative 3, freeway pavement widening of 24 feet would be required to accommodate a mixed flow lane and an auxiliary lane only in the westbound direction, from the Port Chicago Highway Interchange to Willow Pass Road Interchange. Some bridge structure widening of up to 24 feet would also occur under Alternative 3.

Each of the packages would have some benefit to the operations of the freeway, and could be implemented independently, depending on available funding. It is anticipated that each package would have logical termini and independent utility. Therefore, each package has the potential to move forward as a separate project with its own environmental review, or as a combination of packages (i.e., Package 3A + Package 3B) that would be environmentally cleared together as one project. **Figure 11** demonstrates potential combinations of Alternative 3 packages. Additional general purpose lane management equipment and other ICM elements may be added to each package to better manage the congestion and increase the efficiency of the system.

Eastbound Packages

- **Package 3A** would convert the existing eastbound inside shoulder to an HOV/general purpose travel lane from Port Chicago Highway Interchange (PM 15.4) to the Willow Pass Road off-ramp (PM 16.6). This package would provide similar operational improvements during peak periods as Package 1A of Alternative 1 by adding a new general purpose lane along the eastbound SR4 from where the existing eastbound SR4 lane drops at Port Chicago Highway to the Willow Pass Road off-ramp, where it would be a mandatory exit lane. Additionally, Package 3A would add an auxiliary lane from the Port Chicago Highway diagonal on-ramp to the Willow Pass Road off-ramp. The improvements can be implemented by reconstructing the pavement structural

section for the existing 20-foot inside median and widening the structures at the Kinne Boulevard bridge structure by 24 feet. Package 3A would also construct a second exit lane at the eastbound SR4 off-ramp to the San Marco Boulevard off-ramp. The existing mainline pavement would be resurfaced with a thin asphalt overlay.

- **Package 3B** would convert the existing eastbound inside shoulder to an HOV/general purpose travel lane with a 2-foot shoulder from the eastbound Willow Pass Road off-ramp (PM 16.6) to the eastbound Willow Pass Road on-ramp (PM 17.2). This package would achieve similar operational improvements as Package 1B of Alternative 1 by adding a new general purpose lane from Willow Pass Road off-ramp to Willow Pass Road on-ramp. This improvement would be implemented by narrowing the existing lanes from 12-foot to 11-foot wide lanes via restriping and widening the bridge structure at the Willow Pass Road bridge structure by 12 feet. The existing mainline pavement would be resurfaced with a thin asphalt overlay.
- **Package 3C** would convert the existing eastbound inside shoulder to an HOV/general purpose travel lane with a 2-foot shoulder from the San Marco Boulevard loop on-ramp (PM 18.5) to just west of Bailey Road off-ramp (PM 19.6). This package would achieve similar operational improvements as Package 1C of Alternative 1 by adding an auxiliary lane from the San Marco Boulevard loop on ramp to the existing deceleration lane to Bailey Road off-ramp by restriping the lanes from 12-foot to 11-foot wide lanes, reconstructing the inside shoulder pavement structural section to accommodate traffic, and widening the San Marco Boulevard bridge structure by 10 feet.
- **Package 3D** would convert the existing eastbound inside shoulder to an HOV/general purpose travel lane with a 2-foot shoulder, from the Willow Pass Road on-ramp (PM 17.2) to the San Marco Boulevard loop on-ramp (PM 18.5). This package would achieve similar operational improvements during the peak periods as Package 1D of Alternative 1, by adding an auxiliary lane from the Willow Pass Road on-ramp to the San Marco Boulevard off-ramp, a general purpose lane from the San Marco Boulevard off-ramp to the San Marco Boulevard loop on-ramp by restriping the lanes from 12-foot to 11-foot wide lanes and reconstructing the inside shoulder pavement structural section to accommodate traffic. The existing mainline pavement would require having a surface treatment, which the project assumes as a thin asphalt overlay section. Package 3D would also narrow the existing 10-foot outside and 10-foot inside shoulders to 4 feet and 4 feet, respectively, from the SR242 off-ramp (PM 14.4) to the Port Chicago Highway off-ramp (PM 14.5) to accommodate a new general

purpose travel lane. This general purpose travel lane would extend the general purpose travel lane from the I-680 on-ramp to the Port Chicago Highway off-ramp. In addition, Package 3D would add an auxiliary lane from the Port Chicago Highway on-ramp to the Willow Pass Road off-ramp by restripe the pavement constructed as part of Package 3A.

A combination of Packages 3A, 3B, 3C and 3D would achieve similar operational improvements during peak period as Packages 1A, 1B, 1C, and 1D of Alternative 1.

Westbound Packages

- **Package 3E** would construct the following improvements at three locations along westbound SR4:
 - construct a general purpose lane from the Willow Pass Road on-ramp (PM 16.4) to the existing added mainline lane just east of the Port Chicago Highway off-ramp (PM 15.6)
 - construct a second exit lane to the Port Chicago Highway off-ramp,
 - modify one of the mandatory exit lanes to SR242 to an optional exit lane (PM 15.3) which would allow three freeway lanes to exit to SR242 and three lanes to continue on westbound SR4
- **Package 3F** would convert the existing westbound inside shoulder to an HOV/general purpose travel lane from the Willow Pass Road off-ramp (PM 17.2) to just east of the Port Chicago Highway Interchange (PM 16.1), where the existing HOV ends. Package 3E would extend the second exit lane to the Port Chicago Highway off-ramp to provide an auxiliary lane from Willow Pass Road on-ramp to Port Chicago Highway off-ramp. This package would achieve similar operational improvements during the peak periods as Package 1F of Alternative 1 by restriping the lanes from 12-foot to 11-foot wide lanes, reconstructing the inside shoulder pavement structural section to accommodate traffic, and widening the structure at the Willow Pass Road bridge structure by 14 feet. The existing mainline pavement would require having a surface treatment, which the project assumes as a thin asphalt overlay section.
- **Package 3G** would convert the existing westbound inside shoulder to an HOV lane with a 2-foot shoulder from just west of Bailey Road Interchange (PM 19.6) to the Willow Pass Road off-ramp (PM 17.2). This package would achieve similar operational improvements during the peak periods as Packages 1G of Alternative 1 by restriping the lanes from 12-foot to 11-foot wide lanes,

reconstructing the inside shoulder pavement structural section to accommodate traffic. The existing mainline pavement would require having a surface treatment, which the project assumes as a thin asphalt overlay section.

A combination of Packages 3E, 3F, and 3G would achieve similar operational improvements as Packages 1E, 1F, and 1G of Alternative 1.

The capital construction cost for this alternative is about \$145 million, including \$119 million for roadway and environmental items, \$25 million for structures and \$1 million for right of way and utilities.

Mainline Alternative Packages Comparison

As discussed above, a corridor wide analysis would be necessary prior to selecting a package from Alternative 2 in order to verify that Alternative 2 is the preferred directional alternative. Alternatives 1 and 3 would not require a corridor analysis since the construction of an initial package from Alternative 1 or 3 will not preclude selection of subsequent packages from Alternatives 1, 2 or 3. Packages from different Alternatives may be combined to achieve the desired operational improvements where different constraints along the corridor favor one Alternative above another. For example, in certain areas widening may be problematic and obtaining design exceptions to narrow lanes and the inside shoulder is reasonable, whereas elsewhere, the packages with traditional outside widening maybe implementable and selected. An example illustrates how packages from different alternatives can be combined is described as following. In the WB direction, it is possible that the improvements between Port Chicago Highway and Willow Pass Road could be constructed with standard shoulders and that packages 1E and 1F would proceed as initial projects. Following those improvements, it is possible that a determination would be made that the widening required over Willow Pass was not feasible or reasonable. Thus the design exceptions necessary to construct packages 2F or 3G would be granted to allow one of those two packages to be constructed, which would provide the remainder of the operational improvements required.

There are numerous scenarios under which different packages from the various alternatives could be combined to provide corridor wide operational improvement. **Tables 1** and **2** below summarize the relationship, location and operational improvements provided by various packages from Alternatives 1, 2 and 3.

Table 1- SR4 Eastbound Improvements

Location	Operational Improvements	How Operational Improvements are Provided by Package					
		Alternative 1 - Traditional Outside Widening		Alternative 2 - Inside Shoulder Running HOV Lane		Alternative 3 - Inside Shoulder Reconstruction and Restriping	
Between Port Chicago Highway I/C and Willow Pass Road I/C	Extend the existing general purpose lane where the existing eastbound SR4 lane drops at Port Chicago Highway. The lane extension would end at a mandatory exit to the Willow Pass Road off-ramp.	Package 1A	Widen SR4 by 12' (from PM 15.5 to PM 16.7), reconstruct the 10' outside shoulder pavement section, and widen the Kinne Blvd UC by 14'.	Package 2A	Widen SR4 by 14' (from PM 14.7 to PM 15.1) inside the median, reconstruct 20' of inside shoulder and median pavement section (from PM 15.1 to PM 16.7) and widen the Kinne UC by 24'	Package 3A	Reconstruct 20' of inside shoulder and median pavement section (from PM 15.4 to PM 16.7) and widen the Kinne UC by 24'
	Add an auxiliary lane between the Port Chicago Highway on-ramp and the Willow Pass Road off-ramp.	Package 1D	Widen SR4 by 12' (from PM 15.9 to PM 16.7), reconstruct the 10' outside shoulder pavement section, and widen the Kinne Blvd UC by 14'.	Package 2C(*)	Restripe	Package 3D(**)	Restripe
At Willow Pass Road I/C	Add a new general purpose lane along eastbound SR4, between the Willow Pass Road off-ramp and the Willow Pass Road on-ramp. (The new general purpose lane would eliminate the mandatory exit at the Willow Pass Road off-ramp from Package 1A, and would connect to the existing auxiliary lane between the Willow Pass Road on-ramp and the San Marco Boulevard off-ramp.)	Package 1B	Widen SR4 by 12', reconstruct the 10' outside shoulder pavement section, and widen the Willow Pass Road UC by 14'.	Package 2A	Reconstruct 10' inside shoulder pavement section, widen Willow Pass Road UC by 12', and restripe the existing 12' lanes to 11' to 12' lanes.	Package 3B	Reconstruct 10' inside shoulder pavement section, widen Willow Pass Road UC by 12', and restripe the existing 12' lanes to 11' to 12' lanes.
Between Willow Pass Road I/C and San Marco	Add a second exit lane at the eastbound SR4 off-ramp to San Marco Boulevard	Package 1B	Widen SR4 by 12' and reconstruct the 10' outside shoulder pavement section	Package 2A	Widen SR4 by 12' and reconstruct the 10' outside shoulder pavement section	Package 3B	Widen SR4 by 12' and reconstruct the 10' outside shoulder pavement section

Table 1- SR4 Eastbound Improvements

Location	Operational Improvements	How Operational Improvements are Provided by Package					
		Alternative 1 - Traditional Outside Widening		Alternative 2 - Inside Shoulder Running HOV Lane		Alternative 3 - Inside Shoulder Reconstruction and Restriping	
Blvd I/C	Add an auxiliary lane between the Willow Pass Road on-ramp and the San Marco Boulevard off-ramp	Package 1D	Widen SR4 by 12' and reconstruct the 10' outside shoulder pavement section	Package 2C	Reconstruct the 10' inside shoulder pavement section, and restripe the existing 12' lanes to 11' to 12' lanes	Package 3D	Reconstruct the 10' inside shoulder pavement section, and restripe the existing 12' lanes to 11' to 12' lanes
At San Marco Blvd I/C	Add a general purpose lane from the San Marco Boulevard off-ramp to San Marco Boulevard on-ramp.	Package 1D	Widen SR4 by 12', reconstruct the 10' outside shoulder pavement section, and widen the San Marco Blvd UC by 16'	Package 2C	Reconstruct the 10' inside shoulder pavement section, and restripe the existing 12' lanes to 11' to 12' lanes	Package 3D	Reconstruct the 10' inside shoulder pavement section, and restripe the existing 12' lanes to 11' to 12' lanes
Between San Marco Blvd I/C and Bailey Road I/C	Add an auxiliary lane along eastbound SR4, from the San Marco Boulevard loop on-ramp to the existing deceleration lane at the Bailey Road off-ramp.	Package 1C	Widen SR4 by 12' and reconstruct the 10' outside shoulder pavement section	Package 2B	Reconstruct 10' inside shoulder pavement section, widen San Marco Blvd UC by 10', and restripe the existing 12' lanes to 11' to 12' lanes.	Package 3C	Reconstruct 10' inside shoulder pavement section, widen San Marco Blvd UC by 10', and restripe the existing 12' lanes to 11' to 12' lanes.
From SR 242 off-ramp to Port Chicago Highway off-ramp	Extend the general purpose lane from the I-680 on-ramp to the Port Chicago Highway off-ramp.	Package 1D	Widen SR4 by 12' and reconstruct the 10' outside shoulder pavement section	Package 2C	Narrow the existing 10-foot outside and 10-foot inside shoulders to 4 feet and 4 feet, respectively	Package 3D	Narrow the existing 10-foot outside and 10-foot inside shoulders to 4 feet and 4 feet, respectively

(*) Constructability necessitates full widening to the inside as part of Package 2A; therefore, the auxiliary lane from Port Chicago Highway on-ramp to Willow Pass Road off-ramp may be striped at no additional cost as part of Package 2C.

(**) Constructability necessitates full widening to the inside as part of Package 3A; therefore, the auxiliary lane from Port Chicago Highway on-ramp to Willow Pass Road off-ramp may be striped at no additional cost as part of Package 3D

Table 2- SR4 Westbound Improvements

Location	Operational Improvements	How Operational Improvements are Provided by Package					
		Alternative 1 - Traditional Outside Widening		Alternative 2 - Inside Shoulder Running HOV Lane		Alternative 3 - Inside Shoulder Reconstruction and Restriping	
		Package		Package		Package	
At SR242/SR4 I/C	Modify one of the mandatory exit lanes to SR242 to an optional exit lane, which would allow three freeway lanes to exit to SR242 and three lanes to continue on westbound SR4.	Package 1E	Reconstruct the 10' outside shoulder and gore area, and restripe.	Package 2D	Reconstruct the 10' outside shoulder and gore area, and restripe.	Package 3E	Reconstruct the 10' outside shoulder and gore area, and restripe.
Between Port Chicago Highway I/C and Willow Pass Road I/C	Add a general purpose lane from the Willow Pass Road on-ramp to the existing added mainline lane just east of the Port Chicago Highway off-ramp.	Package 1E	Widen SR4 by 22', reconstruct the 10' outside shoulder pavement section, and widen Kinne Blvd UC by 33'.	Package 2D	Widen SR4 by 22', reconstruct the 10' outside shoulder pavement section, and widen Kinne Blvd UC by 33'.	Package 3E	Widen SR4 by 22', reconstruct the 10' outside shoulder pavement section, and widen Kinne Blvd UC by 33'.
	Construct a second exit lane at the Port Chicago Highway off-ramp.	Package 1E	Widen SR4 by 22', reconstruct the 10' outside shoulder pavement section, and widen Kinne Blvd UC by 33'.	Package 2D	Widen SR4 by 22', reconstruct the 10' outside shoulder pavement section, and widen Kinne Blvd UC by 33'.	Package 3E	Widen SR4 by 22', reconstruct the 10' outside shoulder pavement section, and widen Kinne Blvd UC by 33'.
	Construct an auxiliary lane from the Willow Pass Road on-ramp to the second exit lane to Port Chicago Highway.	Package 1F	Widen SR4 by 12'	Package 2E	Widen SR4 by 12'	Package 3F	Widen SR4 by 12'
At Willow Pass Road I/C	Add a general purpose lane along westbound SR4, between the Willow Pass Road off-ramp and the Willow Pass Road on-ramp.	Package 1F	Widen SR4 by 12', reconstruct the 10' outside shoulder pavement section, and widen the Willow Pass Road UC by 14'.	Package 2E	Reconstruct 10' inside shoulder pavement section, widen the Willow Pass Road UC by 14', and restripe the existing 12' lanes to 11' to 12' lanes.	Package 3F	Reconstruct 10' inside shoulder pavement section, widen the Willow Pass Road UC by 14', and restripe the existing 12' lanes to 11' to 12' lanes.

Table 2- SR4 Westbound Improvements

Location	Operational Improvements	How Operational Improvements are Provided by Package					
		Alternative 1 - Traditional Outside Widening		Alternative 2 - Inside Shoulder Running HOV Lane		Alternative 3 - Inside Shoulder Reconstruction and Restriping	
Between Willow Pass Road I/C and San Marco Blvd I/C	Add an auxiliary lane between the San Marco Boulevard on-ramp to the Willow Pass Road off-ramp.	Package 1G	Widen SR4 by 12' and reconstruct the 10' outside shoulder pavement section.	Package 2F	Reconstruct 10' inside shoulder pavement section and restripe the existing 12' lanes to 11' to 12' lanes.	Package 3G	Reconstruct 10' inside shoulder pavement section and restripe the existing 12' lanes to 11' to 12' lanes.
At San Marco Blvd I/C and Between San Marco Blvd I/C and Bailey Road I/C	Extend the existing acceleration lane at the Bailey Road on-ramp to the existing auxiliary lane between the San Marco Boulevard on-ramp and the Willow Pass Road off-ramp.	Package 1G	Widen SR4 by 12', reconstruct the 10' outside shoulder pavement section, and widen the San Marco Blvd UC by 10'.	Package 2F	Reconstruct 10' inside shoulder pavement section and restripe the existing 12' lanes to 11' to 12' lanes (from PM 17.2 to PM 20.2).	Package 3G	Reconstruct 10' inside shoulder pavement section and restripe the existing 12' lanes to 11' to 12' lanes (from PM 17.2 to PM 19.6).

Alternatives Considered but Eliminated From Further Discussion:

Three additional build alternatives were considered during the preliminary geometric development of the project, but eliminated. These alternatives were considered feasible, but eliminated from further study due to other reasons described below. The determination to eliminate alternatives is based on an alternatives screening methodology, which includes verification that alternatives are consistent with the project purpose and need statement; completion of a traffic operational assessment; preliminary review with Caltrans geometricians; a preliminary environmental constraints review; and evaluation of conceptual construction cost estimates relative to the operational benefits of each alternative. The three alternatives considered but eliminated include:

Eliminated Alternative 1: This alternative would construct an additional HOV lane along eastbound SR4, from just east of the SR4/SR242 Interchange and auxiliary lanes, as envisioned in the improvements listed on the SR4 Corridor System Management Plan (CSMP) and SR4 Integrated Corridor Analysis (ICA). It also included adding a mixed flow lane and an auxiliary lane along westbound SR4. Traffic models indicate that the HOV lane would operate over capacity near the SR242 Interchange. As such, this alternative was eliminated due to insufficient traffic operations benefits.

Eliminated Alternative 2: This alternative would construct a Collector Distributor (C-D) system along eastbound and westbound SR4, between the SR242/SR4 interchange and the Willow Pass Road interchange. While this alternative would have the same relative operational benefits as Build Alternative 1 (maximum footprint alternative), the conceptual construction cost estimate is \$180 million higher than the conceptual construction cost estimate of any of the current Build Alternatives. Additionally, this eliminated C-D alternative would have a larger project footprint than any of the current Build Alternatives; and as such would have greater environmental impacts than any of the Build Alternatives. Given the high conceptual construction cost estimate, increased environmental impacts, and the same relative benefits, this C-D alternative was eliminated from further consideration.

Eliminated Alternative 3: This alternative would construct some widening as well as allowing the outside shoulders of SR4 to be used as travel lanes during peak periods (shoulder-running lanes). The westbound shoulder-running travel lane would operate during the morning peak commute period (generally 5AM to 9AM). The new eastbound shoulder running travel lane would operate during the evening peak commute period (3PM to 7PM). Electronic and static signs would be installed along the project limits to operate and manage the shoulder-running lanes during the hours of operations. This alternative was eliminated due to a higher conceptual construction cost estimate with pavement widening required; but similar relative operational benefits as Alternative 2 and 3 under the alternatives still being considered.

Eastbound Packages

- **Eliminated Package 3A** would add a general purpose lane with the same limits as described in Package 1A of Alternative 1. However, the added lane would operate on widened pavement and the shoulder during evening peak commute period. The pavement would widen up to 22 feet at the ramp converging and diverging points. The shoulder would be reconstructed and widened by 4 feet from PM 15.9 to PM 16.4.
- **Eliminated Package 3B** would add a new general purpose lane along eastbound SR4; between the Willow Pass Road off-ramp and the Willow Pass Road on-ramp. The new general purpose lane would serve the same purpose as described in Package 1B of Alternative 1. It would operate on widened pavement and the reconstructed 14-foot shoulder during evening peak commute period. The new general purpose lane would operate in the shoulder from PM 16.8 to PM 17.1. This package would also construct a second exit lane at the eastbound SR4 off-ramp to San Marco Boulevard. The pavement would widen by 22 feet at the second exit lane to San Marco Boulevard.
- **Eliminated Package 3C** would add an auxiliary lane along eastbound SR4, from the San Marco Boulevard loop on-ramp to the existing deceleration lane at the Bailey Road off-ramp. The added auxiliary lane would operate on widened pavement and the shoulder) during the evening peak commute period. The pavement would widen up to 22 feet at the ramp converging and diverging points. The shoulder would be reconstructed and widened by 4 feet from PM 19.2 to PM 19.6.
- **Eliminated Package 3D** would construct the following improvements at four different locations along eastbound SR4:
 - extend the general purpose lane from the I-680 on-ramp to the Port Chicago Highway off-ramp.
 - add an auxiliary lane between the Port Chicago Highway on-ramp and the Willow Pass Road off-ramp. The auxiliary lane would operate on widened pavement and the shoulder during evening peak commute period. The pavement would widen by 12 feet at the ramp converging and diverging points. The shoulder would be reconstructed and widened by 4 feet from PM 15.9 to PM 16.4.
 - add an auxiliary lane between the Willow Pass Road on-ramp and the San Marco Boulevard off-ramp. The auxiliary lane would operate on widened pavement and the shoulder during evening peak commute period. The pavement would widen up to 22 feet at the ramp converging and diverging points. The shoulder would be reconstructed and widened by 4 feet from PM 17.5 to PM 18.3. construct a general purpose lane from the San Marco Boulevard off-ramp to San Marco Boulevard on-ramp.

Westbound Packages

- **Eliminated Package 3E** would construct the following improvements at three locations along westbound SR4:
 - add a general purpose lane from the Willow Pass Road on-ramp to the existing added mainline lane just east of the Port Chicago Highway off-ramp.
 - construct a second exit lane at the Port Chicago Highway off-ramp.
 - modify one of the mandatory exit lanes to SR242 to an optional exit lane, which would allow three freeway lanes to exit to SR242 and three lanes to continue on westbound SR4.

- **Eliminated Package 3F** would add a general purpose lane along westbound SR4; between the Willow Pass Road off-ramp and the Willow Pass Road on-ramp. The added lane would operate on widened pavement and the shoulder during morning peak commute period. This package would also construct an auxiliary lane from the Willow Pass Road on-ramp to the second exit lane to Port Chicago Highway. The added auxiliary lane would operate on pavement widened and the shoulder during morning peak commute period. The shoulder would be reconstructed and widened by 4 feet from PM 16.7 to PM 17.1 and from PM 15.9 to PM 16.3. Elsewhere, the pavement would be widened up to 22 feet.

- **Eliminated Package 3G** would add an auxiliary lane along westbound SR 4, between the San Marco Boulevard on-ramp to the Willow Pass Road off-ramp. The added auxiliary lane would operate on widened pavement and the shoulder during morning peak commute period. This package would also extend the existing acceleration lane at the Bailey Road on-ramp to the existing auxiliary lane between the San Marco Boulevard on-ramp and the Willow Pass Road off-ramp. This lane would operate on widened pavement and the shoulder during morning peak commute period. The shoulder would be reconstructed and widened by 4 feet from PM 17.4 to PM 18.2 and from PM 18.8 to PM 19.6. Elsewhere, the pavement would be widened up to 22 feet.

3. Anticipated Environmental Approval

Check the anticipated environmental determination or document for the proposed project in the table below.

CEQA		NEPA	
Environmental Determination			
Statutory Exemption	<input type="checkbox"/>		
Categorical Exemption	<input type="checkbox"/>	Categorical Exclusion	<input type="checkbox"/>
Environmental Document			
Initial Study or Focused Initial Study with proposed Negative Declaration (ND) or Mitigated ND	<input checked="" type="checkbox"/>	Routine Environmental Assessment with proposed Finding of No Significant Impact	<input checked="" type="checkbox"/>
		Complex Environmental Assessment with proposed Finding of No Significant Impact	<input type="checkbox"/>
Environmental Impact Report	<input type="checkbox"/>	Environmental Impact Statement	<input type="checkbox"/>
CEQA Lead Agency (if determined):	Caltrans		
Estimated length of time (months) to obtain environmental approval for each individual PA&ED:	18		
Estimated person hours to complete identified tasks for each individual PA&ED:	2,301		

4. Special Environmental Considerations

The project alternatives have the potential to impact sensitive environmental resources within the environmental study area, as described in **Section 8**.

Certain interchange improvements and packages of the alternatives include highway widening and interchange reconfiguration along the SR4 corridor. Interchange improvements that propose construction outside of the existing state right-of-way may require acquisition of private and government properties along the project limits. Effects to nearby biological and cultural resources such as special-status wildlife species and associated habitat; wetlands and waters of the U.S.; and recorded/unrecorded paleontological, Native American, archaeological and historic architectural resources would be determined as the various project interchange improvements and packages move forward, independently or combined, into the PA&ED phase for complete environmental review. The following federal and state consultation and certification processes would be required for the project:

- Section 106 of the National Historic Preservation Act (NHPA): The project would need to fulfill Section 106 requirements to assess the potential to adversely affect cultural resources. In addition, if NRHP eligible built resources are impacted by the interchange improvements and packages of the Build Alternatives, a Section 4(f) evaluation will be required.
- Consultation and coordination with Native American tribal representatives would occur during the preparation of the CEQA/NEPA document, pursuant to AB 52 and Section 106 of the NHPA.
- Sections 401 and 404 of the Federal Clean Water Act (CWA): The Build Alternatives would require construction over Mt. Diablo Creek. This would require coordination for CWA Section 401 Certification and CWA Section 404 Permit if impacts to wetlands or waters of the U.S. are identified.
- Section 1602 of the California Fish and Game Code: The Build Alternatives would require coordination with the California Department of Fish and Wildlife (CDFW) should the projects substantially divert, obstruct, or change the natural flow of a river, stream, or lake; substantially change the bed, channel, or bank of a river, stream, or lake; or use material from a streambed.
- Section 7 of the Federal Endangered Species Act (FESA): The Build Alternatives would require Section 7 interagency consultation to ensure compliance with the FESA.
- California Endangered Species Act (CESA): The Build Alternatives would require an incidental take permit (ITP) from the CDFW, should impacts to state-listed species be identified.
- Section 4(f) of the Department of Transportation Act (49 U.S.C 303): Interchange improvements at Willow Pass Road and Package 1G include highway widening and interchange reconfigurations within 30 feet of the Delta de Anza Regional Trail. The interchange improvements would require work outside of the state right-of-way and the interchange improvements and package 1G would require trail realignment. This trail is considered a Section 4(f) resource under the Department of Transportation Act (49 U.S.C 303) and would need to be evaluated for potential direct and indirect effects of the project. While the project may affect 4(f) resources, these effects do not appear significant or of the magnitude that would require an Individual 4(f) determination.

5. Anticipated Environmental Commitments

- 5.1 **Land Use:** Because no major conflicts with existing or planned land uses are anticipated, a qualitative discussion of the project's consistency with local plans and policies would be included in the Community Impact Assessment (CIA) (see **Item 5.4** below).

The Diablo Creek Golf Course and Delta de Anza Regional Trail are both eligible for protection under Section 4(f) and located within 0.10 miles of the project limits. None of the Build Alternatives are anticipated to result in temporary or permanent use of the Diablo Creek Golf Course. However, all interchange improvement options to Willow Pass Road and Package 1G, are anticipated to result in direct or indirect impacts to the Delta de Anza Regional Trail. As such, the provisions of Section 4(f) for recreational resources are expected to be triggered and a Section 4(f) evaluation will be required. While the project may affect 4(f) resources, these effects do not appear significant or of the magnitude that would require an Individual 4(f) determination. The cost for the preparation of the Section 4(f) evaluation is expected to be \$5,000.

- 5.2 **Growth:** The interchange improvements common to all of the Build Alternatives, and the part-time HOV lane under Alternative 2, are freeway operational improvements that would not increase the capacity of SR4 or create new access to the local communities; and are not expected to induce growth. Under Alternatives 1, 2, and 3, packages that include new general purpose lanes would increase the capacity of SR4, which may directly increase growth in this region.

In 2006, Caltrans, in conjunction with the FHWA and the United States Environmental Protection Agency (U.S. EPA), developed a guidance document entitled *Guidance for Preparers of Growth-Related, Indirect Impact Analyses*. The guidance focuses on the influence that transportation projects may have on growth and development. Since different transportation projects will influence growth in different ways, the guidance adopts a two-phase approach to the evaluation of growth-related impacts. The first phase, called “first cut screening,” is designed to help the environmental planner determine if there is potential for growth-related effects and whether further analysis is necessary. If the first-cut screening for a project package or interchange improvement results in a determination that further analysis is required, then the growth analysis follows a six-step evaluation process that would be documented in the CIA (see **Item 5.4** below).

- 5.3 **Farmlands/Timberlands:** There are no farmlands or timberlands surrounding the SR4 corridor, within the project limits. No formal farmlands or timberland impact analysis is needed.
- 5.4 **Community Impacts:** Certain interchange improvements and packages include highway widening and interchange reconfiguration along the SR4 corridor. The packages in Alternatives 1, 2 and 3 and the HOV direct connect ramp would all occur entirely within the existing state right-of-way. The interchange improvements at Willow Pass Road Interchange, Port Chicago Highway Interchange, and San Marco Interchange would each have right-of-way requirements. Out of the three options for a Willow Pass Road Interchange improvement, the partial cloverleaf would require the most work outside of right-of-way, while the diverging diamond and hook interchange options would require less. Improvements that propose construction outside of the existing state right-of-

way may require acquisition of private and government properties along the project limits. However, no relocations would be necessary as a result of any right-of-way acquisitions. Project interchange improvements that require the acquisition of property outside of the state right-of-way will require the preparation of a CIA. The cost for the preparation of the CIA is expected to be \$5,000-\$10,000.

- 5.5 **Visual/Aesthetics:** The project limits are not located within a designated state scenic highway. However, views of rolling, grassy hills and views of the Suisun Bay are considered scenic resources to the local communities surrounding the project limits. Project interchange improvements and packages that require highway widening could move traffic closer to noise sensitive receptors, such as homes. These interchange improvements and packages may be required to build sound walls, which could impede views to and from the freeway corridor. The project is likely to increase the dominance of the freeway corridor, without degrading the visual quality of the area.

To reduce the visual impact of any new soundwalls or retaining walls, aesthetic treatments consisting of color, texture and/or patterning will be applied to reduce visual impacts. The aesthetic treatment would be context sensitive to the location and be compatible with existing walls in the project area.

SR4, within the project limits, is listed as a Classified Landscaped Freeway between PM14.0/15.07 and PM19.91/20.51. The quantity of roadside vegetation that would ultimately be removed by the project will be determined during final project design and serve as the basis for determining the amount of replacement planting to be provided by the project. Replacement planting/landscaping would be designed in accordance with Caltrans requirements during the final design phases and would be approved by Caltrans.

Alternative 2 would have the most potential for changes to the character of the area due to the required dynamic and static signage that would operate the part-time HOV shoulder-running travel lanes. Alternatives 1 and 3 would have a lower potential than Alternative 2 for changes to the visual character. To fully assess impacts to all potentially affected viewer groups (drivers, users of nearby park and open space resources, and people living near the study area), a moderate level Visual Impact Assessment (VIA) would be required for the majority of the project interchange improvements and packages. Some of the smaller packages under the Build Alternatives may only require visual impact memos. The cost to prepare a VIA is expected to be \$10,000-\$15,000; the cost to prepare a visual impact memo is expected to be \$5,000.

- 5.6 **Cultural Resources:** The entire project area has a high potential for discovering unrecorded archaeological resources. A literature review, field survey, and consultation with Native Americans (pursuant to AB 52 and Section 106 of the NHPA) would be appropriate next steps to identify and address both potential archaeological and historic architectural resources for any interchange improvement

or package of the project that would be constructed in an area not previously disturbed by the construction of the existing freeway infrastructure. If it is determined during the cultural resources compliance process that there is a high potential for Native American cultural resources to be discovered within the environmental study area, a finding of effect document would be prepared and concurred upon by the State Historic Preservation Office (SHPO). Caltrans emphasizes thorough identification efforts; however, monitoring for Native American artifacts during construction may be a requirement of the findings of effect documentation. The resolution of adverse effects to identified cultural resources, if applicable, would be determined during the PA&ED phase.

Interchange improvements common to the Build Alternatives; and the freeway widening under certain packages of Alternative 1, have the greatest potential for impacts to cultural resources. For the majority of the interchange improvements and packages under Alternative 1, 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 (HSPR), with appropriate findings of effects. The estimated costs to prepare the cultural resources technical studies are approximately \$35,000-\$45,000.

Alternatives 2 and 3 have the smallest physical footprint, and would be less likely to impact cultural resources. Alternatives 2 and 3, as well as some of the smaller packages under Alternative 1, may not require extensive cultural review.

- 5.7 **Hydrology and Floodplain:** The majority of interchange improvements and certain packages under the Build Alternatives would include improvements over creek crossings. For these interchange improvements or packages of the project, a Location Hydraulic Study (LHS) would be prepared to fully understand the hydraulic impacts to existing floodplains. If, based on the results of the LHS, either: 1) a significant encroachment on a floodplain, 2) an inconsistency with existing watershed and floodplain management programs, or 3) uncertainty as to what impacts would occur exists, then a Floodplain Evaluation Report must be prepared. If no encroachment or impacts to the floodplain will occur, then a Summary Floodplain Encroachment Report will be prepared. The estimated cost to prepare the LHS with and without the floodplain reports is estimated to range between \$10,000 and \$18,000.
- 5.8 **Water Quality and Storm Water Runoff:** The primary water quality issues related to the project are sedimentation and erosion caused by construction and potential impacts to the nearby waterways and creek crossings. To address construction related sedimentation and erosion, a water quality technical report that will analyze potential impacts, recommended engineering controls, and BMPs to reduce or avoid water quality impacts should be developed. The cost to prepare this technical report is estimated to be \$10,000.

- 5.9 **Geology, Soils, Seismic and Topography:** The risks associated with the local geology and seismic conditions are applicable to all of the interchange improvements and packages 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. The cost to prepare this technical report is estimated to be \$10,000.
- 5.10 **Paleontology:** Much of the project limits are underlain by geological deposits that have a high potential for containing significant paleontological resources. It is assumed that deep excavations of over 10 feet risk disturbing these highly sensitive sediment deposits. A Paleontological Evaluation Report (PER) should be prepared for any interchange improvement or packages of the project that would be constructed in areas not previously disturbed by the construction of the existing freeway infrastructure, or with deeper excavation depths (i.e., bridge and ramp structures). Interchange improvements common to the Build Alternatives; and the freeway widening under certain packages of Alternative 1, have the greatest potential for impacts to paleontological resources. Alternatives 2 and 3 have the smallest physical footprint, and would be less likely to impact paleontological resources. Alternatives 2 and 3, as well as some of the smaller packages under Alternative 1, may not require extensive paleontological review. The estimated cost to prepare a PER is \$6,000. On-site paleontological monitoring may be necessary during construction activities at certain areas of the project corridor; the cost for construction monitoring could range between \$5,000-\$10,000, depending on the duration of monitoring required.
- 5.11 **Hazardous Waste/Materials:** As all interchange improvements and packages of the project would be constructed in close proximity to existing freeway lanes, an investigation for heavy metals/aerially deposited lead along with an Initial Site Assessment (ISA) are recommended. Preliminary Site Investigations (PSIs) would be needed for ground disturbance where known hazardous material release sites exist. The interchange improvements common to all Build Alternatives; and the freeway widening associated with certain Alternatives 1, 2, and 3 packages; would have the highest potential for encountering contaminated soil/groundwater from known release sites along the project limits. The shoulder-running lane under Alternatives 2 and 3 would have the least amount of potential for encountering hazards. Costs associated with the preparation of the ISA is estimated to be \$10,000. Costs for sampling, cleanup, and removal of contaminated soils would be determined during the detailed design of the project alternatives.
- 5.12 **Air Quality:** All project interchange improvements and packages have potential to result in modifications in traffic patterns, and would require the preparation of an Air Quality Study to evaluate potential air quality impacts both in the near term and over the project planning horizon. The estimated cost to prepare this technical report is \$10,000.

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 PM₁₀ nonattainment and maintenance areas (71 FR 12468). The federal PM₁₀ standards have been met in the SF Bay Area, and therefore the project would not be subject to hot spot analysis for PM₁₀ 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 each interchange improvement and package moving forward under independent environmental review, and take action to conclude whether or not the improvements are Projects of Air Quality Concern (POAQC). The estimated cost to prepare the materials needed for the POAQC determination is \$5,000.

5.13 Noise and Vibration: Certain interchange improvements and packages would require construction of new infrastructure associated with SR4 that could change existing noise patterns and adversely affect both existing and planned sensitive receptors in the vicinity of the project limits, such as the residential development along the project limits. For example, traffic could be shifted closer to adjacent residents, thus increasing the ambient noise environment in those areas. The interchange improvements common to the Build Alternatives, as well as the packages under Alternatives 1 and 3, would shift traffic closer to residential development, in turn increasing the ambient noise environment in that area. Alternative 2 proposes a shoulder-running peak-hour travel lane, which would only temporarily shift vehicles closer to residential development during peak commute hours. A noise study will be prepared for use in future environmental documentation that should include potential project effects on adjacent land uses and should recommend engineering and design features and abatement measures (i.e., noise barriers) to reduce any substantial noise increases. The estimated cost to prepare the noise study is approximately \$10,000.00.

5.14 Energy and Climate Change: At present, the SR4 corridor experiences significant congestion; such congestion can in turn increase emissions of carbon dioxide, a key greenhouse gas. 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.

The interchange improvements common to the Build Alternatives, and the shoulder-running lane under Alternative 2, are freeway operational improvements that would not increase the capacity of SR4 or result in increased VMT and related vehicle emissions. However, under Alternatives 1, 2 and 3, packages that include new general purpose lanes would increase the capacity of SR4, which may directly increase vehicle emissions in this region. 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. The analysis will be incorporated into the Air Quality Report in accordance with Caltrans most current guidance at the time of the environmental review (see **Item 5.12**).

- 5.15 **Biological Environment:** The project spans suburban and rural environments. Biological resources are generally concentrated in grasslands, riparian areas, aquatic habitats, and wetlands associated with Mt. Diablo Creek and Willow Pass Creek. Several special-status wildlife species and nesting birds have previously been recorded in the project vicinity and may exist in areas adjacent to the freeway corridor.

All interchange improvements and packages in the project will require a Natural Environment Study (NES) to determine the specific sensitive habitats and species in the project limits. Depending on the findings of the NES, some interchange improvements and packages would 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).

All interchange improvements and packages would require the preparation of a wetland delineation report to determine the presence and location of jurisdictional resources in the areas potentially affected by the project. 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 in an environmental document.

There is some potential for tree-nesting raptors, such as the red-tailed hawk (*Buteo jamaicensis*) and white-tailed kite (*Elanus leucurus*), to nest in one of the trees on or adjacent to the Project area. All interchange improvements and packages would have the potential to violate the Migratory Bird Treaty Act (MBTA) and California Fish and Game Code (CFGF). 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. If construction occurs during the breeding season (1 February – 31 August), it should be preceded by a pre-construction survey to determine whether active raptor nests are present within 300 feet of proposed Project activities. If any active nests are present within the project area, a buffer of at least 300 feet should be maintained between project activities and the nest as long as the nest is active (i.e., until the young have fledged).

Destruction of active nests, eggs, or young of non-special-status birds would violate the CFGC and MBTA. Therefore, construction should be initiated during the non-breeding season or pre-construction surveys performed (and the establishment of buffers around occupied nests during the nesting season; buffers of 50 feet around active nests of non-raptors are typically recommended by the CDFW to avoid causing nest abandonment).

Wetland Delineation: The estimated cost to prepare this technical report is \$8,500.

NES/BA: The estimated costs to prepare these technical reports are \$20,000.

Environmental commitments related to biological permitting and the purchase of mitigation habitat cannot be estimated until the draft NEPA/CEQA document is prepared. **Attachment D** provides some general assumptions for these costs, for each interchange improvement and package, respectively.

5.16 **Cumulative Impacts:** Environmental commitments to reduce or avoid cumulative impacts cannot be estimated until the draft NEPA/CEQA document is prepared.

5.17 **Context Sensitive Solutions:** The project proponent will schedule meetings with the public and agencies with jurisdiction over potentially affected resources throughout the planning process to consider and address any input on the project design.

Attachment D contains estimated costs of environmental commitments identified in this Preliminary Environmental Analysis Report (PEAR) for each interchange improvement and package, respectively.

6. Permits and Approvals

Water Quality: All interchange improvements and packages under the Build Alternatives are likely to utilize Caltrans' National Pollutant Discharge Elimination System (NPDES) permit during construction. The NPDES permit includes measures that would be taken by the interchange improvements and packages to reduce or avoid runoff that would affect local storm water quality. Consistent with the NPDES permit, the interchange improvements and packages would require a Regional Water Quality Control Board permit (Section 401), which would require preparation and adoption of a Storm Water Pollution Prevention Program (SWPPP). Additionally, a Notice of Intent (NOI) would need to be filed for the interchange improvements and packages to be covered under the State NPDES General Construction Permit for discharges of storm water associated with construction activity.

Biological Resources: A habitat connectivity study would be incorporated into the Natural Environment Study (NES) that would review animal-vehicle collision data for the SR4 corridor to determine where critical wildlife crossings are located, and develop recommendations to reduce wildlife-traffic conflict and increase connectivity for wildlife

movement within the environmental study area. In addition, a fish passage assessment, in accordance with Senate Bill (SB) 857, may be required if the project design includes improvements that would occur within the various waterway crossings within the project limits.

Section 7 compliance and approvals from the U.S. Fish and Wildlife Service (USFWS) and the National Marine Fisheries Service (NMFS) may be required if federally protected special-status species are affected by an interchange improvement or package. Section 7 compliance and approvals would be issued through the preparation of a biological assessment (BA) and issuance of a biological opinion (BO) or letter of concurrence.

Under the California Endangered Species Act (CESA), certain impacts to state-listed species in the area, such as California Tiger Salamander, would also require an incidental take permit (Section 2081) from the California Department of Fish and Wildlife (CDFW).

Some interchange improvements and packages may result in limited impacts to waters of the U.S. All three Build 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 interchange improvements and packages, 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.

A Lake or Streambed Alteration Agreement (SAA), in compliance with Section 1602 of the California Fish and Game Code (CFGC), is required for interchange improvements and packages that will substantially divert, obstruct, or change the natural flow of a river, stream, or lake; substantially change the bed, channel, or bank of a river, stream, or lake; or use material from a streambed. If an interchange improvement or package results in any of the above-mentioned activities, coordination with the CDFW for a Section 1602 SAA would be required.

All interchange improvements and packages would have the potential to violate the MBTA and Section 3500 of the CFGC. However, the project would comply with the MBTA and CFGC by initiating construction during the non-breeding season and/or performing pre-construction surveys.

Each of the packages and interchange improvements would also comply with the Native Plant Protection Act and Executive Order 13112, which prevents the introduction and spread of invasive species.

Attachment D provides a detailed environmental commitments cost estimate for each package and interchange improvement.

Cultural Resources: Project interchange improvements and packages that would require excavation activities outside of the existing paved surfaces and previously disturbed fill prism of the SR4 corridor, may have the potential to impact cultural resources. These project interchange improvements and packages would need an Area of Potential Effect (APE) map, Historic Property Survey Report (HPSR), Archeological Survey Report (ASR), and a Historic Resource Evaluation Report (HRER) depending on the affected environment surrounding the proposed interchange improvement or package. These cultural resources studies will identify and evaluate archeological and historical resources within the APE. The studies will also determine if additional investigations are necessary, and if consultation with the SHPO is needed in accordance with Section 106 of the NHPA and the programmatic agreement (PA). Consultation and coordination with Native American tribal representatives would occur during the preparation of the cultural resources technical studies, pursuant to AB 52 and Section 106 of the NHPA.

Section 4(f): The Diablo Creek Golf Course and Delta de Anza Regional Trail are both eligible for protection under Section 4(f) and located within 0.10 miles of the project limits. None of the Build Alternatives are anticipated to result in temporary or permanent use of the Diablo Creek Golf Course. However, all three options of the Willow Pass Road Interchange improvements, and Package 1G, will impact the Delta de Anza Regional Trail. As such, the provisions of Section 4(f) are expected to be triggered and a Section 4(f) evaluation will be required.

7. Level of Effort: Risks and Assumptions

Risk management is the systematic process of identifying and planning for issues that, were they to occur, could have a positive or negative effect on the project objectives, including the timeline and/or budget for project implementation. Initial phases of project development include developing and regularly reviewing a risk management matrix prepared for the project.

The following assumptions were made when evaluating the project:

- The community would be generally supportive of the need for the project
- Adequate design information will be available to allow consultation with state and federal regulatory agencies early in the environmental process
- There will not be a significant encroachment into a floodplain

Risks

A risk is an uncertain event or condition that, if it occurs, has a positive or negative impact on at least one project objective: scope, cost, or schedule. **Table 3** defines the potential impact of a risk on the project objectives (i.e., schedule, cost, and/or scope).

Table 3: Evaluation the Impact of a Risk on Project Objectives

Impact		Low	Moderate	High
Objectives	Time	Delivery Plan milestone delay within quarter	Delivery Plan milestone delay of one quarter	Delivery Plan milestone delay of more than 1 quarter
	Cost	<5% Cost Increase	5-10% Cost Increase	>20% Cost Increase
	Scope	Changes in environmental study area or features with <5% cost increase	Changes in environmental study area or features with 5-10% cost increase	Sponsor does not agree that scope meets the purpose and need

Based on the information in Section 8, the following risks were identified:

- If the community opposes the project, additional time for public involvement, outreach, and environmental documentation review may be needed, which would delay the project schedule. This risk is low and would have a moderate impact on the schedule.
- Special-status species (or associated habitat) could be affected by the project. The precise effects to biological resources cannot be ascertained without detailed design information. Mt. Diablo Creek and Willow Pass Creek were identified as potential jurisdictional waters. Additionally, the beds and banks of these creeks are CDFW-regulated habitats. If it is determined that the project would affect biological resources, construction monitoring by a qualified biologist may be required and a Biological Assessment would be prepared. The resolution of adverse effects to identified biological resources, if applicable, would be determined during the PA&ED phase. This risk is high and would have a high impact on schedule and cost.
- Native American and cultural resources could potentially be encountered during project construction. Consultation and coordination with Native American tribal representatives would occur during the preparation of the CEQA/NEPA document, pursuant to AB 52 and Section 106 of the National Historic Preservation Act (NHPA). If it is determined during the cultural resources compliance process that there is a high potential for Native American cultural resources to be discovered within the environmental study area, a finding of effect document would be prepared and concurred upon by the State Historic

Preservation Office (SHPO). Caltrans emphasizes thorough identification efforts; however, monitoring for Native American artifacts during construction may be a requirement of the findings of effect documentation. The resolution of adverse effects to identified cultural resources, if applicable, would be determined during the PA&ED phase.

- Paleontological resources could potentially be encountered. If unrecorded paleontological resources are discovered within the environmental study area, construction monitoring by a qualified paleontologist may be required, and a curation program prepared for the project to create protocols for how to protect any resources discovered during construction. This risk is high and would have a high impact on schedule and cost.
- Hazardous materials could be encountered during Phase II soils sampling. If hazardous materials are encountered during Phase II soil sampling in such high concentrations such that extensive remediation and re-testing would be required before project approvals could be obtained, the additional remediation work would delay the project schedule. This risk is high and would have a high impact on schedule and moderate impact on cost.
- The project could result in impacts to wetlands and waters of the U.S. due to the proximity of the waterways and creeks crossed by SR 4. If wetlands and/or waters of the U.S. are identified within the impact areas of the project improvements, an avoidance alternative analysis for wetland impacts would need to be prepared in accordance with the U.S. Army Corps of Engineers. This risk is moderate and would have a high impact on schedule and cost and potential moderate impact on scope.
- The precise effects to recreational and cultural resources cannot be ascertained without detailed design information. Diablo Creek Golf Course and the Delta de Anza Trail are located within 0.1 miles of the project limits. The Diablo Creek Golf course is not anticipated to be affected by the project. However, certain interchange improvements and packages could result in direct or indirect impacts to the Delta de Anza Trail.
- Consultation under Section 106 of the NHPA could require extensive coordination with the State Historic Preservation Officer (SHPO). In addition, certain cultural properties are also considered Section 4(f) resources. If construction and/or operational activities of the project result in temporary or permanent use of a Section 4(f) resource, a Section 4(f) evaluation will need to be prepared. If an Individual Section 4(f) is required, the analysis will have to be reviewed by Caltrans Legal and the Caltrans Environmental Coordinator for District 4. The risk is high and would have a moderate impact on schedule and cost.

- It is anticipated that each package would have logical termini and independent utility, and as such would be able to move forward to environmental review as separate projects. However, detailed traffic studies during PA&ED could show some packages do not have logical termini or independent utility. The risk is low and would have a high impact on schedule and cost.

8. PEAR Technical Summaries

Preliminary evaluation of the potential environmental constraints associated with the project is based on the environmental study area that was established to encompass all improvements proposed under the various interchange improvements and packages (see **Figures 2** through **11**).

- 8.1 **Land Use:** The majority of the project limits are within the urban developed areas of Concord and Pittsburg, with some areas located in an unincorporated area of Contra Costa County. The interchange improvements and packages would maintain consistency with the provisions defined in the Draft Central County Action Plan (2014), Draft East County Action Plan (2014), and Measure J Strategic Plan to improve operations on SR4 through central Contra Costa County⁸. Because no major conflicts with existing or planned land uses are anticipated, a qualitative discussion of the project's consistency with local plans and policies would be included in the Community Impact Assessment (CIA).

The Diablo Creek Golf Course and Delta de Anza Regional Trail are both eligible for protection under Section 4(f) and located within 0.10 miles of the project limits. None of the Build Alternatives are anticipated to result in temporary or permanent use of the Diablo Creek Golf Course. However, Package 1G and all three options for interchange improvements to Willow Pass Road are anticipated to result in direct or indirect impacts to the Delta de Anza Regional Trail. As such, the provisions of Section 4(f) for recreational resources are expected to be triggered and a Section 4(f) evaluation will be required.

8.2 **Growth:**

The interchange improvements common to the Build Alternatives, and the shoulder-running lane under Alternative 2, are freeway operational improvements that would not increase the capacity of SR4 or create new access to the local communities; and are not expected to induce growth. Under Alternatives 1, 2 and 3, packages that include new general purpose lanes would increase the capacity of SR4, which may directly increase growth in this region.

⁸ As part of the 2014 update of the Countywide Transportation Plan, the Regional Transportation Planning Committees (RTPCs) are updating their Action Plans for Routes of Regional Significance. The Action Plans are intended to reduce the impact of new development on freeways, arterials, transit and major trails. Each identifies a system of Regional Routes, those freeways, arterials and other facilities that provide the main connections among Contra Costa's communities and to the surrounding region. The Action Plans help local jurisdictions meet the requirement in the Authority's Growth Management Program that local jurisdictions engage in cooperative, multi-jurisdictional planning. The Action Plans for Central and East Contra Costa County were drafted in 2014, are anticipated to be finalized in 2017, and are available at: <http://www.ccta.net/sources/detail/12/1>; last accessed: April 14, 2015.

In 2006, Caltrans, in conjunction with the FHWA and the United States Environmental Protection Agency (U.S. EPA), developed a guidance document entitled *Guidance for Preparers of Growth-Related, Indirect Impact Analyses*. The guidance focuses on the influence that transportation projects may have on growth and development. Since different transportation projects will influence growth in different ways, the guidance adopts a two-phase approach to the evaluation of growth-related impacts. The first phase, called “first cut screening,” is designed to help the environmental planner determine if there is potential for growth-related effects and whether further analysis is necessary. If the first-cut screening for a project element results in a determination that further analysis is required, then the growth analysis follows a six-step evaluation process that would be documented in the CIA.

- 8.3 **Farmlands/Timberlands:** There are no farmlands or timberlands surrounding the SR4 corridor, within the project limits. No impacts to farmlands or timberlands would occur as a result of the project.
- 8.4 **Community Impacts:** Certain interchange improvements and packages include highway widening and interchange reconfiguration along the SR4 corridor. The packages in Alternatives 1, 2 and 3 and the HOV direct connect ramp would all occur entirely within the existing state right-of-way. The interchange improvements at Willow Pass Road Interchange, Port Chicago Highway Interchange, and San Marco Interchange would each have right-of-way requirements. Out of the three options for a Willow Pass Road Interchange improvement, the partial cloverleaf would require the most work outside of right-of-way, while the diverging diamond and hook interchange options would require less. However, no relocations would be necessary as a result of any right-of-way acquisitions. All packages of the Build Alternatives would occur entirely within state right-of-way. Project interchange improvements that require the acquisition of property outside of the state right-of-way will require the preparation of a CIA.

The communities surrounding the project limits include substantial populations of minority and low-income individuals based on data from the 2010 U.S. Census and 2013 American Community Survey. There are nine Census block groups that could be considered minority environmental justice communities and two block groups that could be considered low-income environmental justice communities. Project interchange improvements that require the acquisition of property outside of the state right-of-way, as described above, will require the preparation of a CIA, which would include a separate discussion of impacts to environmental justice communities.

All project improvements are either on, or immediately adjacent to, the existing freeway; therefore, no new physical or perceptual barriers would be created. Removal of vegetation in these areas could lead to future declassification. The

changes to access in the immediate area of the project would not adversely affect community character or cohesion, as the improvements would enhance circulation and access to and from SR4, without dividing any neighborhoods.

Although project construction would be temporary, project interchange improvements and packages could be implemented individually over a period of several years. Project impacts related to temporary lane closures and detours over extended periods of time would be captured in the CIA, if required, or as a stand-alone technical memorandum (for interchange improvements and packages of the project that don't trigger the need for full CIA analyses).

- 8.5 **Visual/Aesthetics:** The project limits are not located within a designated state scenic highway. However, views of rolling, grassy hills and views of the Suisun Bay are considered scenic resources to the local communities surrounding the project limits. Project interchange improvements and packages that require widening could move traffic closer to noise sensitive receptors, such as homes. These interchange improvements and packages may require sound walls, which could impede views to and from the freeway corridor. The project is likely to increase the dominance of the freeway corridor, without degrading the visual quality of the area.

To reduce the visual impact of any new soundwalls or retaining walls, aesthetic treatments consisting of color, texture and/or patterning will be applied to reduce visual impacts. The aesthetic treatment would be context sensitive to the location and be compatible with existing walls in the project area.

SR4, within the project limits, is listed as a Classified Landscaped Freeway between PM14.0/15.07 and PM19.91/20.51. Removal of vegetation in these areas could lead to future declassification. The quantity of roadside vegetation that would ultimately be removed by the project will be determined during final project design and serve as the basis for determining the amount of replacement planting to be provided by the project. Replacement planting/landscaping would be designed in accordance with Caltrans requirements during the final design phases and would be approved by Caltrans.

Alternative 2 would have the most potential for changes to the character of the area due to the required dynamic and static signage that would operate the part-time HOV shoulder-running travel lanes. Alternatives 1 and 3 would have a lower potential than Alternative 2 for changes to the visual character. The HOV direct connect ramp, Port Chicago Highway Interchange, San Marco Boulevard Interchange, and all three options for the Willow Pass Road interchange propose to construct improvements outside of the existing infrastructure, and would have the potential to change the character of the area. However, the HOV direct connect ramp would be constructed between the eastbound and westbound SR4, so would have a lower potential to impact visual character than other improvements.

To fully assess impacts to all potentially affected viewer groups (drivers, users of nearby park and open space resources, and people living near the study area), a moderate level Visual Impact Assessment (VIA) would be required for the majority of the project interchange improvements and packages. This VIA would discuss the roadside vegetation impacts of the interchange improvement or package. Some of the smaller packages under the Build Alternatives may only require visual impact memos.

8.6 Cultural Resources: According to a preliminary records search of the Sonoma State University Northwest Information Center, California Historic Resources Information System (CHRIS), there are two historic-period archaeological resources within the project vicinity: Rodgers Ranch and the Navy Rail System. Additionally, there is a high possibility of identifying both unrecorded Native American archaeological resources and unrecorded historic-period archaeological resources in previously undisturbed soils surrounding the project limits. The CHRIS search also identified four recorded historic-period built environment resources in the project area: Rodgers Ranch, which contains both archaeological and built environment resources, a bridge and tunnel on the Naval Weapons Station, the Contra Costa Canal, and the Walnut Creek and Grayson Creek Levees.

Because the entire project area has a high potential for discovering unrecorded archaeological resources, a literature review, field survey, and consultation with Native Americans would be appropriate next steps to identify and address both potential archaeological and historic architectural resources for any interchange improvements and packages of the project that would be constructed in areas not previously disturbed by the construction of the existing freeway infrastructure. Interchange improvements common to the Build Alternatives; and the freeway widening under certain packages of Alternative 1, have the greatest potential for impacts to cultural resources. Alternatives 2 and 3 have the smallest physical footprint, and would be less likely to impact cultural resources. Some of the smaller packages under the Build Alternatives may not require extensive cultural review.

California Assembly Bill 52 (AB 52) is intended to recognize and protect tribal cultural resources. Under AB 52, the CEQA Lead Agency must notify California Native American Tribes within 14 days of the decision to undertake a project. California Native American Tribes include both federally and non-federally recognized tribes in California. This is a new law and it is not yet known how it may affect project schedules.

For the majority of the packages under the Build Alternatives and all the interchange improvements, 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 (HSPR), with appropriate findings of effects. The HSPR should be reviewed with appropriate stakeholders, including but not limited to the California 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.

- 8.7 **Hydrology and Floodplain:** The project follows a 6 mile highway corridor that crosses Mt. Diablo Creek and Willow Pass Creek, as well as the Contra Costa Canal. Although Mt. Diablo Creek and Willow Pass Creek are noted as to have an undetermined flood hazard level per Federal Emergency Management Agency (FEMA) flood hazard map, it is possible that these creek crossings are within a 100-year flood zone (Zone A).⁹ Zone A is considered a high-risk area with 1 percent annual chance of flooding and is subject to 100-year floods.

The HOV direct connect ramp, Port Chicago Highway Interchange, and San Marco Boulevard Interchange improvements common to the Build Alternatives are not within 100-year floodplains, nor do they cross Mt. Diablo Creek or Willow Pass Creek. These interchange improvements would not require detailed hydraulic analyses.

Packages 1A, 1D, 1E, 1F, 2A, 2D, 2E, 3A, 3E, and 3F under the Build Alternatives, and all three options for the Willow Pass Road Interchange improvement, would include improvements over the Mt. Diablo or Willow Pass Creek crossings. For these packages of the project and the Willow Pass Road Interchange improvements, a Location Hydraulic Study (LHS) would be prepared to fully understand the hydraulic impacts to existing floodplains. An LHS is a preliminary study of base floodplain encroachments and must be performed by a registered engineer with hydraulic expertise. If, based on the results of the LHS, either: 1) a significant encroachment on a floodplain, 2) an inconsistency with existing watershed and floodplain management programs, or 3) uncertainty as to what impacts would occur exists, then a Floodplain Evaluation Report must be prepared. If no encroachment or impacts to the floodplain will occur, then a Summary Floodplain Encroachment Report will be prepared. Based on the findings of these efforts, the environmental document will incorporate appropriate mitigation measures related to construction in and near the floodplain. If there is a significant encroachment into a floodplain as defined by federal law, this must be identified in public notices and at public meetings. In addition, the public must be given the chance to review and comment. An “Only Practicable Alternative Finding” must also be made in the final environmental document if there is a significant encroachment.

⁹ Federal Emergency Management Agency. 2016. National Flood Hazard Layer. Last accessed: 02/18/2016.

<http://fema.maps.arcgis.com/home/webmap/viewer.html?webmap=cbe088e7c8704464aa0fc34eb99e7f30&extent=-122.176809509033,37.933333514017406,-121.88532849096696,38.022639154235485>

8.8 Water Quality and Storm Water Runoff: The project must comply with the Caltrans Statewide NPDES Permit. Storm water treatment measures would be required to be designed in accordance with the Caltrans Project Planning and Design Guide, and the hydromodification analysis and mitigation measures would need to be in compliance with the San Francisco Bay Regional Water Quality Control Board Municipal NPDES Permit. Temporary and permanent Best Management Practices (BMPs) that are required to comply with the permit would be presented in the Storm Water Data Report prepared for each interchange improvement and package of the project, regardless of the selected Alternative. Alternative 1 has the largest physical footprint and disturbance area, and the highest potential to increase stormwater runoff from increased impervious roadway surfaces when compared to all other interchange improvements of the project and Alternatives 2 and 3.

Temporary BMPs to prevent effects to water quality during construction (such as excessive erosion or sedimentation) would also be incorporated into the construction special provision of any interchange improvement or package moving forward. These BMPs are outlined in Caltrans' Storm Water Management Plan (SWMP). Compliance with state regulations and Caltrans requirements for storm water treatment would ensure that the project would not have an adverse effect on water quality.

Refer to **Section 8.15, Biological Environment**, for a discussion of potential effects to wetlands or waters of the U.S.

8.9 Geology, Soils, Seismic and Topography:

Based on a preliminary review of geologic hazards along the project limits, the closest Alquist-Priolo fault zone is the Concord Fault, which crosses SR4 between I-680 and SR242. The likelihood for the project limits to experience shaking during a seismic event is moderate to high, and would most likely originate from the Concord fault line. A preliminary geotechnical report should be prepared to evaluate the potential geologic, soils, and/or seismic conditions that may pose structural risks to the project. The risks associated with the local geology and seismic conditions are applicable to all of the interchange improvements and packages of the project, regardless of the selected alternative.

All interchange improvements and packages would be designed in accordance with the Department's current Deterministic PGA Map and the Acceleration Response Spectrum (ARS) Online (Version 2.3.06). During the Plans, Specifications, and Estimates (PS&E) phase of the project, additional data should be collected to confirm site conditions as the basis for appropriate mitigation measures.

8.10 **Paleontology:** Much of the project limits are underlain by alluvial deposits (Qoa), Pleistocene in age (10ka – 1.8 million years old [ma]). Pleistocene deposits have a high potential for containing significant paleontological resources.¹⁰ Although the exact depth of the Pleistocene deposits within the project limits has not been determined, it is assumed that deep excavations of over 10 feet would risk disturbing these highly sensitive sediment deposits. A Paleontological Evaluation Report (PER) should be prepared for any interchange improvement or package of the project that would be constructed in areas not previously disturbed by the construction of the existing freeway infrastructure, or with deeper excavation depths (i.e., bridge and ramp structures). Interchange improvements common to the Build Alternatives; and the freeway widening under certain packages of Alternative 1, have the greatest potential for impacts to paleontological resources. Alternatives 2 and 3 have the smallest physical footprint, and would be less likely to impact paleontological resources. Alternatives 2 and 3, as well as some of the smaller packages under Alternative 1, may not require extensive paleontological review.

The PER would: (1) identify any known paleontological resources that exist in the study area (2) determine Caltrans' legal responsibilities; (3) decide the necessity for involving other agencies and/or stakeholders; (4) determine whether the resource can be avoided; and (5) determine the significance of the resource. If unrecorded paleontological resources are discovered within the environmental study area, construction monitoring by a qualified paleontologist may be required, and a curation program prepared for the project to create protocols for how to protect any resources discovered during construction, thus delaying project schedule and adding monitoring costs.

8.11 **Hazardous Waste/Materials:** According to California's Water Resources Control Board GeoTracker map, the Concord Naval Weapons Station adjacent to the project limits documented as an area with contaminated soil. There are three open cases of cleanup sites within .10 miles of the project limits.¹¹ In addition, shallow soils within 30 feet of the edge of freeway pavement may have the potential to be contaminated with aeriually-deposited lead (ADL) from historical car emissions.

As all interchange improvements and packages of the project would be constructed in close proximity to existing freeway lanes, an investigation for heavy metals/aeriually deposited lead along with an Initial Site Assessment (ISA) are recommended. Preliminary Site Investigations (PSIs) would be needed for ground disturbance where known cleanup sites exist. The interchange improvements common to the Build Alternatives, and the freeway widening associated with

¹⁰ 2010 Geologic Map of California <http://www.quake.ca.gov/gmaps/GMC/stategeologicmap.html#>
Accessed April 8, 2015

¹¹ California Water Resources Control Board GeoTracker. Accessed April 14, 2015.
<http://geotracker.waterboards.ca.gov/map/?CMD=runreport&myaddress=concord%2C+ca>

certain Alternative 1 packages, would have the highest potential for encountering contaminated soil/groundwater from known release sites along the project limits. The shoulder-running lane under Alternatives 2 and 3 would have the least amount of potential for encountering hazards.

- 8.12 **Air Quality:** The project is intended to reduce existing and future traffic congestion, which in turn should result in improved regional air quality. However, certain improvements could cause minor shifts in traffic patterns which could result in highly localized air quality impacts. The interchange improvements common to the Build Alternatives, and the shoulder-running lane under Alternative 2, are freeway operational improvements that would not increase the capacity of SR4 or result in increased vehicle miles traveled (VMT) and related vehicle emissions (i.e., Carbon Monoxide, Nitrogen Oxides, and Mobile Source Air Toxics). However, under Alternatives 1, 2, and 3, packages that include new general purpose lanes would increase the capacity of SR4, which may directly increase vehicle emissions in this region.

All project improvements have potential to result in modifications in traffic patterns, and would require the preparation of an Air Quality Study to evaluate potential air quality impacts both in the near term and over the project planning horizon.

The project must conform to the Bay Area Air Quality Management District (BAAQMD) 2010 Clean Air Plan (CAP). The CAP is based on regional population, housing, and employment projections through 2020 compiled by the Association of Bay Area Governments (ABAG). A project is considered to conflict with or obstruct implementation of a regional air quality plan if it would be inconsistent with the regional growth assumptions, in terms of population, employment, or regional growth in VMT. As such, the Air Quality Study should provide extensive modeling and documentation of the project's conformity with ABAG's projections. For packages under Alternatives 1, 2 and 3 that would potentially increase the capacity of SR4, further analysis would be needed to determine the potential for growth-inducing effects, a substantial change in VMT, and in turn, consistency with the CAP.

Regional interagency consultation to discuss and gain consensus on conformity issues would be required, as defined by the Interagency Consultation requirements in the U.S. EPA Conformity Rule at 40 CFR 93.105. All project interchange improvements and packages would be required to complete FHWA's Transportation Conformity and NEPA Assumption Questions and Answers forms, as well as the Conformity Analysis Documentation checklist.

The Metropolitan Transportation Commission (MTC) is the regional transportation planning agency in the San Francisco Bay Area that includes the project area and is responsible for updating the Regional Transportation Plan (RTP). The RTP is a comprehensive blueprint for the development of mass transit, highway, freight,

bicycle and pedestrian facilities. In 2013, MTC and ABAG adopted the RTP “Plan Bay Area 2040”. The U.S. Department of Transportation (DOT) approved Plan Bay Area 2040 in 2013. MTC also adopts an annual Transportation Improvement Program (TIP) for state programming funds. In order for the project interchange improvements and packages to be approved, the project has to be included in the financially-constrained RTP and TIP, and the project’s design concept, scope, and “open-to-traffic” schedule must be the same as described in the RTP and TIP to meet regional conformity requirements.

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 PM₁₀ nonattainment and maintenance areas (71 FR 12468). The federal PM₁₀ standards have been met in the SF Bay Area, and therefore the project would not be subject to hot spot analysis for PM₁₀ for purposes of project-level 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}. MTC’s Air Quality Conformity Task Force would review each interchange improvement and package moving forward under independent environmental review, and take action to conclude whether or not the improvements are Projects of Air Quality Concern (POAQC).

- 8.13 **Noise and Vibration:** Certain improvements would require construction of new infrastructure associated with SR4 that could change existing noise patterns and adversely affect both existing and planned sensitive receptors in the vicinity of the project limits, such as residential development along the project limits. For example, traffic could be shifted closer to adjacent residents, thus increasing the ambient noise environment in those areas.

The interchange improvements common to the Build Alternatives, as well as certain packages under Alternatives 1, 2 and 3, would shift traffic closer to residential development, in turn increasing the ambient noise environment in that area. Alternative 2 proposes a shoulder-running peak-hour travel lane, which would only temporarily shift vehicles closer to residential development during peak commute hours.

A noise study will be prepared for use in future environmental documentation that should include potential project effects on adjacent land uses and should recommend engineering and design features and abatement measures (i.e., noise barriers) to reduce any substantial noise increases. The draft project report is likely to include a noise abatement decision report (NADR) (i.e., an evaluation of feasible noise barriers) for those project elements that result in noise levels that approach or exceed appropriate noise thresholds for the adjacent land use types.

- 8.14 **Energy and Climate Change:** At present, the SR4 corridor experiences significant congestion; such congestion can in turn increase emissions of carbon dioxide, a key greenhouse gas. 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.

The interchange improvements common to the Build Alternatives, and the shoulder-running lane under Alternative 2, are freeway operational improvements that would not increase the capacity of SR4 or result in increased VMT and related vehicle emissions. However, under Alternatives 1, 2 and 3, packages that include new general purpose lanes would increase the capacity of SR4, which may directly increase vehicle emissions in this region. 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. The analysis will be incorporated into the Air Quality Report in accordance with Caltrans most current guidance at the time of the environmental review.

Climate change is expected to produce increased variability in precipitation, rising temperatures, rising sea levels, variability in storm surges and intensity, and the frequency and intensity of wildfires. These changes may affect the transportation infrastructure in various ways, such as damage to roadbeds from longer periods of intense heat; increasing storm damage from flooding and erosion; and inundation from rising sea levels. These effects will vary by location. Given that the project is outside the coastal zone, direct impacts to transportation facilities within the project limits due to projected sea level rise are not expected. The environmental document will include a qualitative discussion regarding the project relative to physical climate change effects, including sea level rise. No additional technical study is warranted.

- 8.15 **Biological Environment:** The project spans suburban and rural environments. Biological resources are generally concentrated in grasslands, riparian areas, aquatic habitats, and wetlands associated with Willow Pass Creek and Mt. Diablo Creek.

Regulated Habitats

Willow Pass Creek and Mt. Diablo Creek intersect the project limits and may meet the regulatory definition of “waters of the US” and may be subject to the jurisdiction of the US Army Corps of Engineers (USACE) under Section 404 of the Clean Water Act (CWA) and Section 10 of the Rivers and Harbors Act.

Jurisdictional waters are not exclusively associated with the Willow Pass Creek and Mt. Diablo Creek intersections. Wetlands are known to occur adjacent to SR4 east of Port Chicago Highway and could be present elsewhere.

The beds and banks of Willow Pass Creek and Mt. Diablo Creek and any riparian vegetation along the creeks may qualify as California Department of Fish and Wildlife (CDFW) regulated habitats.

The Contra Costa Canal also crosses the project limits via an underground culvert, but does not support wetland or riparian vegetation. Furthermore, the water within the canal is not regulated as Waters of the US under Section 404 of the Clean Water Act.

All interchange improvements and packages 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 project. 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 in an environmental document. 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.

A Lake or Streambed Alteration Agreement (SAA), in compliance with Section 1602 of the California Fish and Game Code, is required for interchange improvements or packages that will substantially divert, obstruct, or change the natural flow of a river, stream, or lake; substantially change the bed, channel, or bank of a river, stream, or lake; or use material from a streambed. If a project interchange improvements or packages would result in any of the above-mentioned activities, coordination with the California Department of Fish and Wildlife (CDFW) for a Section 1602 SAA would be required. Packages 1A, 1D, 1E, 2A, 2D, 3A, and 3E under the Build Alternatives, and all three options for the Willow Pass Road Interchange improvement would likely require a Section 1602 SAA. Of the three options for the Willow Pass Road Interchange improvements, the diverging diamond option would have the greatest potential to impact CDFW habitat. All other interchange improvements and packages are proposed in locations where rivers, streams, or lakes are not present, so they would have no potential to impact a river, stream, or lake and a Section 1602 SAA would not be required.

Special-Status Plant and Wildlife Species

Several special-status plant species have been documented as occurring within 5 miles of the project limits and have a low potential to be present in the California annual grassland habitat found along the freeway. These species include big tarplant (*Blepharizonia plumosa ssp. plumosa*), round-leaved filaree (*California macrophylla*) and Congdon's tarplant (*Centromadia parryi ssp. congdonii*), among others. Protocol-level surveys conducted in 2008 within the nearby former Concord Naval Weapons Station did not locate these species; however, this does not preclude them from occurring within the project limits. Potentially suitable grassland habitats for special-status plants occur adjacent to the freeway corridor, east of Port Chicago Highway.

Several special-status wildlife species have previously been recorded in the project vicinity and may exist in areas adjacent to the freeway corridor. In particular, the following species may occur: California Red-legged Frog (*Rana draytonii*), California Tiger Salamander (*Ambystoma californiense*), Central California Coast Steelhead (*Oncorhynchus mykiss*), Central Valley Fall/Late Fall Run Chinook (*Oncorhynchus tshawytscha*), and Burrowing Owl (*Athene cunicularia*). In addition, the project site provides suitable habitat for the western pond turtle (*Actinemys marmorata*), northern harrier (*Circus cyaneus*), and white-tailed kite (*Elanus leucurus*). Further, bridges and overpasses within the project boundary may provide suitable roosting habitat for bats.

All three of the Willow Pass Interchange improvements are located near potential wetlands, and would have the potential to impact waters of the US and/or special-status habitat areas. The Port Chicago Highway Interchange and San Marco Interchange improvements are not located near known wetlands, and would have a low potential to impact waters of the US and/or special-status habitat areas. The packages proposed under Alternatives 1, 2, and 3 would have a low potential to impact biological resources as the footprint is within the existing right-of-way. Nevertheless, consultation with the U.S. Fish and Wildlife Service and National Marine Fisheries Service is likely to be required for all interchange improvements and packages due to the presence of federally listed species in the project vicinity.

All interchange improvements and packages of the project will require a Natural Environment Study (NES) to determine the specific sensitive habitats and species in the project limits. Depending on the findings of the NES, some interchange improvements and packages would 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) will 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) or a Letter of Concurrence. In addition, a fish passage assessment will be required if the interchange improvement or package design includes improvements that would occur within the various waterway crossings within the project limits, as these creeks could support anadromy.

A habitat connectivity study would be incorporated into the NES that would review animal-vehicle collision data to identify and analyze the SR4 corridor's potential to impact animals crossing the corridor, in order to determine where critical wildlife crossings are located, and develop recommendations to reduce wildlife-traffic conflict and increase connectivity for wildlife movement within the environmental study area.

There is some potential for tree-nesting raptors, such as the red-tailed hawk (*Buteo jamaicensis*) and white-tailed kite (*Elanus leucurus*), to nest in one of the trees on or adjacent to the Project area. All interchange improvements and packages would have the potential to violate the MBTA and 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. If construction occurs during the breeding season (1 February – 31 August), it should be preceded by a pre-construction survey to determine whether active raptor nests are present within 300 feet of proposed Project activities. If any active nests are present within the project area, a buffer of at least 300 feet should be maintained between project activities and the nest as long as the nest is active (i.e., until the young have fledged). Buffers of 50 feet around active nests of non-raptors are typically recommended by the CDFW to avoid causing nest abandonment.

Under the California Endangered Species Act (CESA), certain packages could potentially result in impacts to state-listed species in the area (i.e., California Tiger Salamander) and would also require an incidental take permit (Section 2081) from the California Department of Fish and Wildlife (CDFW).

Environmental commitments related to biological permitting and the purchase of mitigation habitat cannot be estimated until the draft NEPA/CEQA document is prepared. **Attachment D** provides some general assumptions for these costs, for each project interchange improvement and package, respectively.

- 8.16 **Cumulative Impacts:** Cumulative impacts occur as a result of the combined actions of multiple projects. Even when an individual project does not have significant impacts, in combination with other related projects, these cumulative effects may be considerable. The cumulative study area varies by resource topic area and should include a list of past, current and reasonably foreseeable future projects along SR4 between I-680 and Bailey Road. Urbanized areas are largely built-out or planned for future development. As such, each environmental document will have to establish a consistent list of potentially approved future projects in the vicinity of the project limits that could cumulatively impact environmental resources. The environmental document prepared for each package, or combination of packages, will consider the other packages within the selected alternative, which will be cleared under separate environmental review, as part of the cumulative analysis.

In 2005, Caltrans, in conjunction with FHWA and the U.S. EPA, developed a guidance document entitled *Guidance for Preparers of Cumulative Impact Analysis*. Cumulative impacts related to the project would be identified using Caltrans' eight-step process outlined in this guidance document (as incorporated into the environmental document annotated outlines). If the project will not cause direct or indirect impacts on a resource, it will not contribute to a cumulative impact on that resource, and need not be further evaluated. Similarly, the project's contribution to

the cumulative impact analysis is the net impact. If the project's avoidance, minimization and/or mitigation fully offset the impact(s) on a resource, there is no contribution to a cumulative impact on that resource.

8.17 Context Sensitive Solutions: Caltrans uses Context Sensitive Solutions (CSS) to integrate and balance community, aesthetic, historic, and environmental values with transportation safety, maintenance, and performance goals. CSS are reached through a collaborative, interdisciplinary approach involving all stakeholders, engaged through early coordination with agencies as well as early outreach to the community. Context sensitive design is important in the design of landscaping, sound walls, retaining walls and other structures.

The project is proposed to maximize the use of existing infrastructure to improve traffic operations and improve travel times. All improvements would go through the environmental process to clearly demonstrate the pros and cons of each project interchange improvement or package relative to context sensitivity.

9. Summary Statement for PSR or PSR-PDS

Each of the project alternatives would have similar constraints and impacts, except that Alternatives 2 and 3 have the smallest physical footprint, and would be less likely to impact cultural resources, paleontological resources, and biological resources. Certain packages within Alternative 1 (maximum project footprint alternative) would require more environmental evaluation than others. In addition to the freeway improvements, interchange improvements at the Port Chicago Highway Interchange and the Willow Pass Interchange; ramp modifications at the San Marco Boulevard Interchange; and a single-lane HOV direct connect ramp between northbound SR242 and eastbound SR4 are identified as part of the corridor improvements. These improvements will require a separate PID prior to proceeding into the Project Approval and Environmental Document (PA&ED) phase.

The anticipated level of environmental documentation for individual packages or combined packages would be a CEQA Initial Study/Mitigated Negative Declaration (IS/MND). The anticipated NEPA document would be a Routine Environmental Assessment/Finding of No Significant Impact (EA/FONSI). As discussed in Section 8, PEAR Technical Summaries, none of the packages, or combination of packages, appear to have substantial endangered species or 4(f) issues, nor do they appear to have other substantial environmental impacts. The impacts associated with individual packages, or combinations of packages, appear to be similar in scope and magnitude to other highway improvement and widening projects in the region; therefore the packages would not be anticipated to have high mitigation costs. It appears that all packages, as defined, have logical termini and independent utility in that no other improvements appear to be necessary to achieve the traffic relief benefits associated with each package. However, this will need to be verified by detailed traffic studies during PA&ED. If there are any issues with logical termini or independent utility, or if there is any controversy over the project, an Environmental Impact Report under CEQA and a Complex EA under NEPA may be required.

The following technical reports should be prepared to analyze potential environmental impacts: Community Impact Assessment, Section 4(f) Evaluation, Visual Impact Assessment, Archaeological Survey Report, Historic Resources Evaluation Report, Historic Properties Survey Report, Location Hydraulic Study, a Water Quality Report, a Storm Water Data Report, Preliminary Geotechnical Report, Paleontological Evaluation Report, Initial Site Assessment, Preliminary Site Investigation, Air Quality Study, Noise Study Report, Greenhouse Gas Emissions Analysis, Traffic Study, Natural Environment Study and a Biological Assessment.

Key environmental issues are anticipated to include traffic operations, biological resources, cultural resources, paleontological resources, water quality, air quality, climate change, noise, and hazardous materials.

Based on costs for preparation of recent projects of similar size and scope in Contra Costa County, the cost for preparing an IS/EA for one interchange improvement or package, including all technical studies, is \$155,000 to \$200,000.00. The time frame for certification of an IS/EA of smaller packages is 18 months, while the timeframe for environmental documents that include widening, more than one package, Section 4(f) impacts or interchange improvements will take longer than 18 months. The estimated cost of preparing and receiving the biological permits for a project is between \$4,500 and \$20,500 and the estimated time frame for completing these permits is 12-18 months.

See **Attachment A** of this PEAR for the complete list of environmental studies and reports that would be prepared for this project.

10. Disclaimer

This Preliminary Environmental Analysis Report (PEAR) provides information to support programming of the proposed project. It is not an environmental determination or document. Preliminary analysis, determinations, and estimates of mitigation costs are based on the project description provided in the Project Study Report (PSR). The estimates and conclusions in the PEAR are approximate and are based on cursory analyses of probable effects. A reevaluation of the PEAR will be needed for changes in project scope or alternatives, or in environmental laws, regulations, or guidelines.

11. List of Preparers

Cultural Resources specialist	Date:
Biologist Ginger Bolen, Ph.D., Senior Wildlife Ecologist	Date: 10/3/2016
Community Impacts specialist	Date:
Noise and Vibration specialist	Date:
Air Quality specialist	Date:
Paleontology specialist/liaison	Date:
Water Quality specialist	Date:
Hydrology and Floodplain specialist	Date:
Hazardous Waste/Materials specialist	Date:
Visual/Aesthetics specialist	Date:
Energy and Climate Change specialist	Date:
Other:	Date:
PEAR Preparer (Name and Title) Jennifer Gallerani Marquez, Project Manager	Date: 11/16/2016

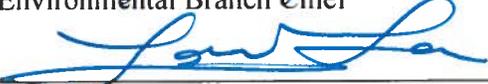
12. Review and Approval

I confirm that environmental cost, scope, and schedule have been satisfactorily completed and that the PEAR meets all Caltrans requirements. Also, if the project is scoped as a routine EA, complex EA, or EIS, I verify that the HQ DEA Coordinator has concurred in the Class of Action.



 Environmental Branch Chief

Date: 11/17/2016



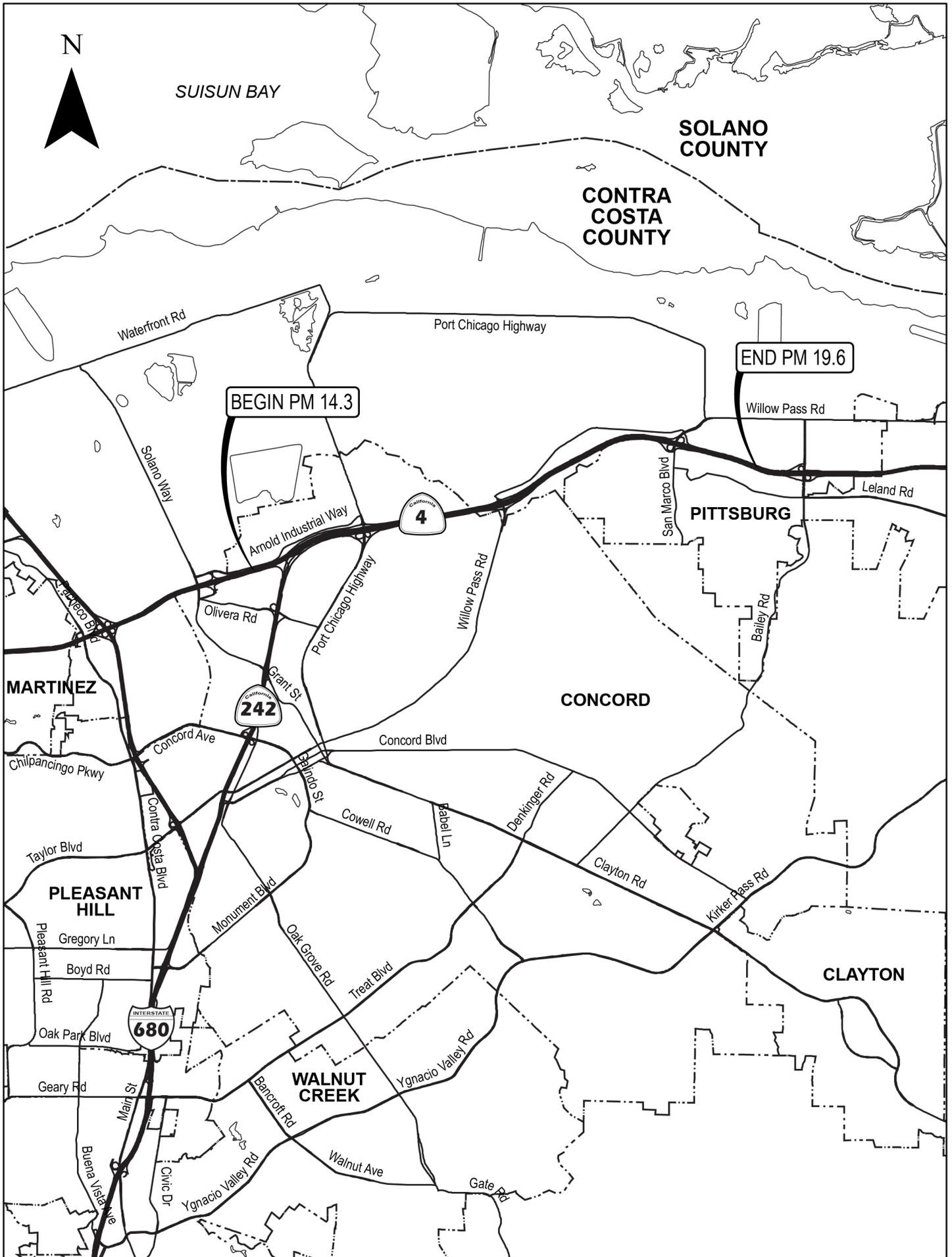
 Project Manager

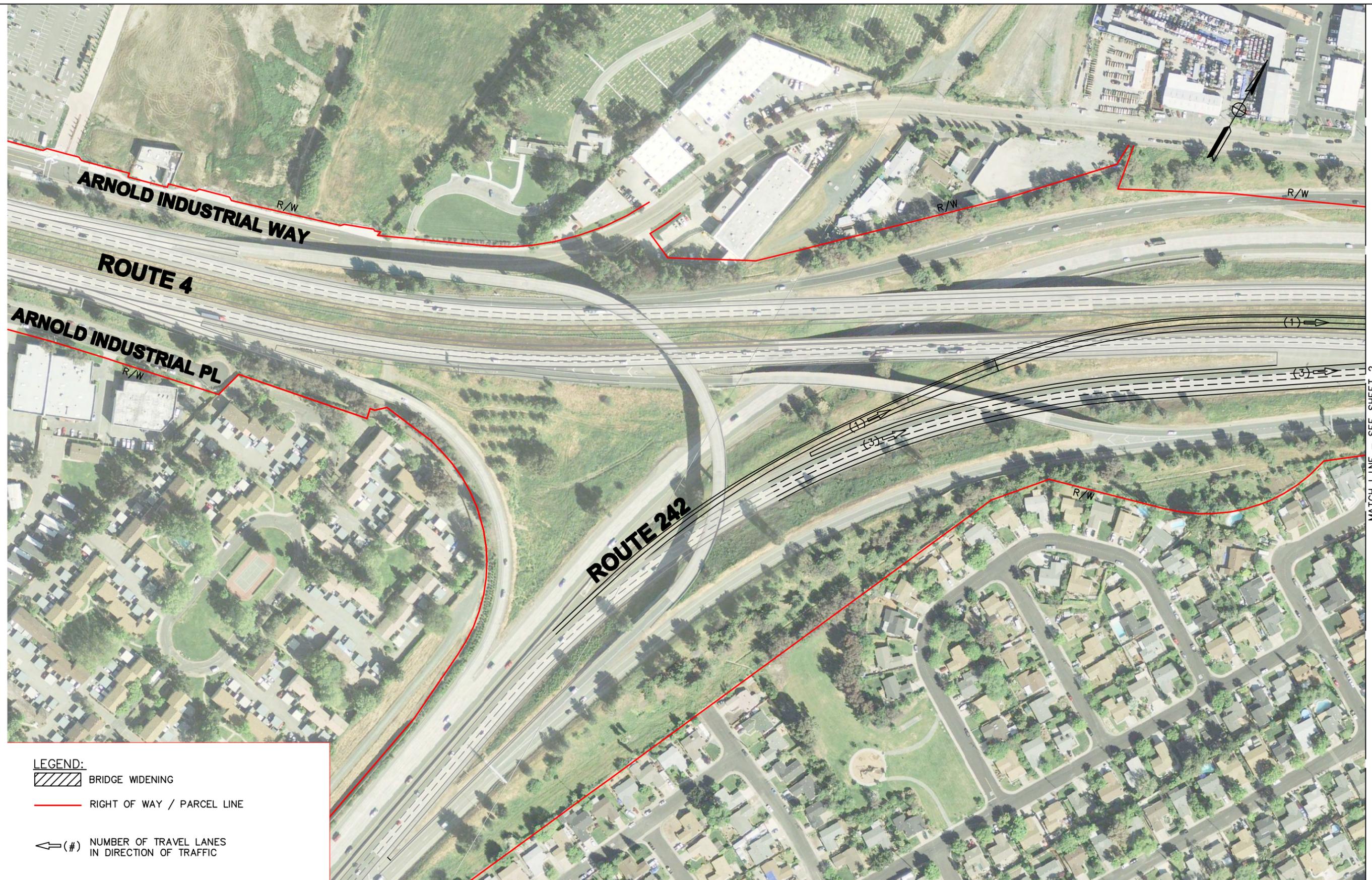
Date: 11/23/16

REQUIRED ATTACHMENTS:

- Attachment A: PEAR Environmental Studies Checklist**
- Attachment B: Estimated Resources by WBS Code**
- Attachment C: Schedule (Gantt Chart)**
- Attachment D: PEAR Environmental Commitments Cost Estimate (Standard PSR)**

Figure 1





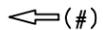
- LEGEND:**
-  BRIDGE WIDENING
 -  RIGHT OF WAY / PARCEL LINE
 -  NUMBER OF TRAVEL LANES IN DIRECTION OF TRAFFIC

Figure 2

SCALE: 1" = 200'
JUNE 2016

**SR4 OPERATIONAL IMPROVEMENT PROJECT
IN CONTRA COSTA COUNTY**

SR4/SR242 HOV DIRECT CONNECTOR RAMP IMPROVEMENT



MATCH LINE - SEE SHEET 1

MATCH LINE - SEE SHEET 3

ARNOLD INDUSTRIAL WAY

ARNOLD INDUSTRIAL WAY

ROUTE 4

R/W

R/W

R/W

R/W

R/W

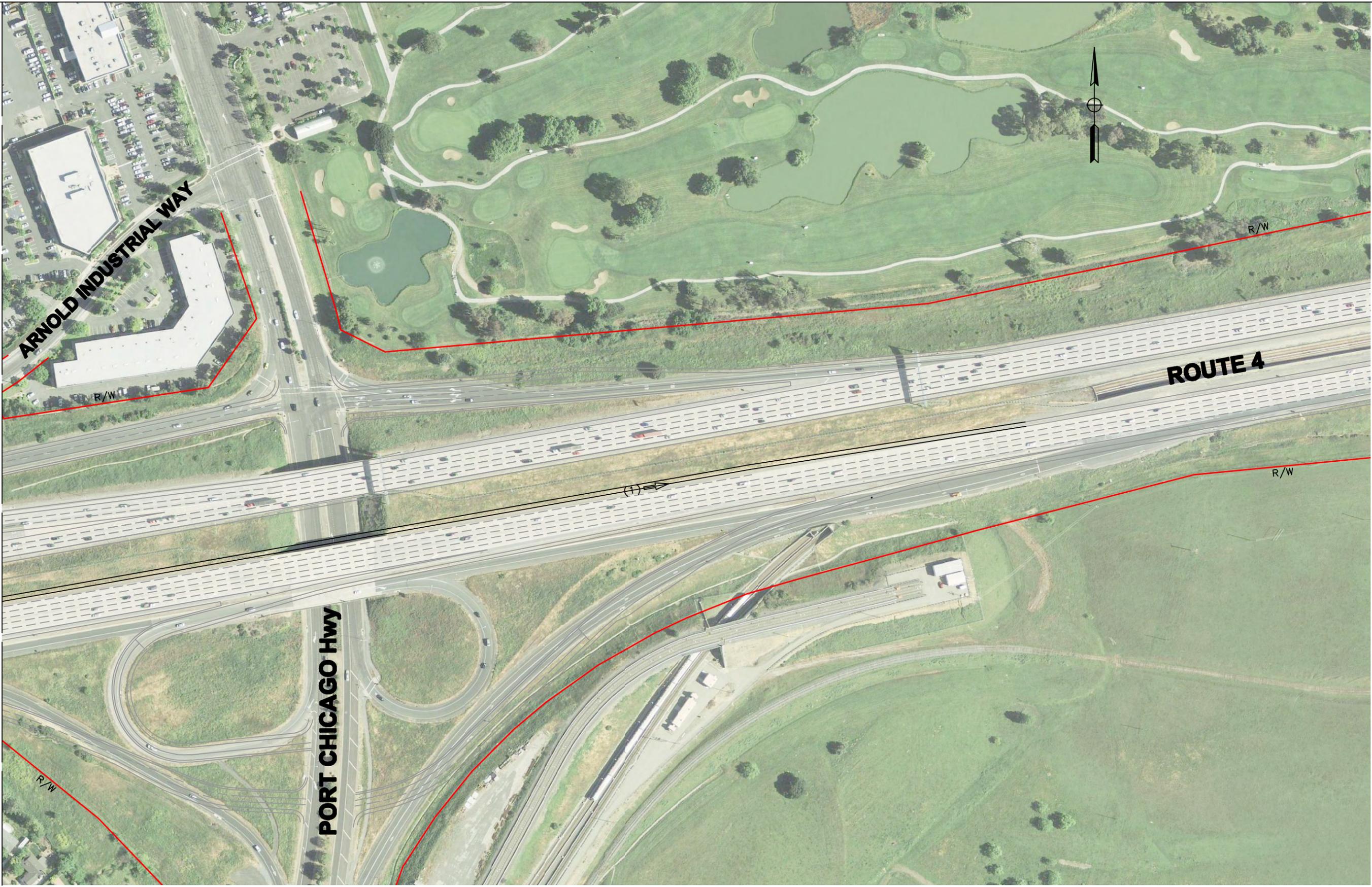
**SR4 OPERATIONAL IMPROVEMENT PROJECT
IN CONTRA COSTA COUNTY**

SR4/SR242 HOV DIRECT CONNECTOR RAMP IMPROVEMENT

FOR LEGEND, SEE SHEET 1 OF 3.

SCALE: 1" = 200'
JUNE 2016

MATCH LINE - SEE SHEET 2

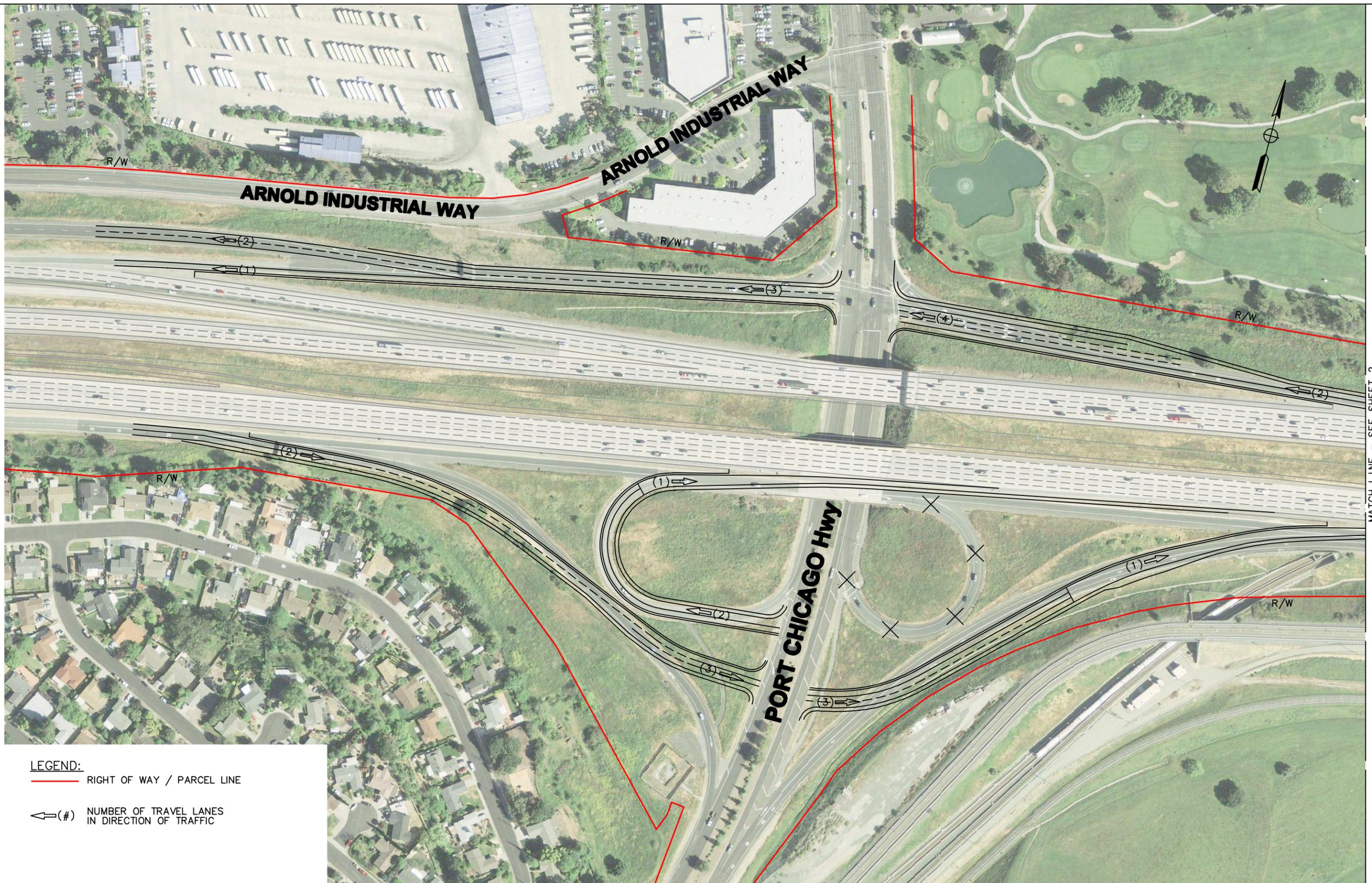


**SR4 OPERATIONAL IMPROVEMENT PROJECT
IN CONTRA COSTA COUNTY**

SR4/SR242 HOV DIRECT CONNECTOR RAMP IMPROVEMENT

FOR LEGEND, SEE SHEET 1 OF 3.

SCALE: 1" = 200'
JUNE 2016



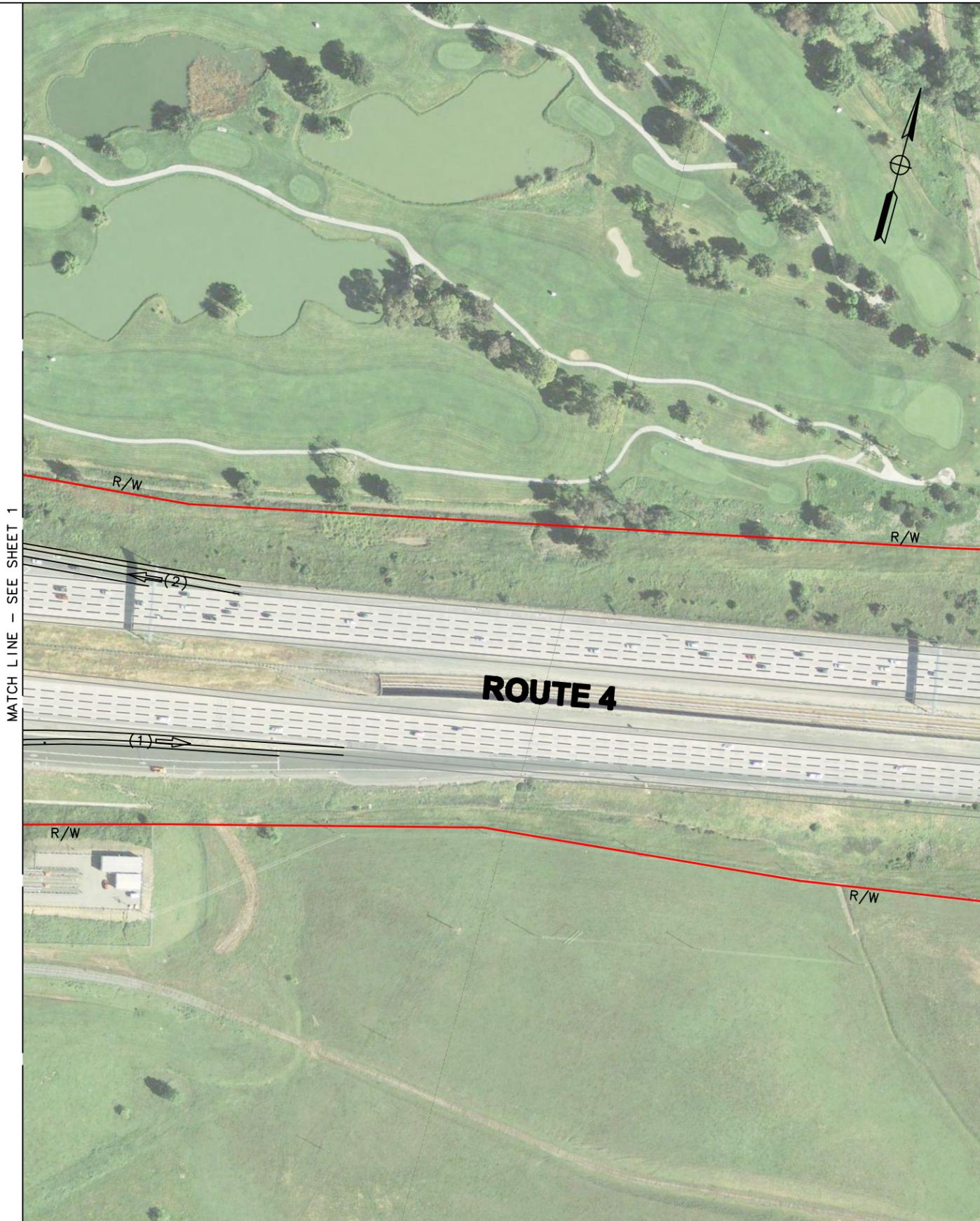
MATCH LINE - SEE SHEET 2

- LEGEND:**
- RIGHT OF WAY / PARCEL LINE
 - $\leftarrow(\#)\rightarrow$ NUMBER OF TRAVEL LANES IN DIRECTION OF TRAFFIC

Figure 3

SCALE: 1" = 200'
JUNE 2016

**SR4 OPERATIONAL IMPROVEMENT PROJECT
IN CONTRA COSTA COUNTY**
PORT CHICAGO HWY INTERCHANGE IMPROVEMENT

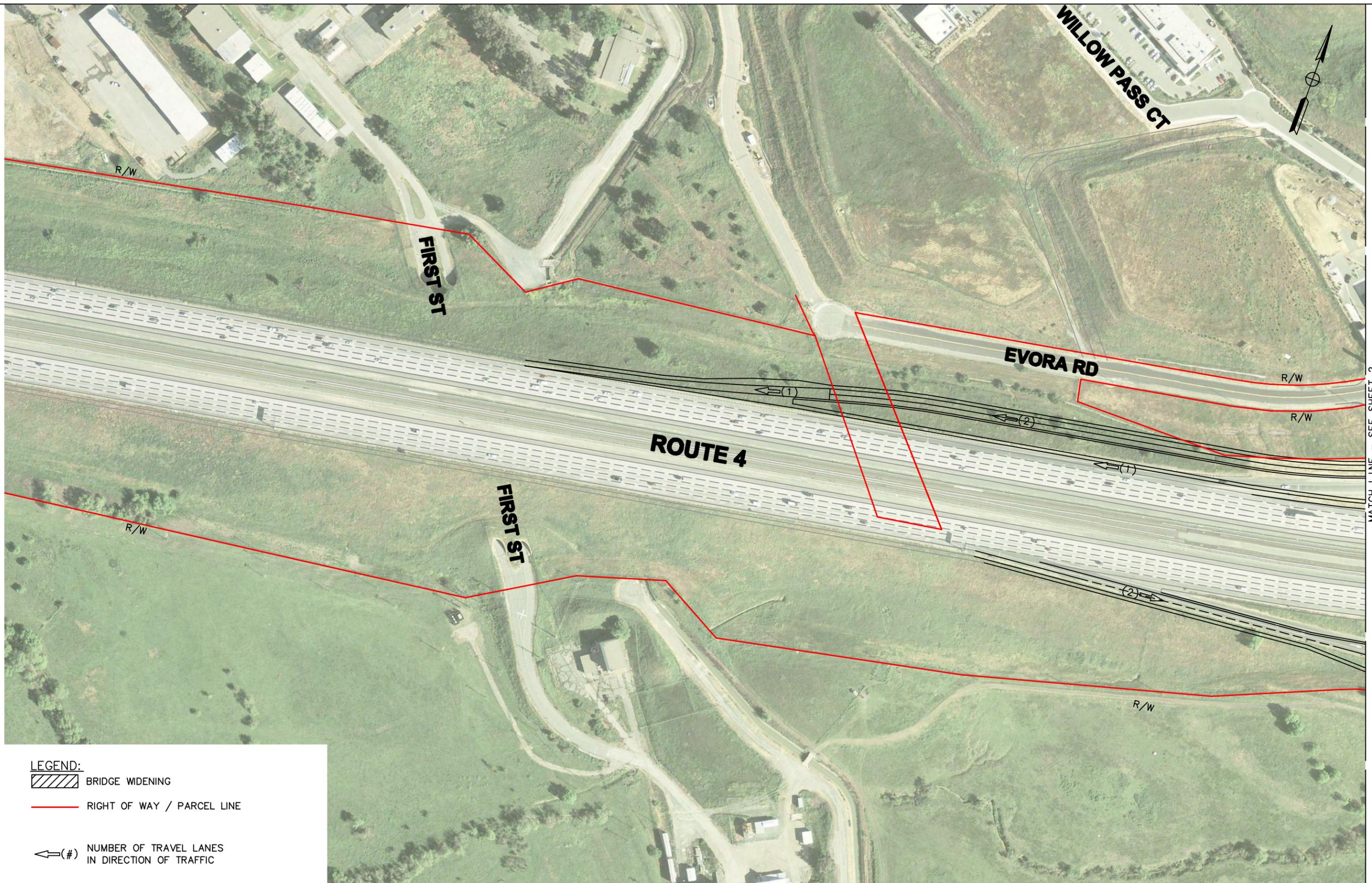


**SR4 OPERATIONAL IMPROVEMENT PROJECT
IN CONTRA COSTA COUNTY**

PORT CHICAGO HWY INTERCHANGE IMPROVEMENT

FOR LEGEND, SEE SHEET 1 OF 2.

SCALE: 1" = 200'
JUNE 2016



MATCH LINE - SEE SHEET 2

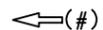
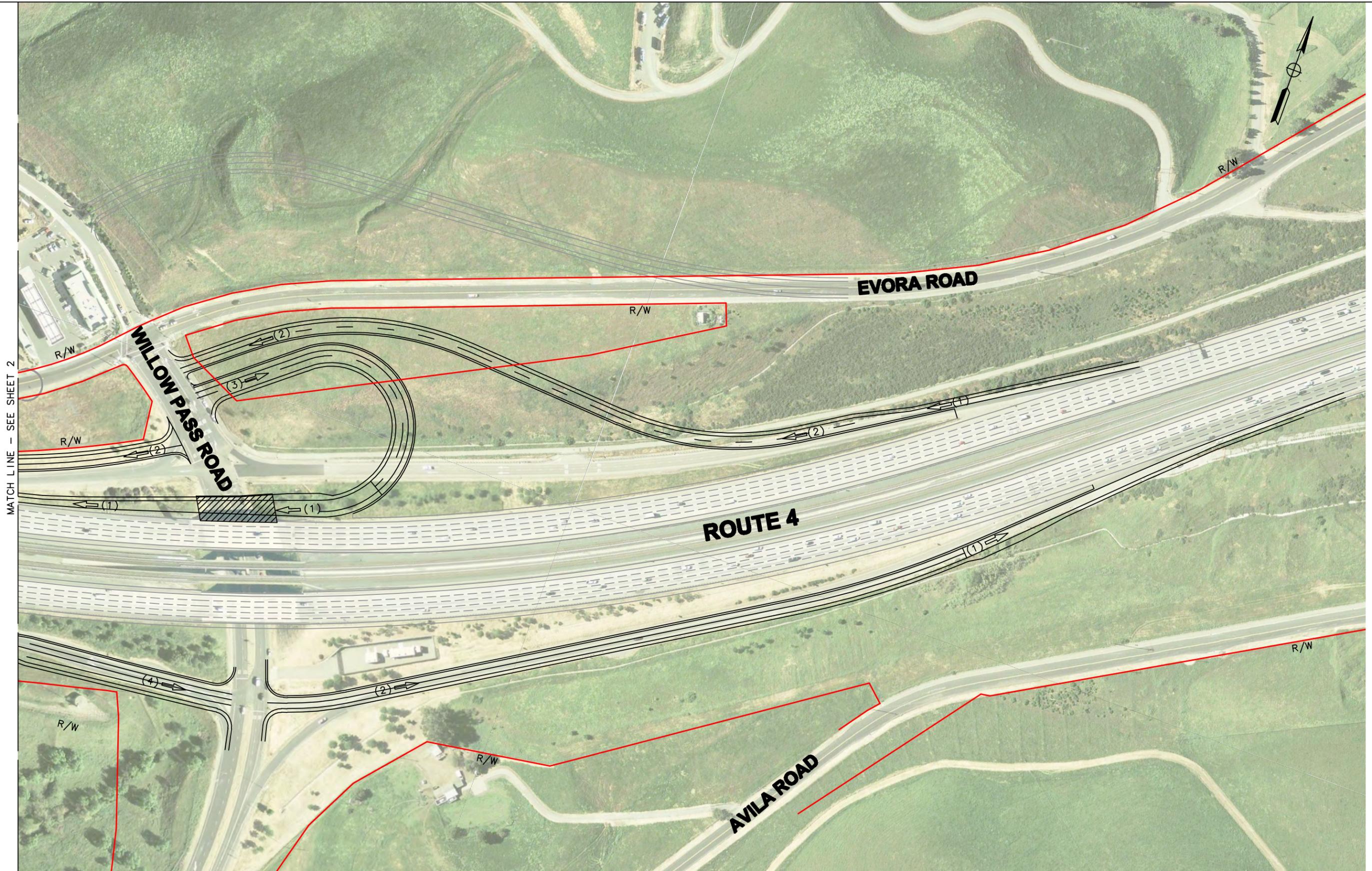
- LEGEND:**
-  BRIDGE WIDENING
 -  RIGHT OF WAY / PARCEL LINE
 -  NUMBER OF TRAVEL LANES IN DIRECTION OF TRAFFIC

Figure 4a

SCALE: 1" = 200'
JUNE 2016

**SR4 OPERATIONAL IMPROVEMENT PROJECT
IN CONTRA COSTA COUNTY**

WILLOW PASS ROAD INTERCHANGE IMPROVEMENT
PARTIAL CLOVERLEAF (TYPE L-9) ALTERNATIVE



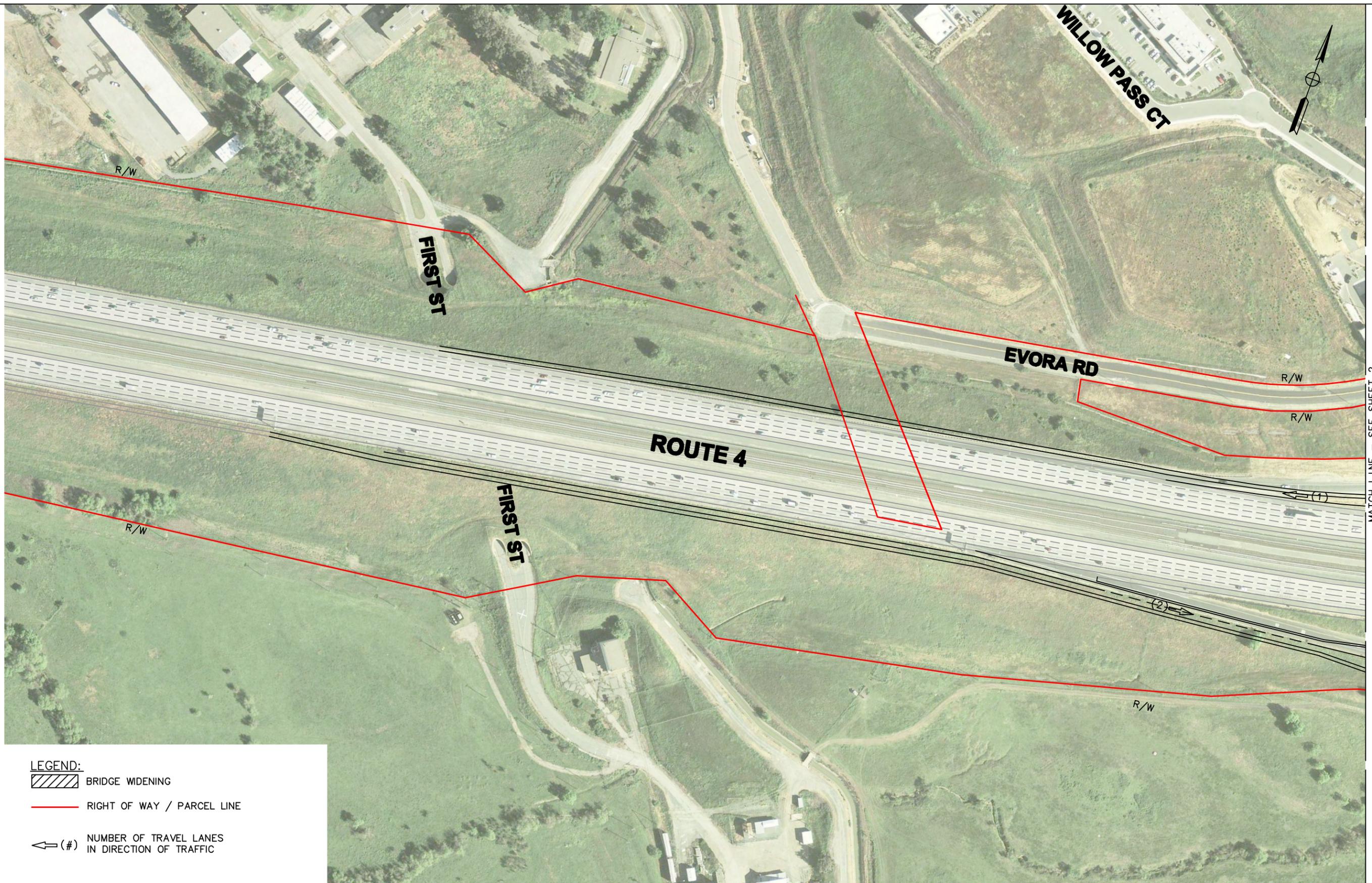
MATCH LINE - SEE SHEET 2

**SR4 OPERATIONAL IMPROVEMENT PROJECT
IN CONTRA COSTA COUNTY**

WILLOW PASS ROAD INTERCHANGE IMPROVEMENT
PARTIAL CLOVERLEAF (TYPE L-9) ALTERNATIVE

FOR LEGEND, SEE SHEET 1 OF 2.

SCALE: 1" = 200'
JUNE 2016



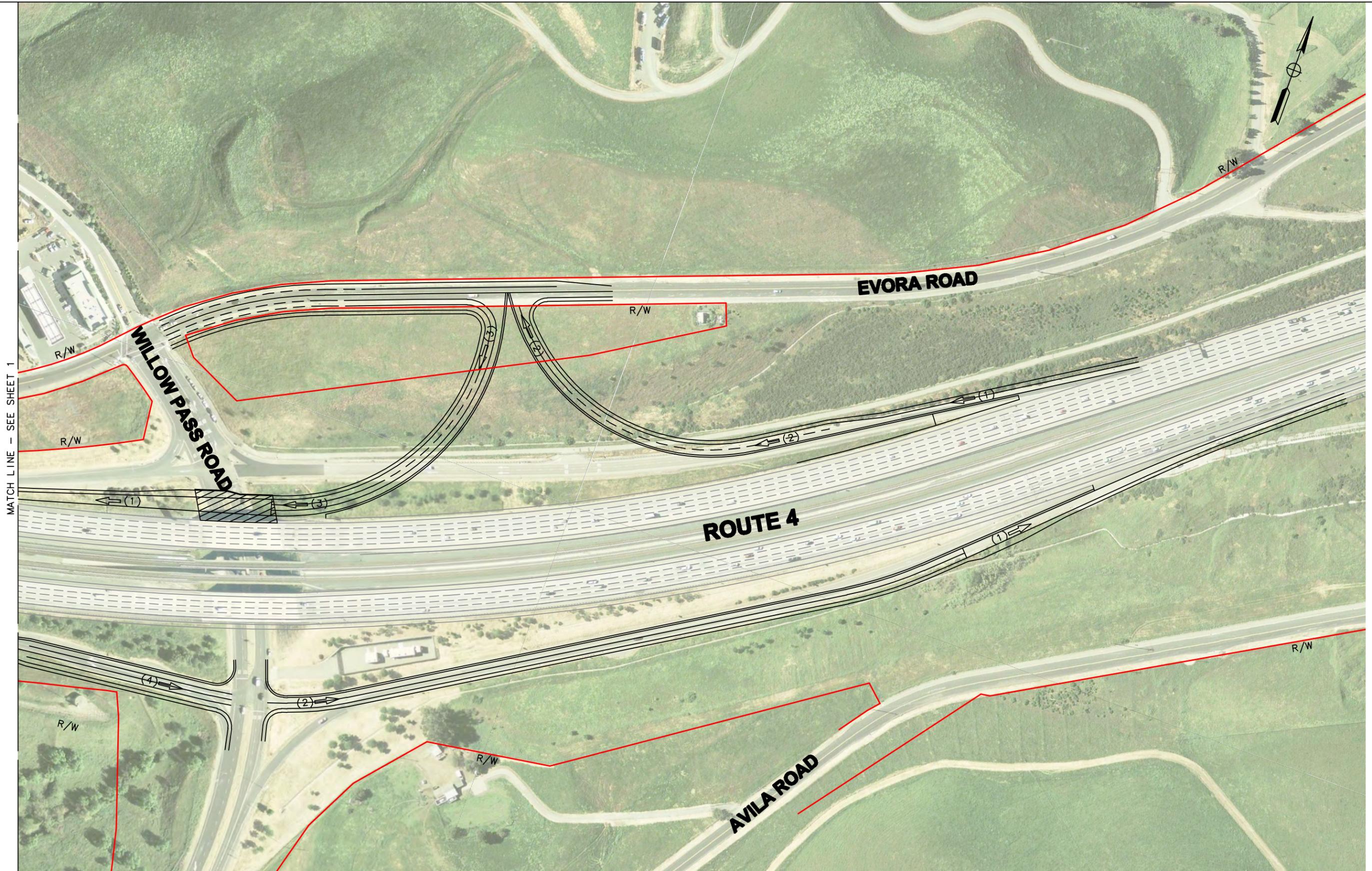
MATCH LINE - SEE SHEET 2

- LEGEND:**
- BRIDGE WIDENING
 - RIGHT OF WAY / PARCEL LINE
 - NUMBER OF TRAVEL LANES IN DIRECTION OF TRAFFIC

Figure 4b

SCALE: 1" = 200'
JUNE 2016

**SR4 OPERATIONAL IMPROVEMENT PROJECT
IN CONTRA COSTA COUNTY**
WILLOW PASS ROAD INTERCHANGE IMPROVEMENT
"HOOK" RAMPS (TYPE L-6) ALTERNATIVE



MATCH LINE - SEE SHEET 1

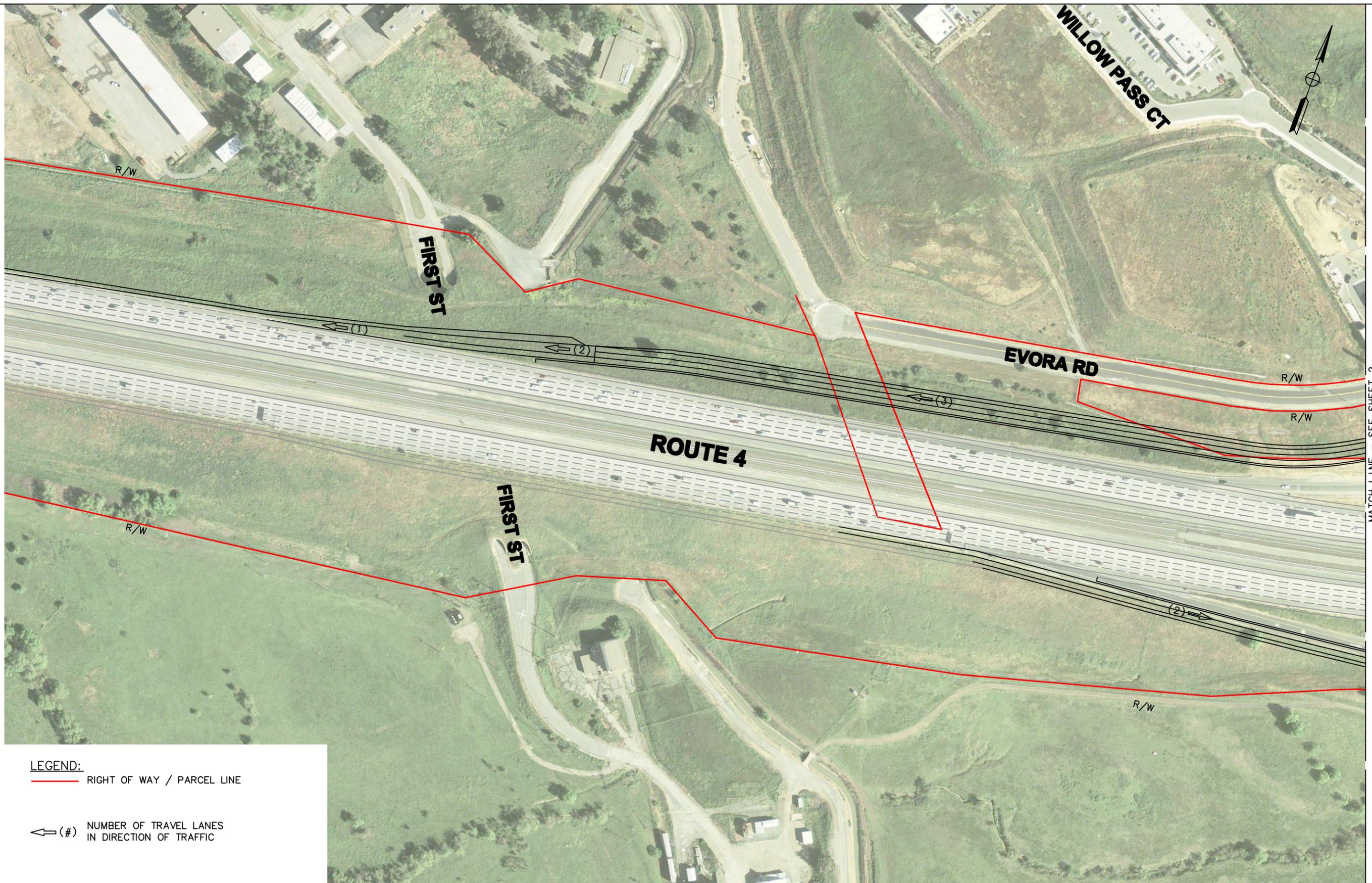
**SR4 OPERATIONAL IMPROVEMENT PROJECT
IN CONTRA COSTA COUNTY**

WILLOW PASS ROAD INTERCHANGE IMPROVEMENT
"HOOK" RAMPS (TYPE L-6) ALTERNATIVE

FOR LEGEND, SEE SHEET 1 OF 2.

SCALE: 1" = 200'
JUNE 2016

SHEET 2 OF 2



MATCH LINE - SEE SHEET 2

LEGEND:
 — RIGHT OF WAY / PARCEL LINE

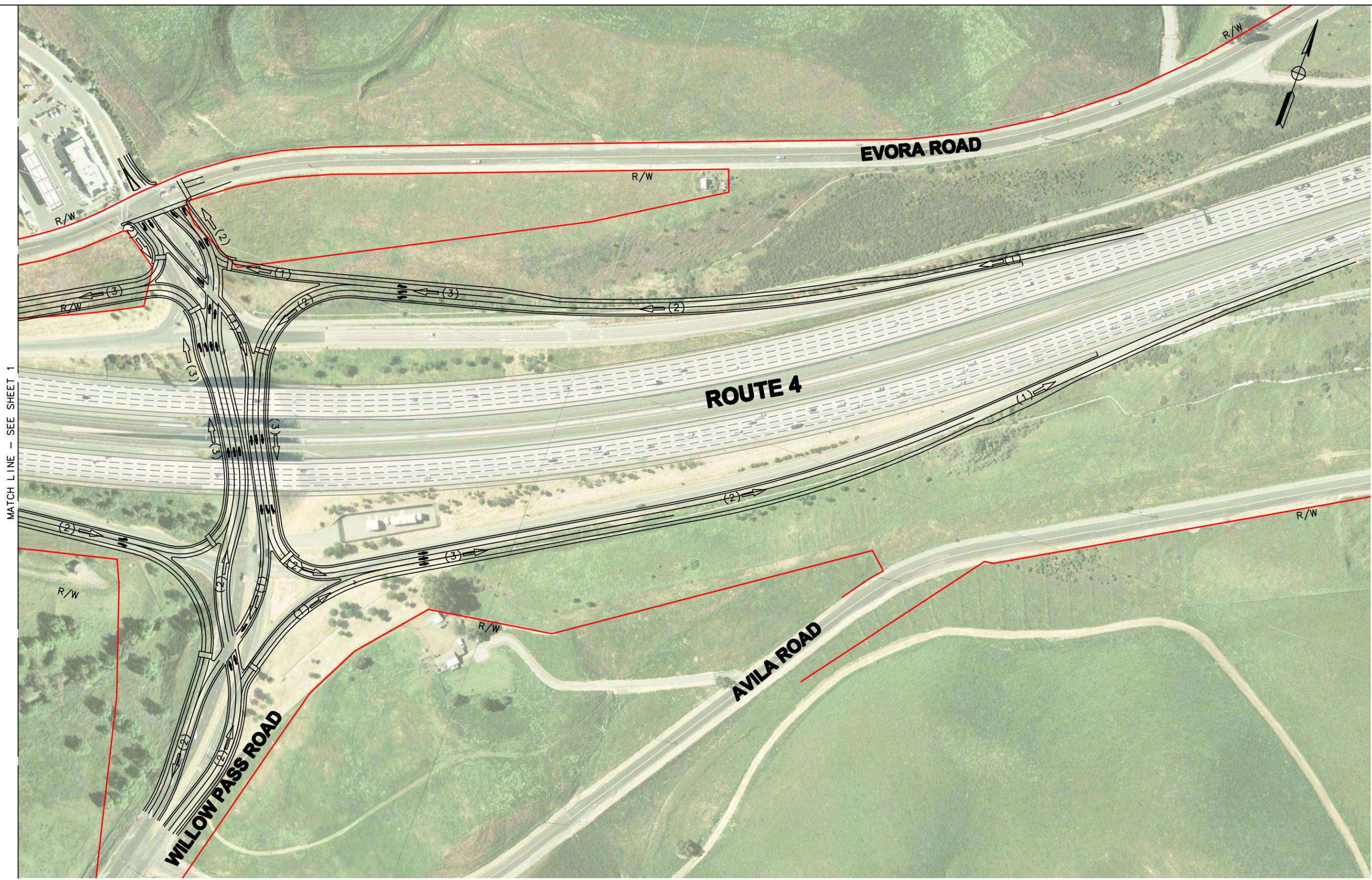
← (#) NUMBER OF TRAVEL LANES
 IN DIRECTION OF TRAFFIC

Figure 4c

SCALE: 1" = 200'
 JUNE 2016

**SR4 OPERATIONAL IMPROVEMENT PROJECT
 IN CONTRA COSTA COUNTY**

WILLOW PASS ROAD INTERCHANGE IMPROVEMENT
 DIVERGING DIAMOND ALTERNATIVE



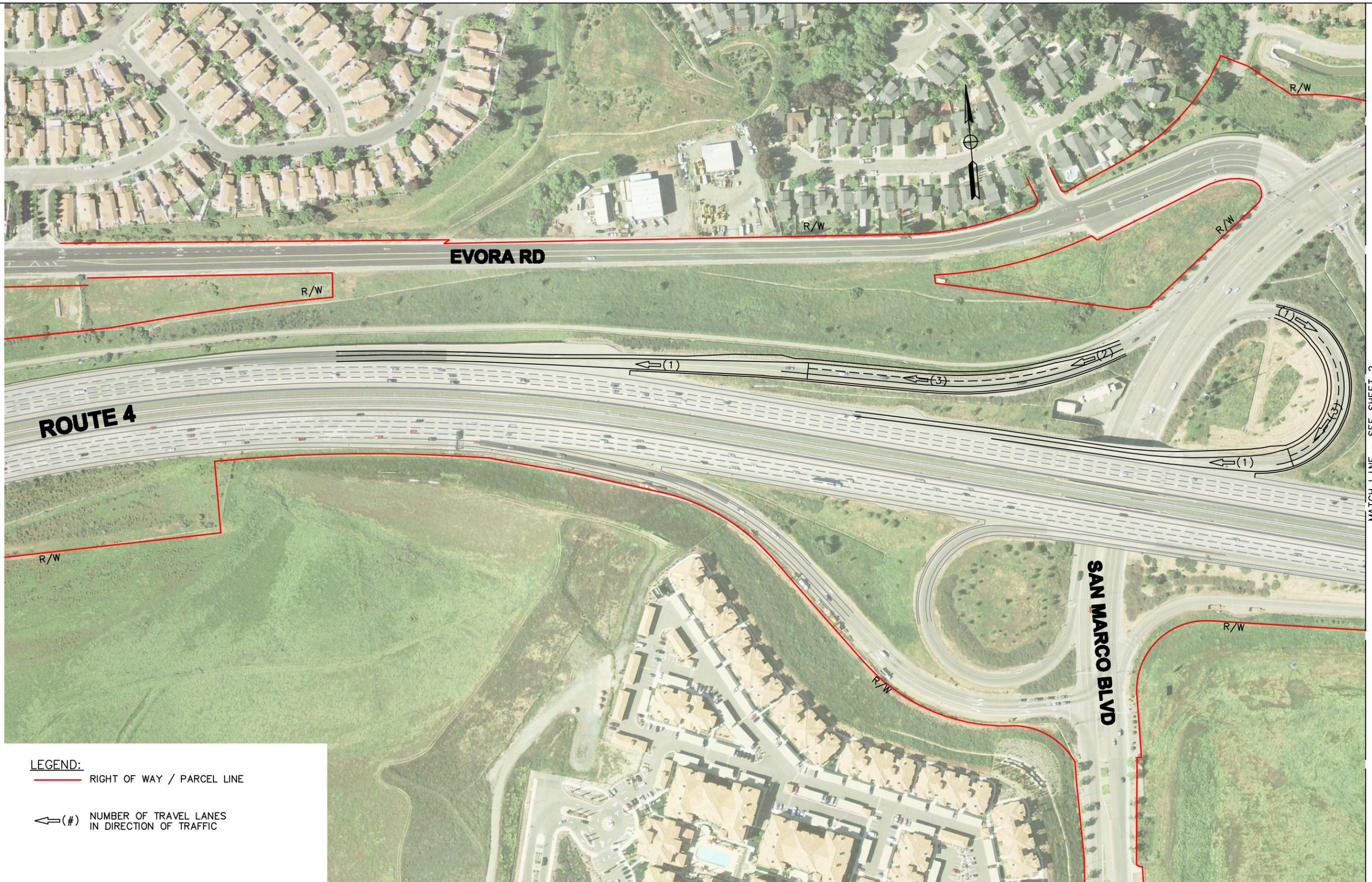
MATCH LINE - SEE SHEET 1

FOR LEGEND, SEE SHEET 1 OF 2.

SCALE: 1" = 200'
JUNE 2016

**SR4 OPERATIONAL IMPROVEMENT PROJECT
IN CONTRA COSTA COUNTY**

WILLOW PASS ROAD INTERCHANGE IMPROVEMENT
DIVERGING DIAMOND ALTERNATIVE



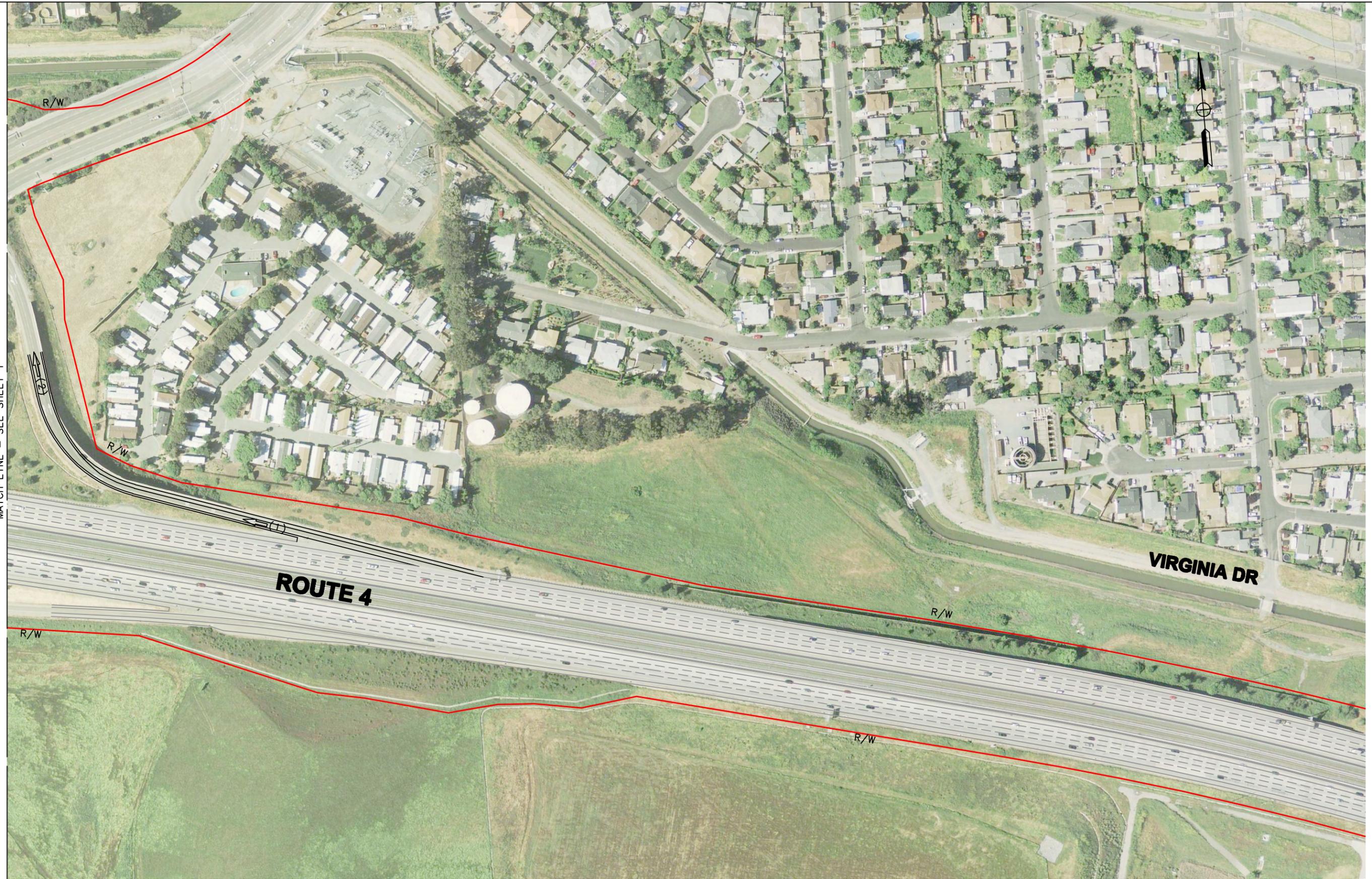
LEGEND:
 — R/W — RIGHT OF WAY / PARCEL LINE
 ← (#) NUMBER OF TRAVEL LANES IN DIRECTION OF TRAFFIC

MATCH LINE - SEE SHEET 2

Figure 5

SCALE: 1" = 200'
 JUNE 2016

**SR4 OPERATIONAL IMPROVEMENT PROJECT
 IN CONTRA COSTA COUNTY**
 SAN MARCO BLVD INTERCHANGE IMPROVEMENT



MATCH LINE - SEE SHEET 1

ROUTE 4

VIRGINIA DR

R/W

R/W

R/W

R/W

R/W

**SR4 OPERATIONAL IMPROVEMENT PROJECT
IN CONTRA COSTA COUNTY**

SAN MARCO BLVD INTERCHANGE IMPROVEMENT

FOR LEGEND, SEE SHEET 1 OF 2.

SCALE: 1" = 200'
JUNE 2016

LEGEND:

- PACKAGE 1A
- PACKAGE 1B
- PACKAGE 1C
- PACKAGE 1D
- INTERCHANGE IMPROVEMENT FEATURES
- RIGHT OF WAY / PARCEL LINE
- INTERCHANGE IMPROVEMENT BOUNDARY
- (#) NUMBER OF TRAVEL LANES IN DIRECTION OF TRAFFIC
- PACKAGE 1E
- PACKAGE 1F
- PACKAGE 1G
- BRIDGE WIDENING

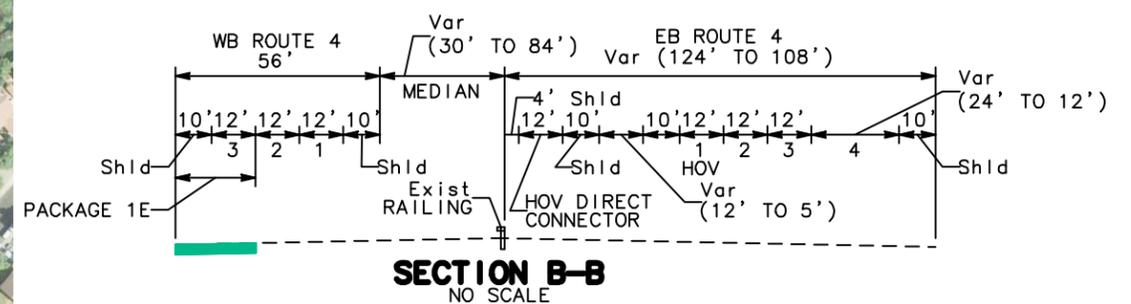
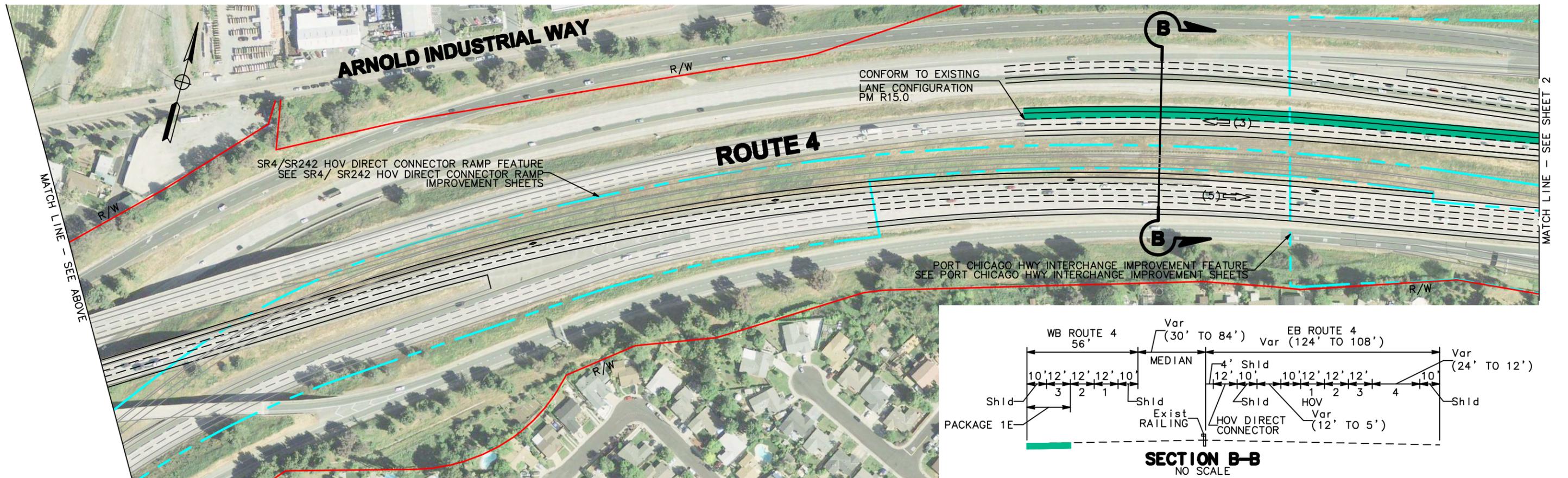
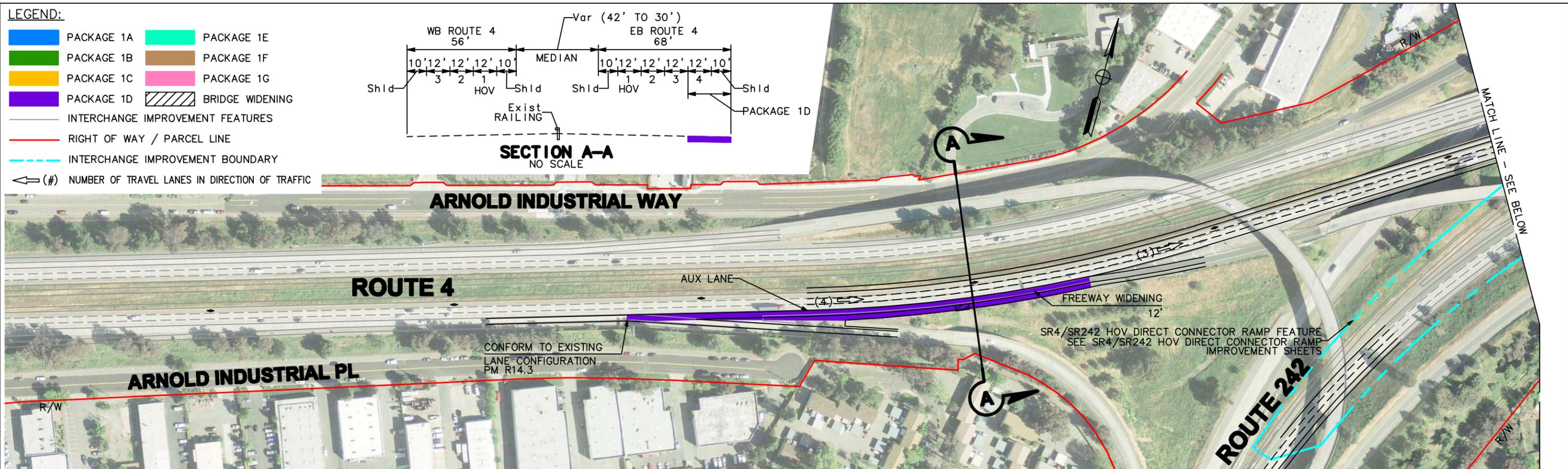
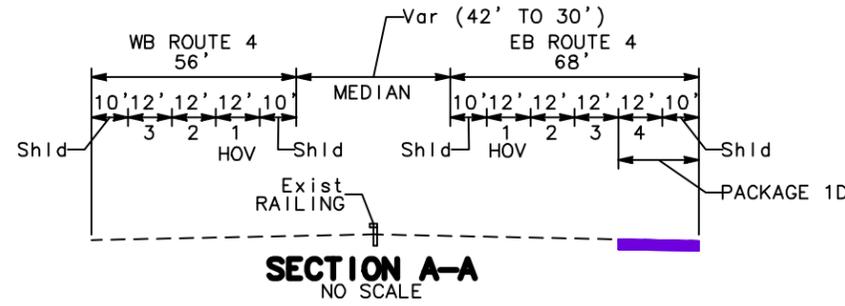
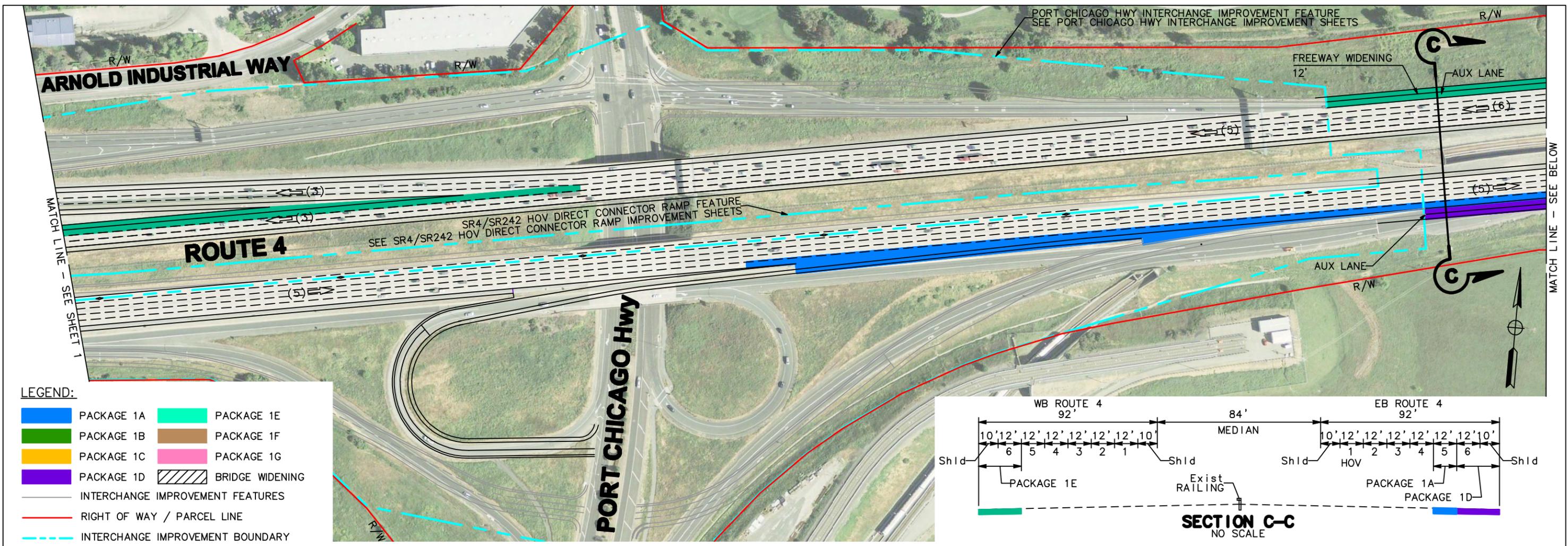


Figure 6

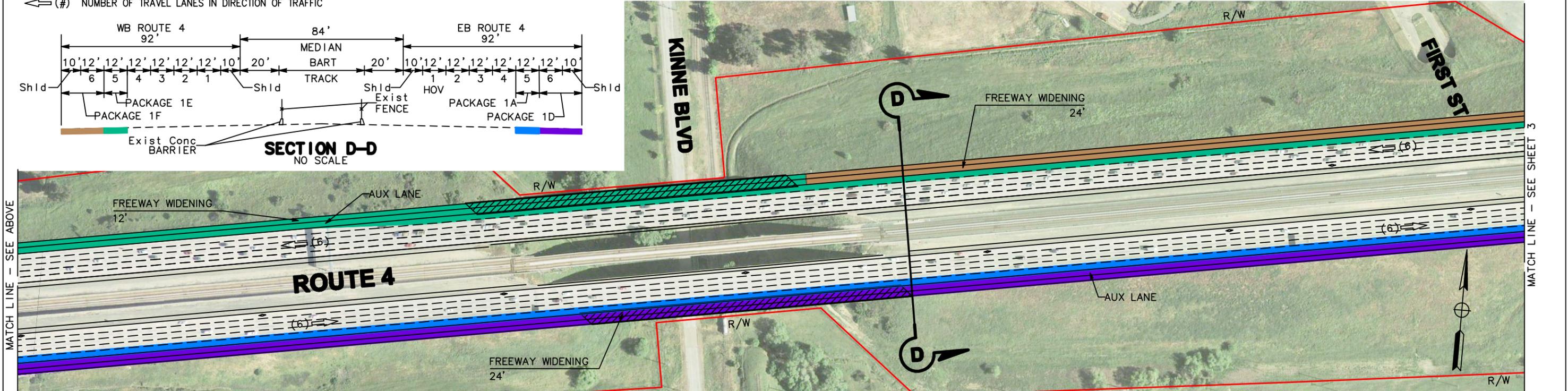
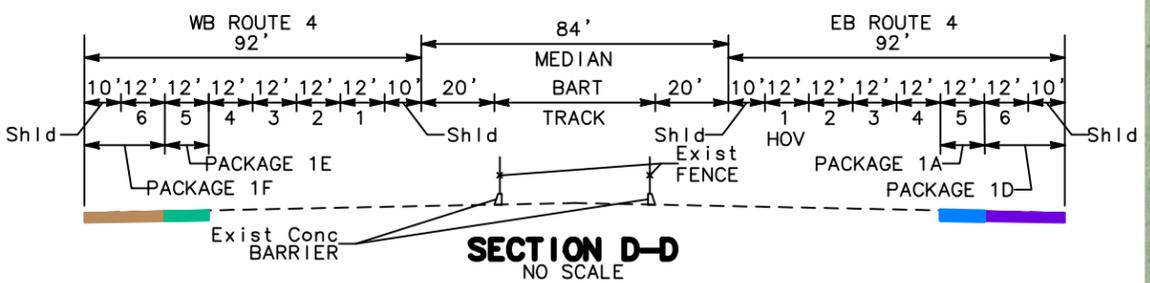
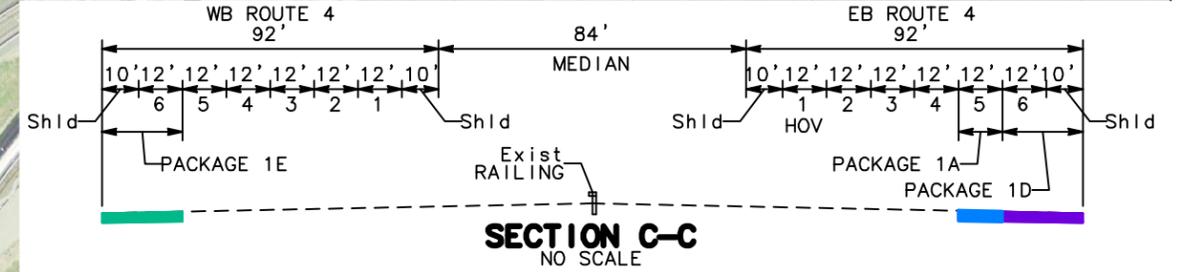
SCALE: 1" = 200'
JUNE 2016

**SR4 OPERATIONAL IMPROVEMENT PROJECT
IN CONTRA COSTA COUNTY**

ALTERNATIVE 1



- LEGEND:**
- PACKAGE 1A
 - PACKAGE 1B
 - PACKAGE 1C
 - PACKAGE 1D
 - PACKAGE 1E
 - PACKAGE 1F
 - PACKAGE 1G
 - BRIDGE WIDENING
 - INTERCHANGE IMPROVEMENT FEATURES
 - RIGHT OF WAY / PARCEL LINE
 - INTERCHANGE IMPROVEMENT BOUNDARY
 - (#) NUMBER OF TRAVEL LANES IN DIRECTION OF TRAFFIC



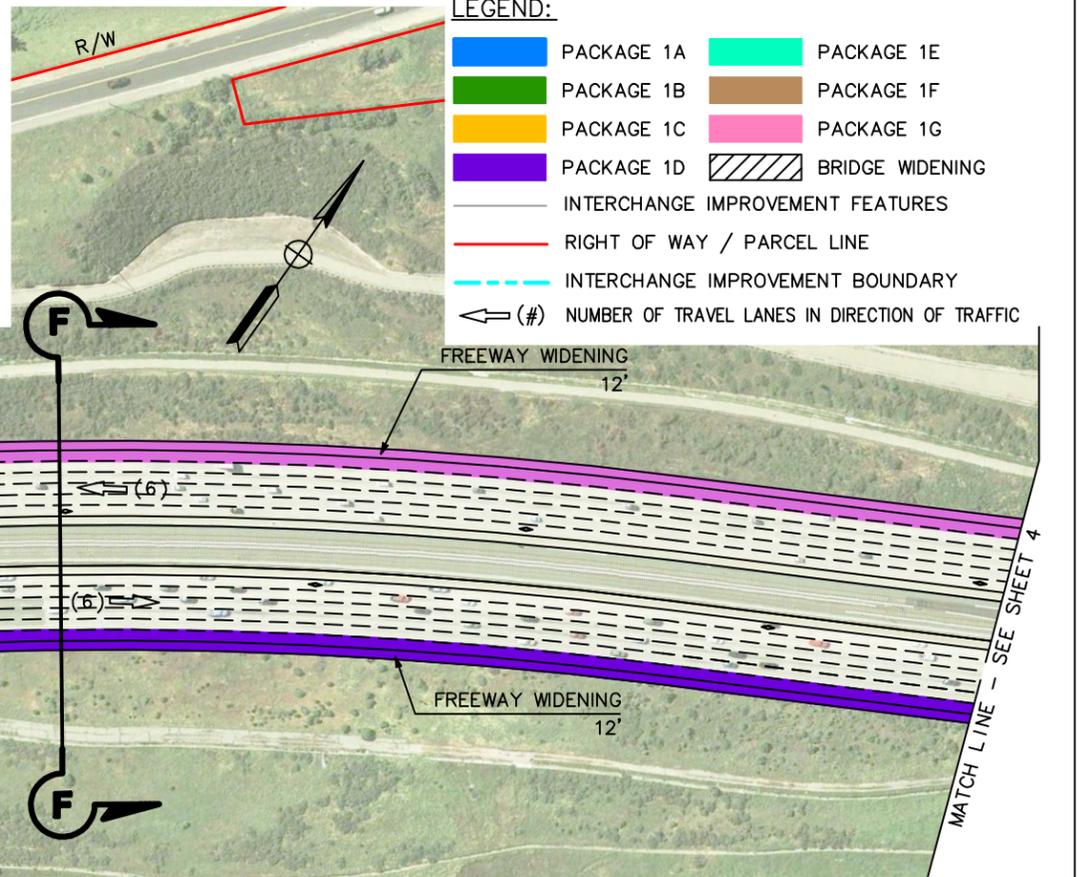
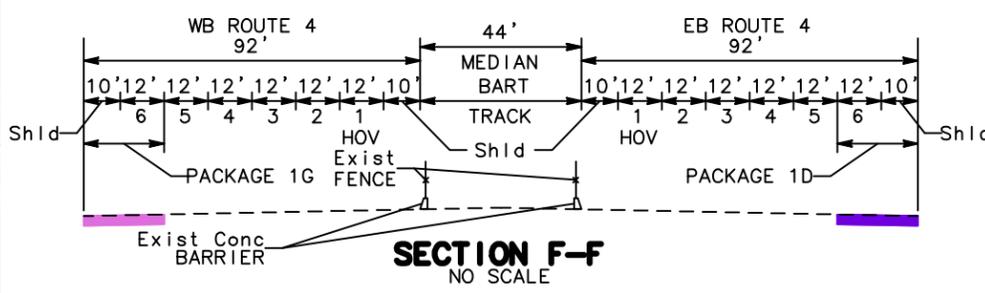
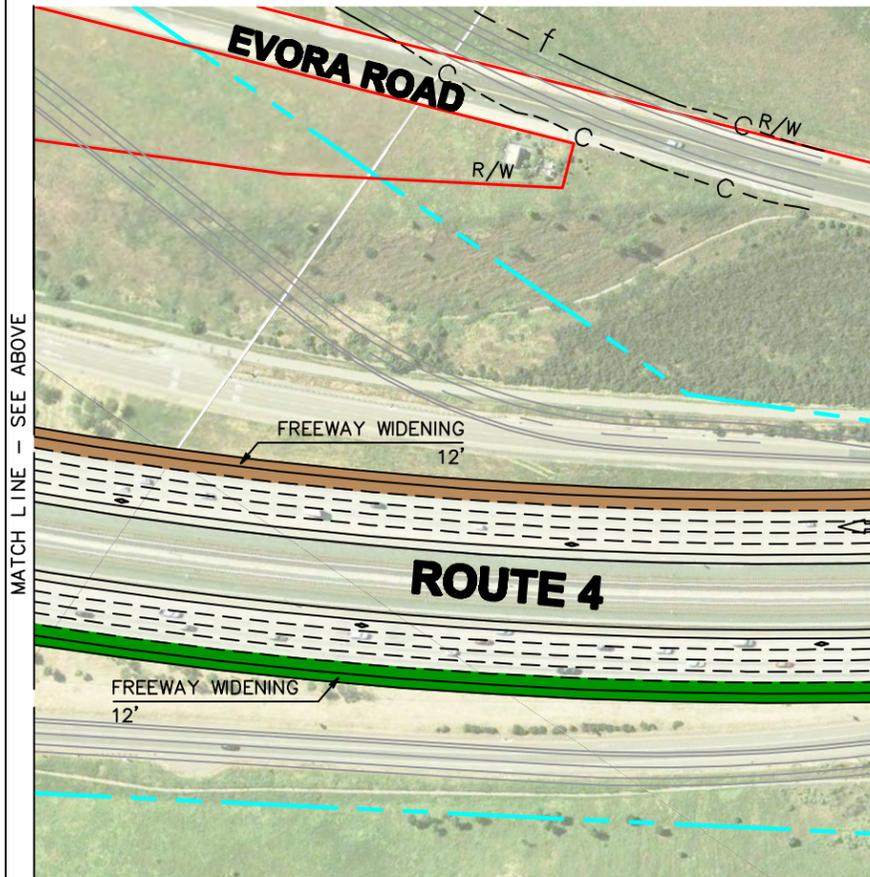
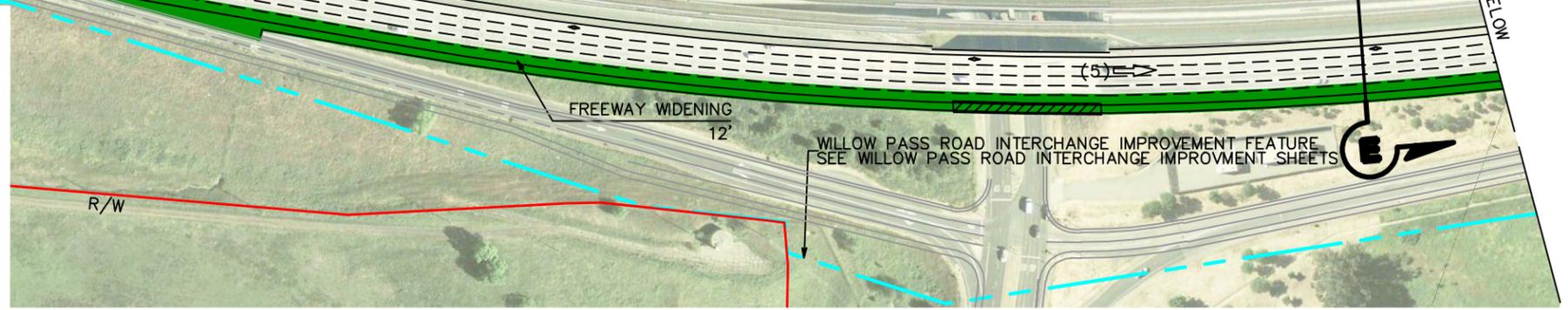
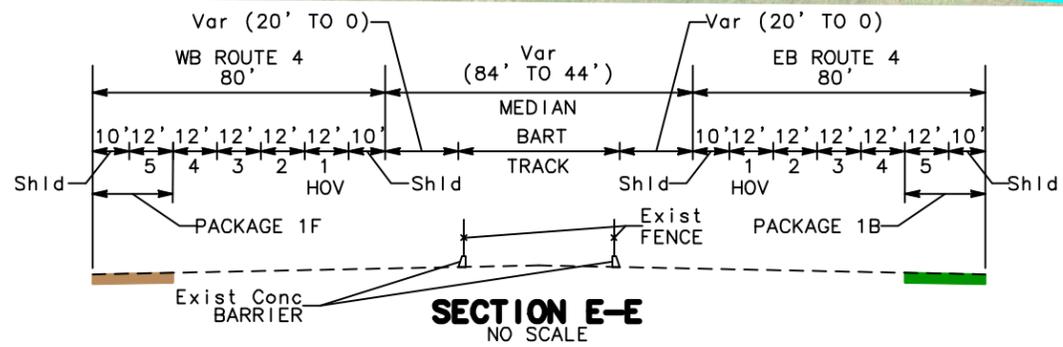
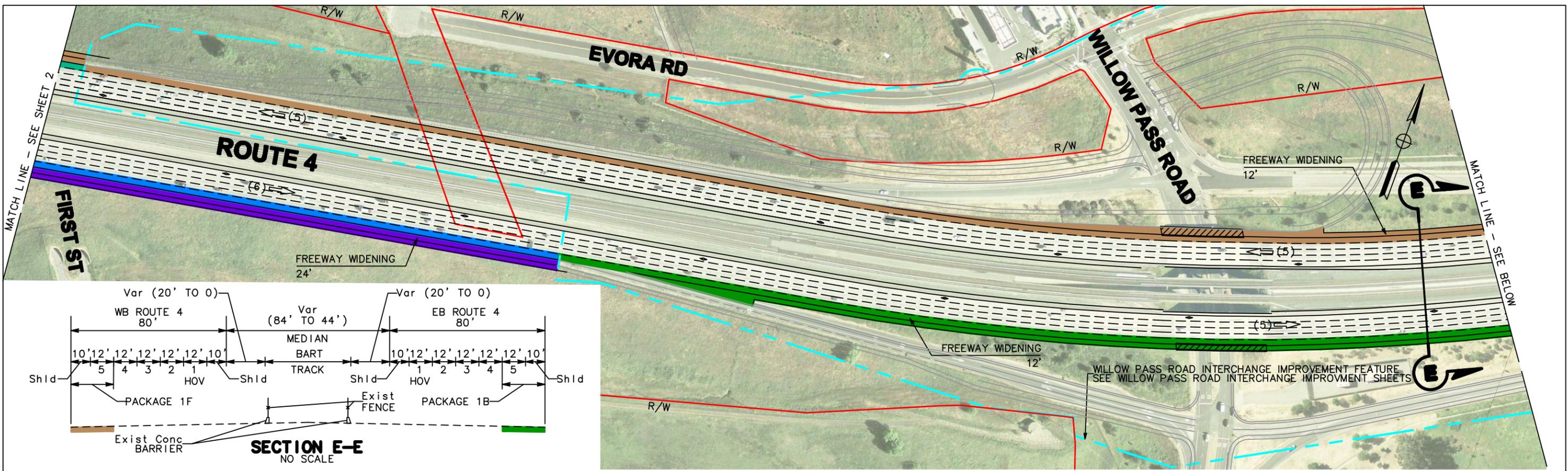
**SR4 OPERATIONAL IMPROVEMENT PROJECT
IN CONTRA COSTA COUNTY**

FOR LEGEND, SEE SHEET 1 OF 5.

SCALE: 1" = 200'
JUNE 2016

ALTERNATIVE 1

SHEET 2 OF 5



LEGEND:

█ PACKAGE 1A	█ PACKAGE 1E
█ PACKAGE 1B	█ PACKAGE 1F
█ PACKAGE 1C	█ PACKAGE 1G
█ PACKAGE 1D	 BRIDGE WIDENING
 INTERCHANGE IMPROVEMENT FEATURES	— RIGHT OF WAY / PARCEL LINE
- - - INTERCHANGE IMPROVEMENT BOUNDARY	⇐ (5) NUMBER OF TRAVEL LANES IN DIRECTION OF TRAFFIC

FOR LEGEND, SEE SHEET 1 OF 5.

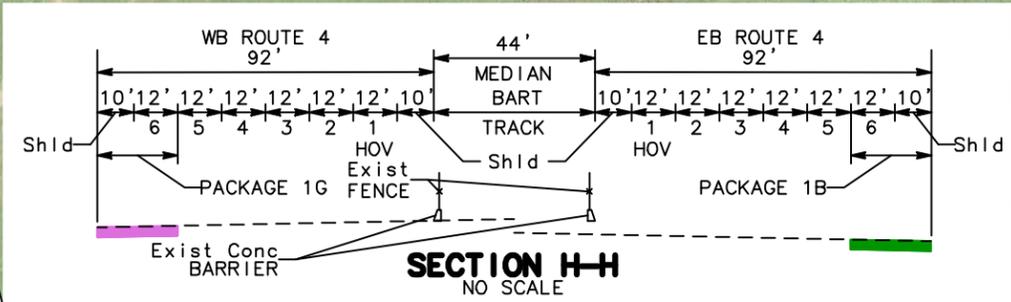
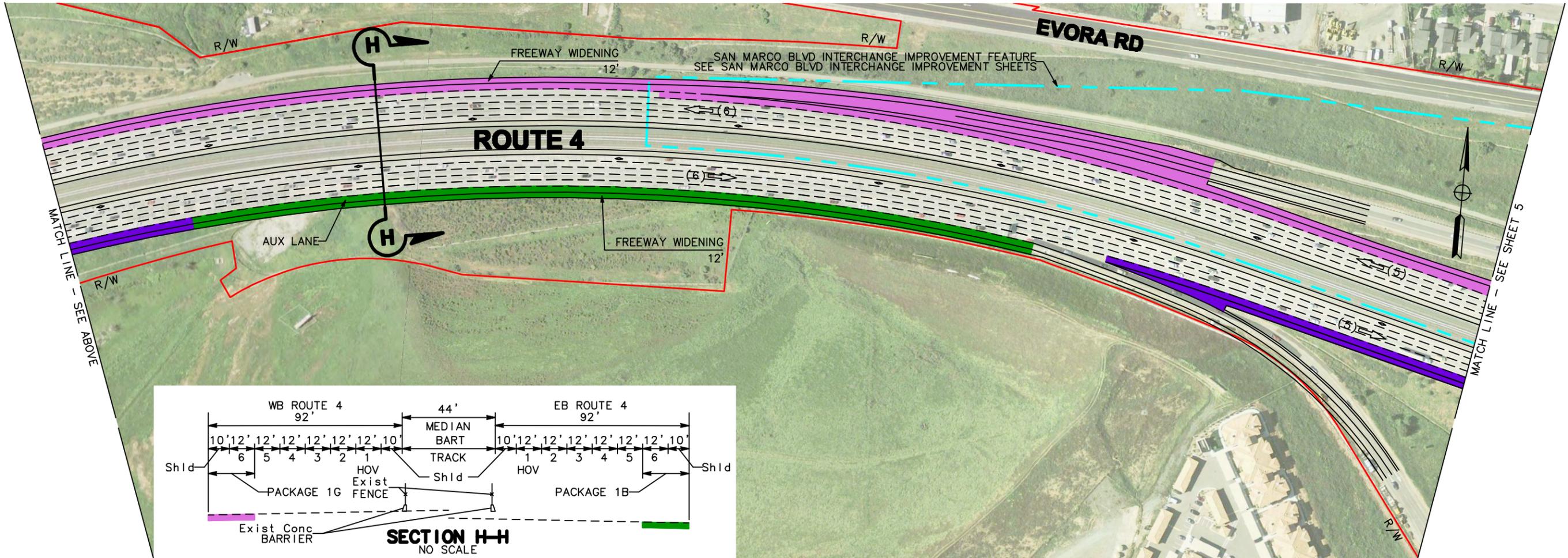
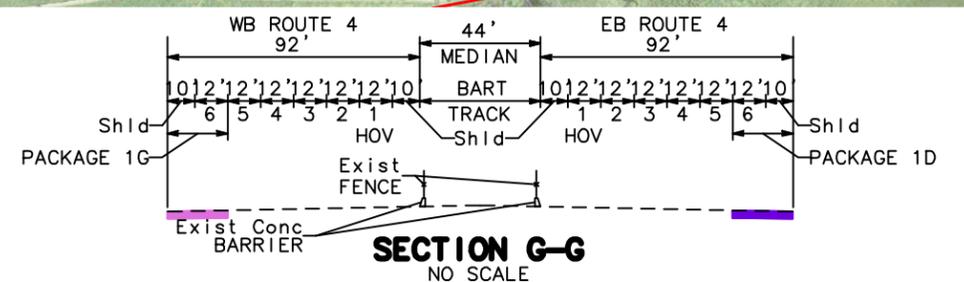
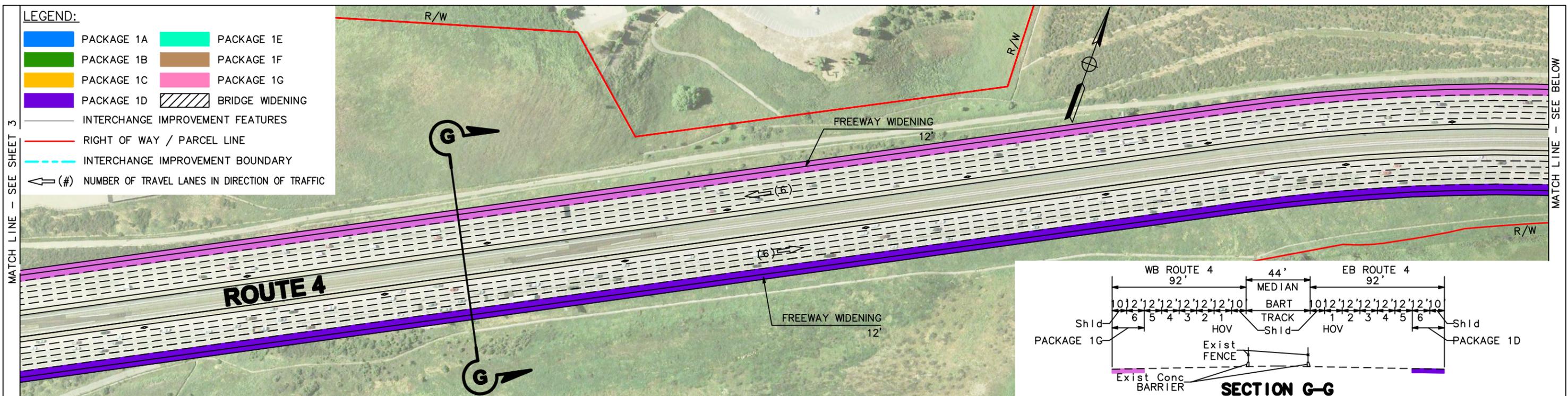
SCALE: 1" = 200'
JUNE 2016

**SR4 OPERATIONAL IMPROVEMENT PROJECT
IN CONTRA COSTA COUNTY**

ALTERNATIVE 1

SHEET 3 OF 5

- LEGEND:**
- PACKAGE 1A
 - PACKAGE 1B
 - PACKAGE 1C
 - PACKAGE 1D
 - PACKAGE 1E
 - PACKAGE 1F
 - PACKAGE 1G
 - BRIDGE WIDENING
 - INTERCHANGE IMPROVEMENT FEATURES
 - RIGHT OF WAY / PARCEL LINE
 - INTERCHANGE IMPROVEMENT BOUNDARY
 - (#) NUMBER OF TRAVEL LANES IN DIRECTION OF TRAFFIC



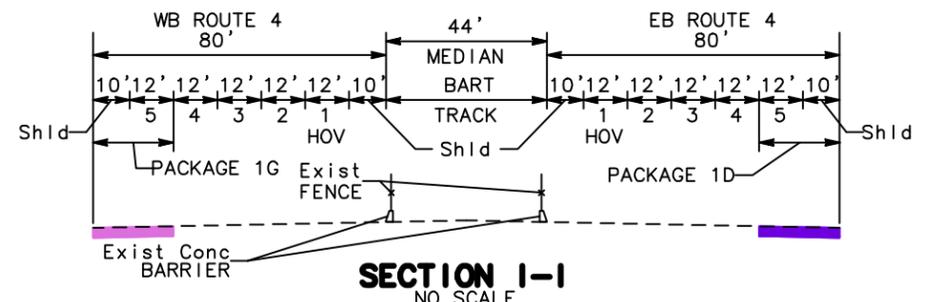
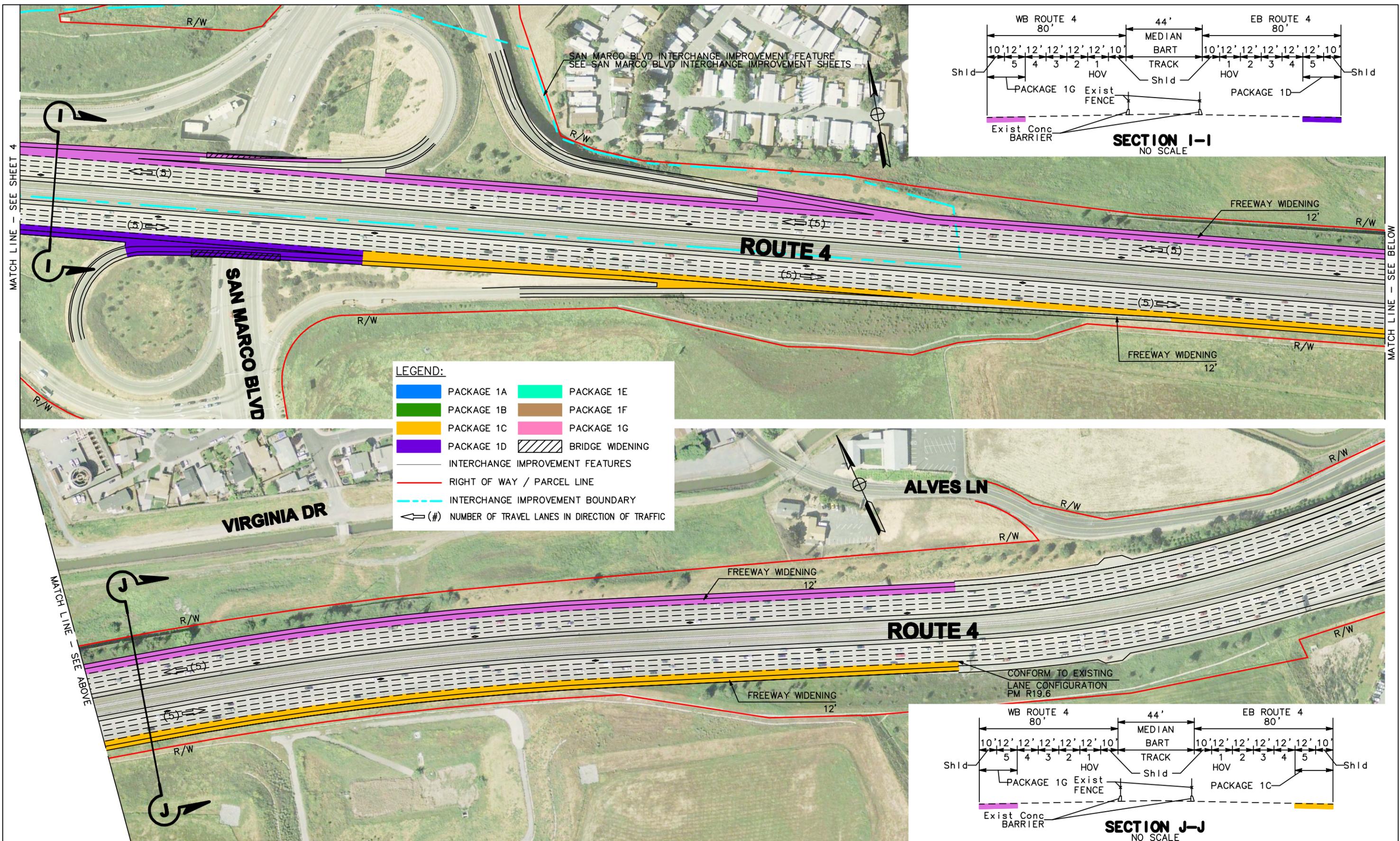
**SR4 OPERATIONAL IMPROVEMENT PROJECT
IN CONTRA COSTA COUNTY**

FOR LEGEND, SEE SHEET 1 OF 5.

SCALE: 1" = 200'
JUNE 2016

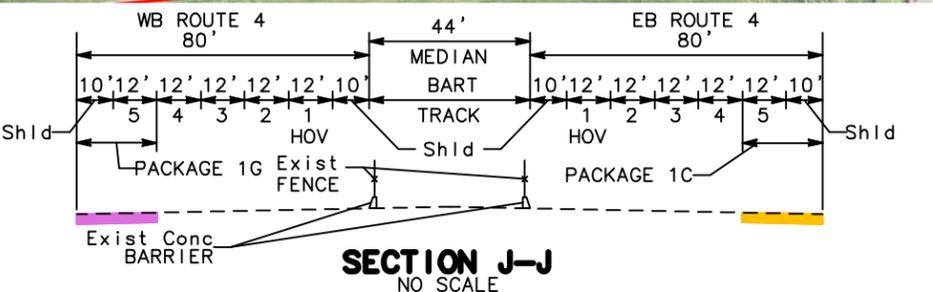
ALTERNATIVE 1

SHEET 4 OF 5



LEGEND:

 PACKAGE 1A	 PACKAGE 1E
 PACKAGE 1B	 PACKAGE 1F
 PACKAGE 1C	 PACKAGE 1G
 PACKAGE 1D	 BRIDGE WIDENING
 INTERCHANGE IMPROVEMENT FEATURES	
 RIGHT OF WAY / PARCEL LINE	
 INTERCHANGE IMPROVEMENT BOUNDARY	
 (#)	NUMBER OF TRAVEL LANES IN DIRECTION OF TRAFFIC



FOR LEGEND, SEE SHEET 1 OF 5.

SCALE: 1" = 200'
JUNE 2016

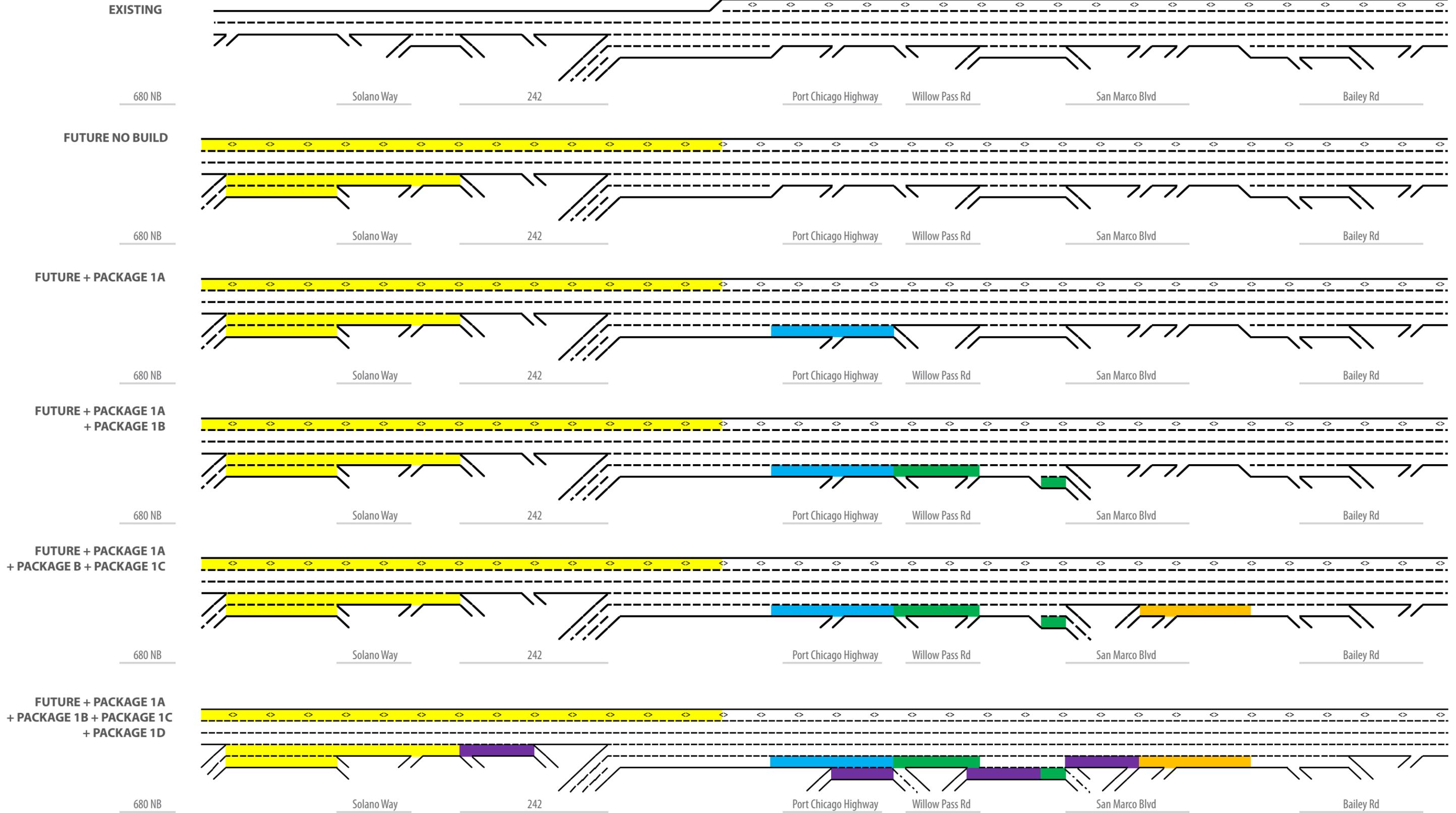
**SR4 OPERATIONAL IMPROVEMENT PROJECT
IN CONTRA COSTA COUNTY**

ALTERNATIVE 1

SHEET 5 OF 5

ALTERNATIVE 1 - TRADITIONAL OUTSIDE WIDENING

Figure 7



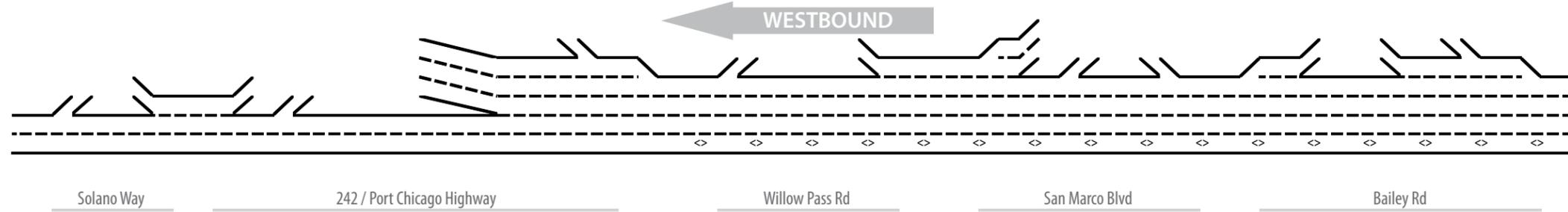
LEGEND <> HOV Lane I-680/SR-4 Improvement (Future No Build) Package 1A Package 1B Package 1C Package 1D

Eastbound Operational Improvement Packages

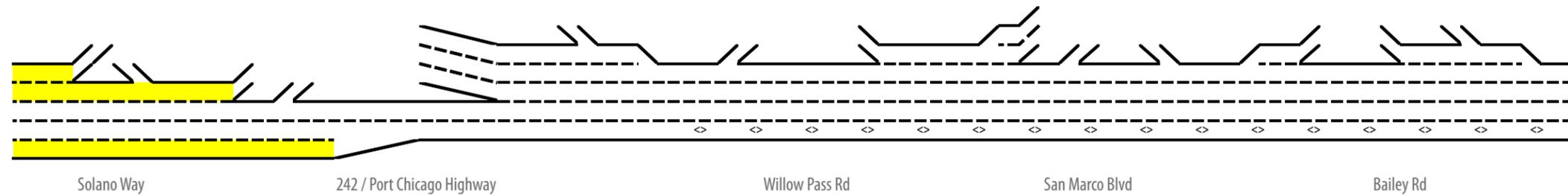
ALTERNATIVE 1 - TRADITIONAL OUTSIDE WIDENING

WESTBOUND

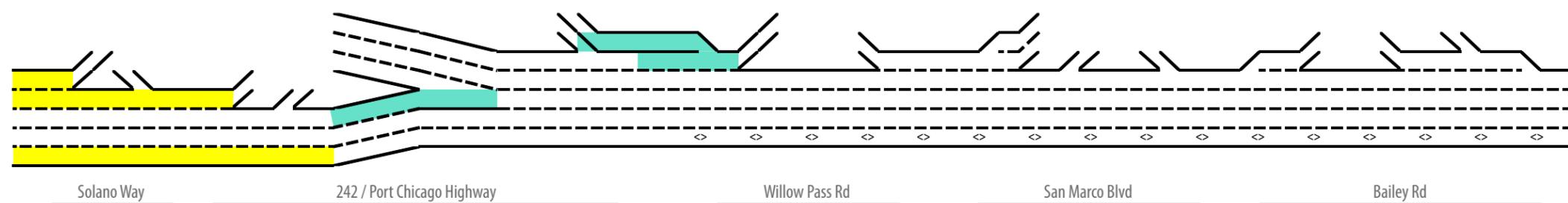
EXISTING



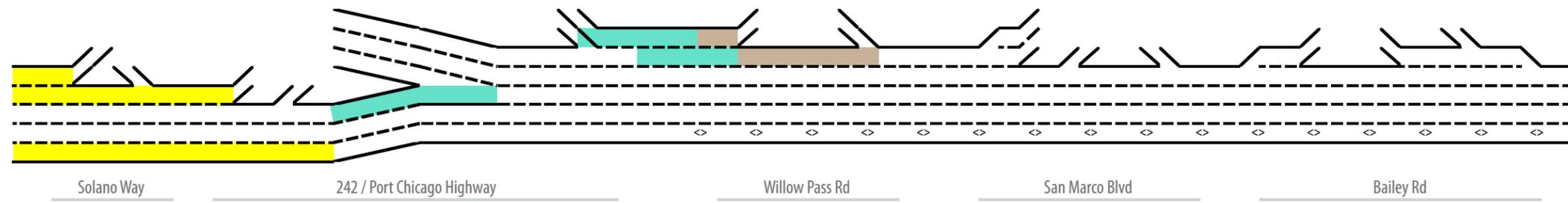
FUTURE NO BUILD



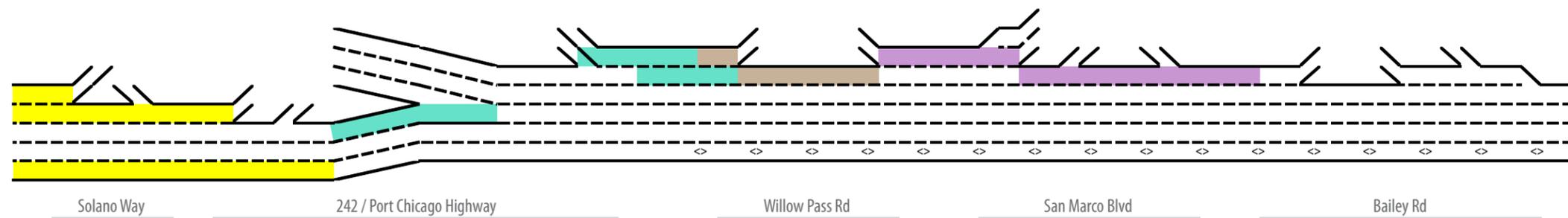
FUTURE + PACKAGE 1E



FUTURE + PACKAGE 1E + PACKAGE 1F



FUTURE + PACKAGE 1E + PACKAGE 1F + PACKAGE 1G



LEGEND

- <> HOV Lane
- I-680/SR-4 Improvement (Future No Build)
- Package 1E
- Package 1F
- Package 1G

LEGEND:

- SHOULDER LANE USE DURING PEAK PERIOD (MANAGED LANE)
- BRIDGE WIDENING
- INTERCHANGE IMPROVEMENT FEATURES
- RIGHT OF WAY / PARCEL LINE
- INTERCHANGE IMPROVEMENT BOUNDARY
- (#) NUMBER OF TRAVEL LANES IN DIRECTION OF TRAFFIC
- PACKAGE 2A
- PACKAGE 2B
- PACKAGE 2C
- PACKAGE 2D
- PACKAGE 2E
- PACKAGE 2F

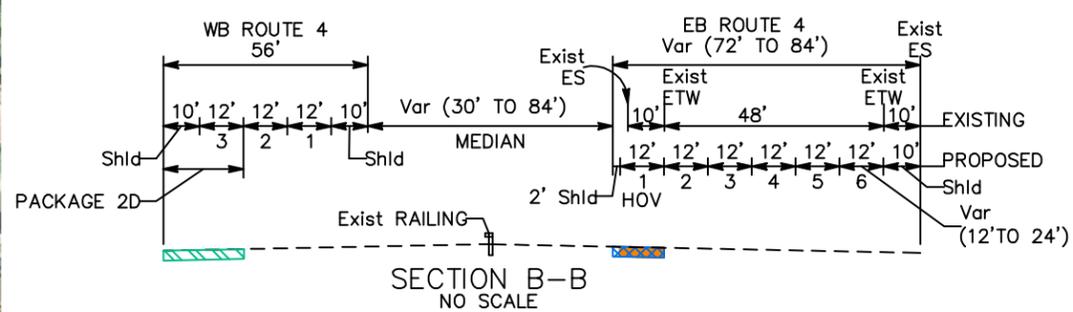
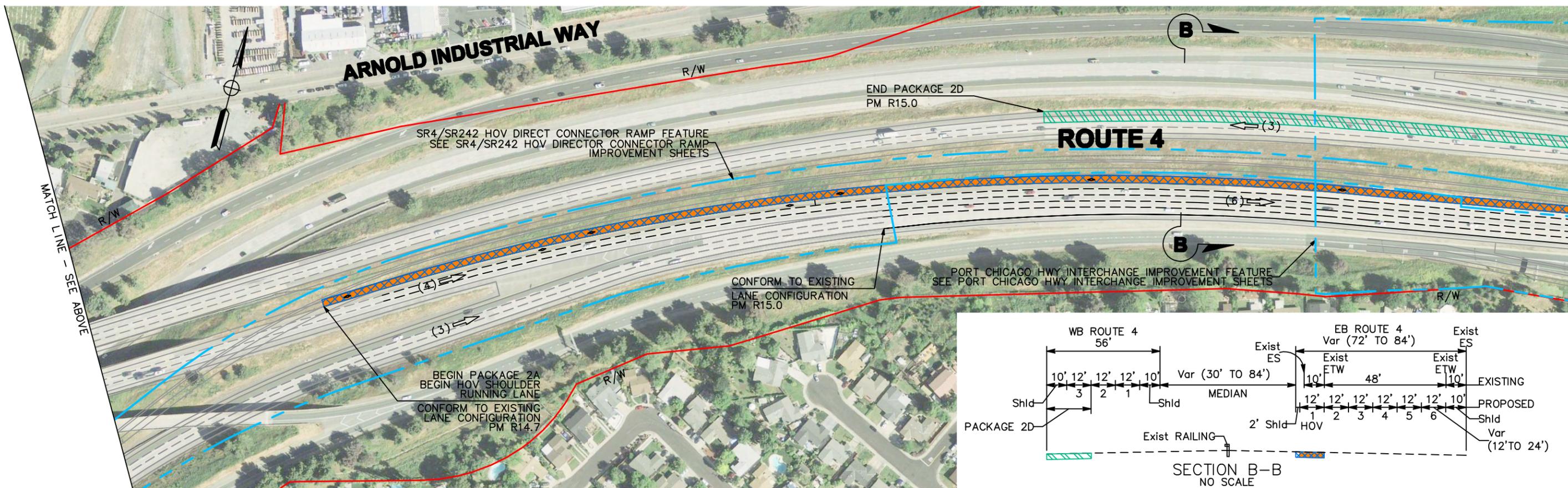
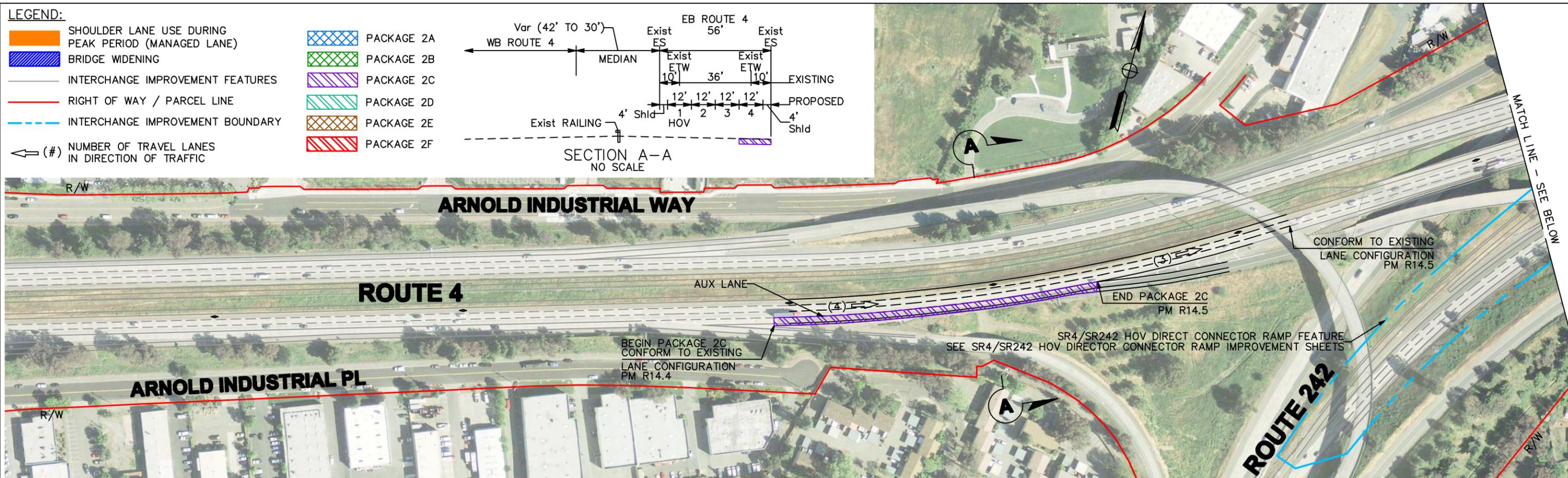
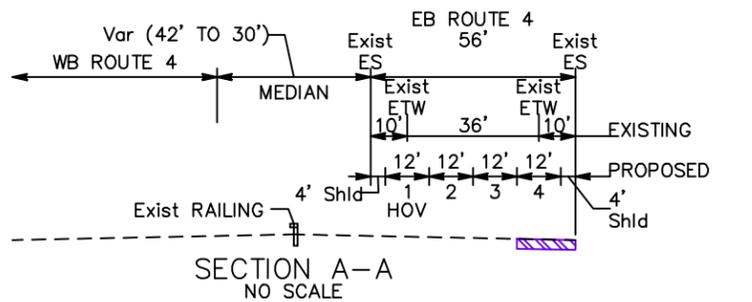
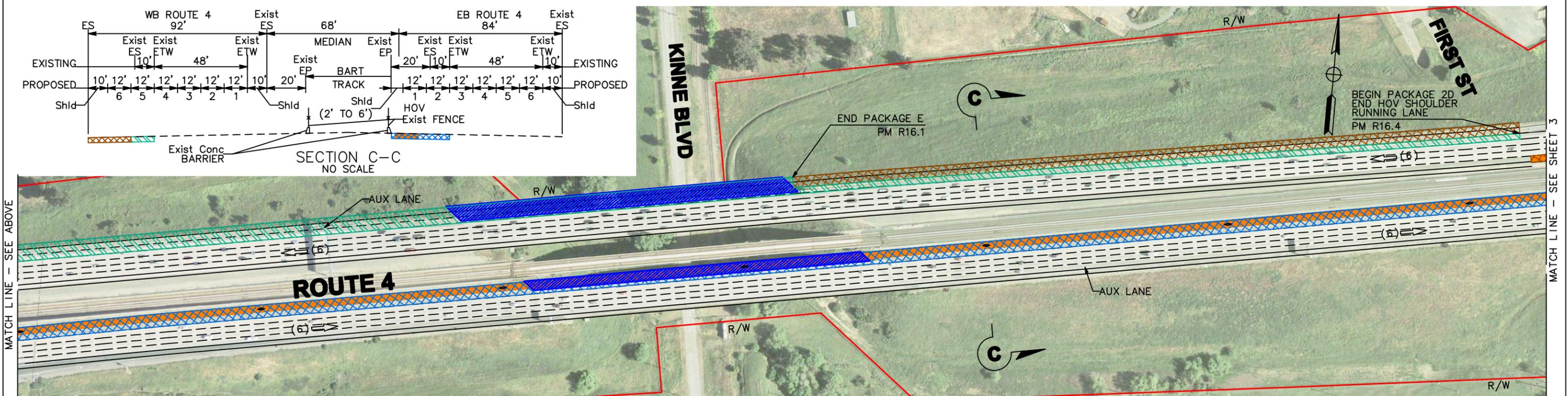
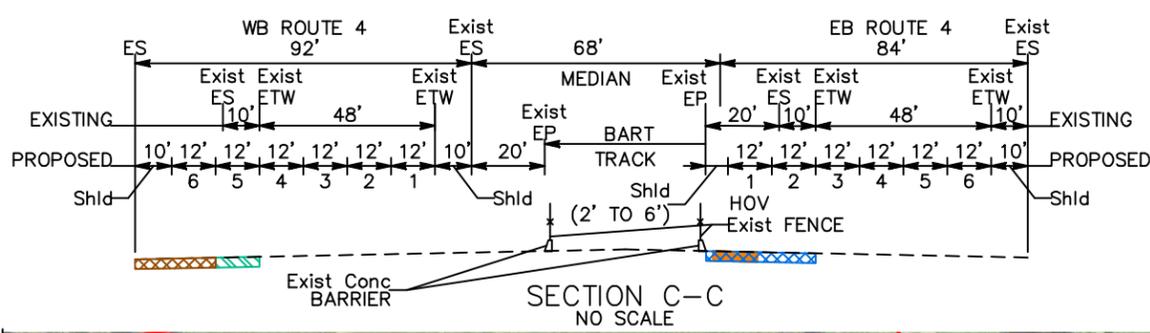
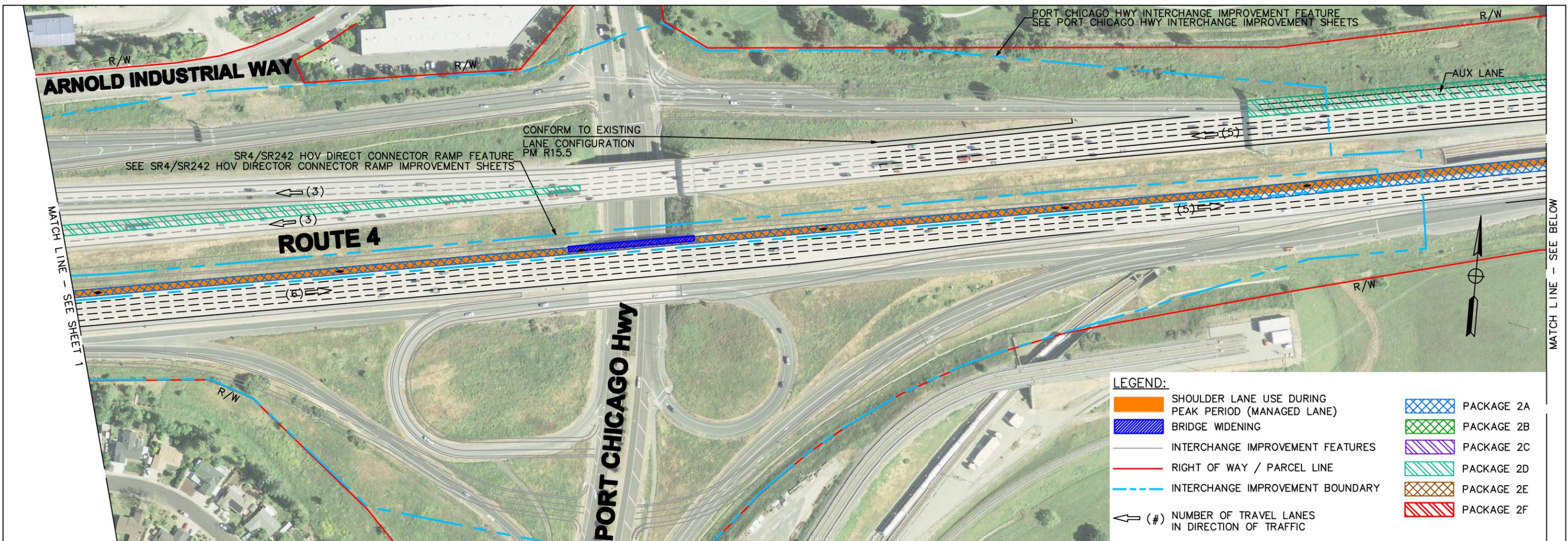


Figure 8

SCALE: 1" = 200'
JUNE 2016

**SR4 OPERATIONAL IMPROVEMENT PROJECT
IN CONTRA COSTA COUNTY**

ALTERNATIVE 2



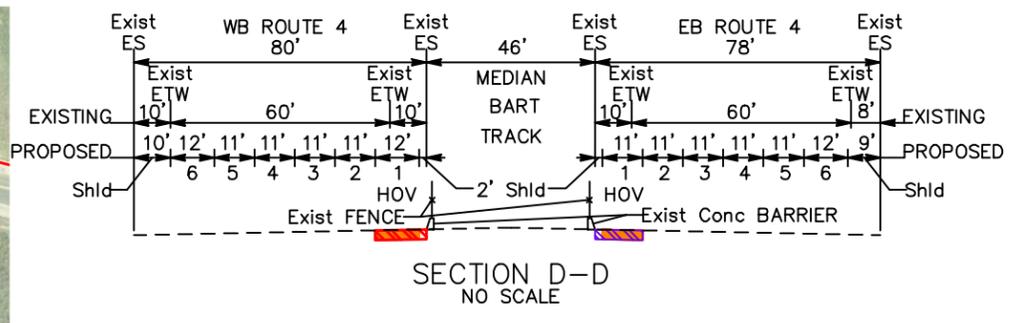
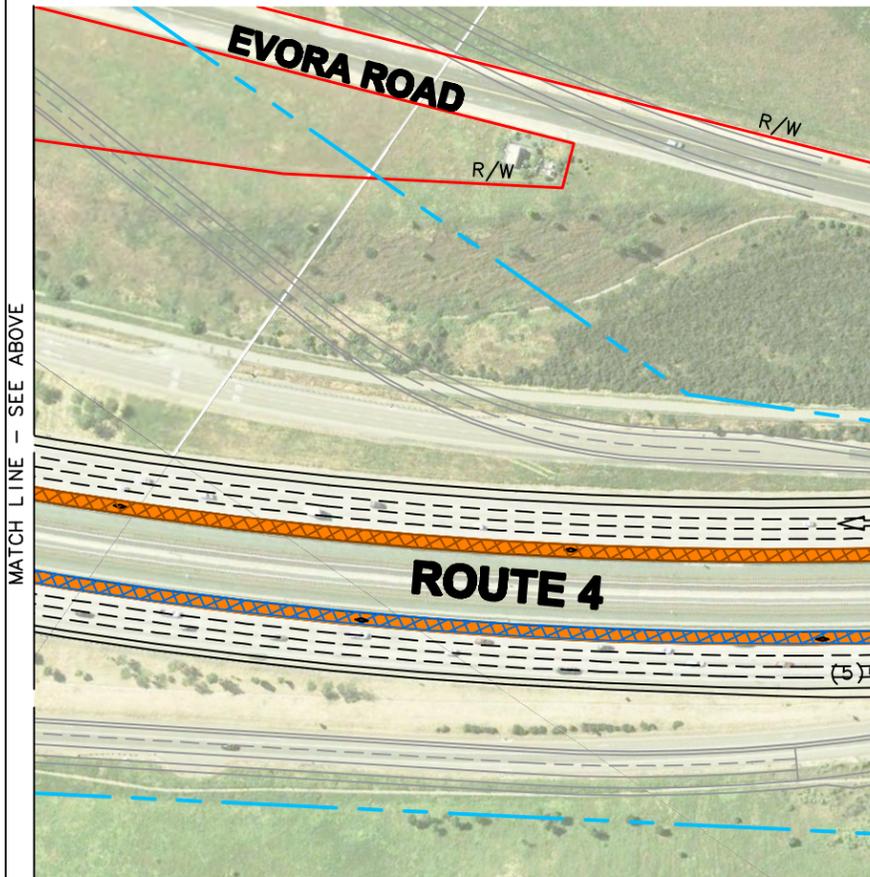
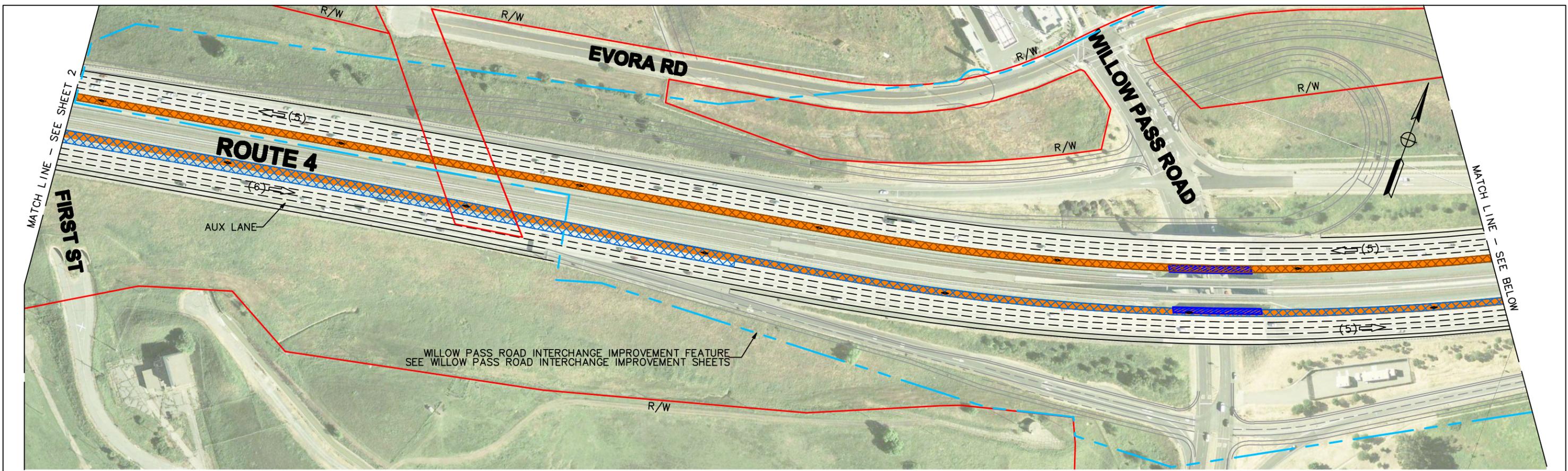
FOR LEGEND, SEE SHEET 1 OF 6.

SCALE: 1" = 200'
JUNE 2016

**SR4 OPERATIONAL IMPROVEMENT PROJECT
IN CONTRA COSTA COUNTY**

ALTERNATIVE 2

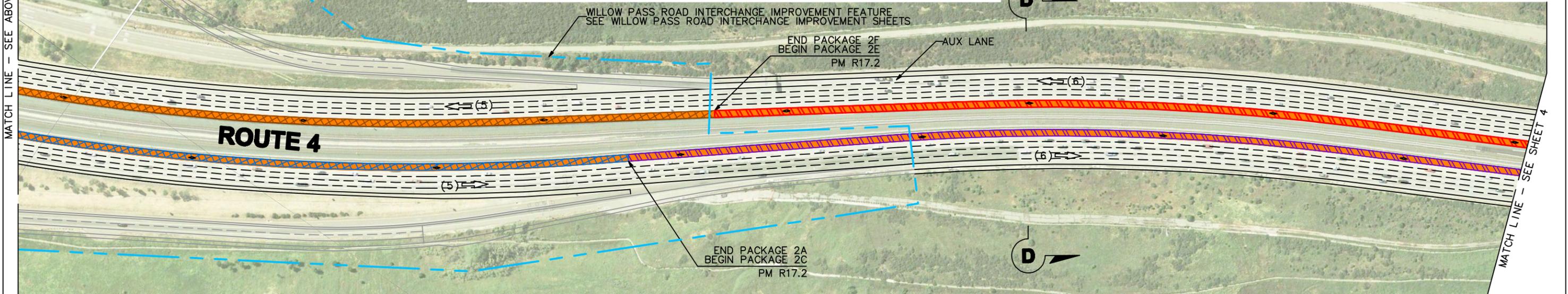
SHEET 2 OF 6



LEGEND:

- SHOULDCER LANE USE DURING PEAK PERIOD (MANAGED LANE)
- BRIDGE WIDENING
- INTERCHANGE IMPROVEMENT FEATURES
- RIGHT OF WAY / PARCEL LINE
- INTERCHANGE IMPROVEMENT BOUNDARY
- PACKAGE 2A
- PACKAGE 2B
- PACKAGE 2C
- PACKAGE 2D
- PACKAGE 2E
- PACKAGE 2F

← (#) NUMBER OF TRAVEL LANES IN DIRECTION OF TRAFFIC



FOR LEGEND, SEE SHEET 1 OF 6.

SCALE: 1" = 200'
JUNE 2016

**SR4 OPERATIONAL IMPROVEMENT PROJECT
IN CONTRA COSTA COUNTY**

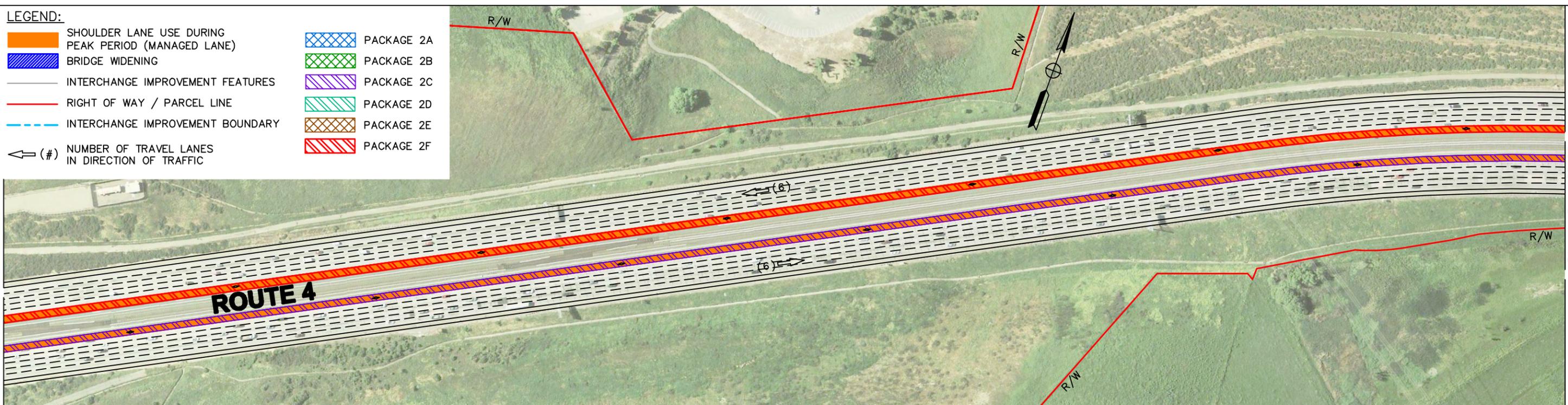
ALTERNATIVE 2

SHEET 3 OF 6

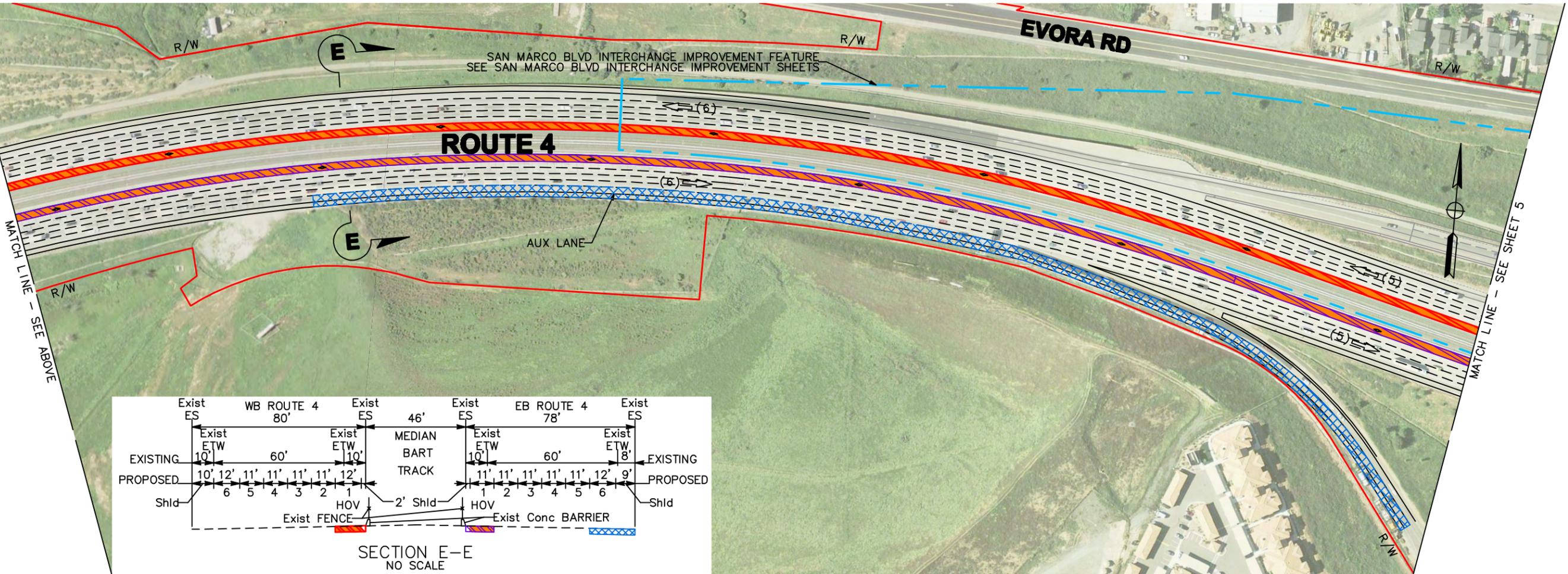
- LEGEND:**
-  SHOULDER LANE USE DURING PEAK PERIOD (MANAGED LANE)
 -  BRIDGE WIDENING
 -  INTERCHANGE IMPROVEMENT FEATURES
 -  RIGHT OF WAY / PARCEL LINE
 -  INTERCHANGE IMPROVEMENT BOUNDARY
 -  (#) NUMBER OF TRAVEL LANES IN DIRECTION OF TRAFFIC

-  PACKAGE 2A
-  PACKAGE 2B
-  PACKAGE 2C
-  PACKAGE 2D
-  PACKAGE 2E
-  PACKAGE 2F

MATCH LINE - SEE SHEET 3

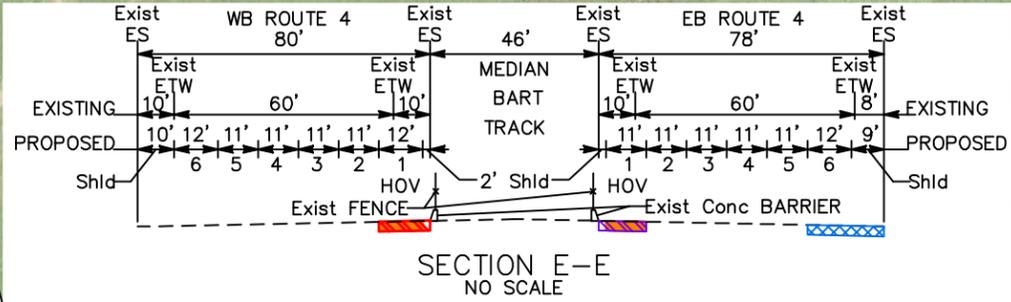


MATCH LINE - SEE BELOW



MATCH LINE - SEE ABOVE

MATCH LINE - SEE SHEET 5



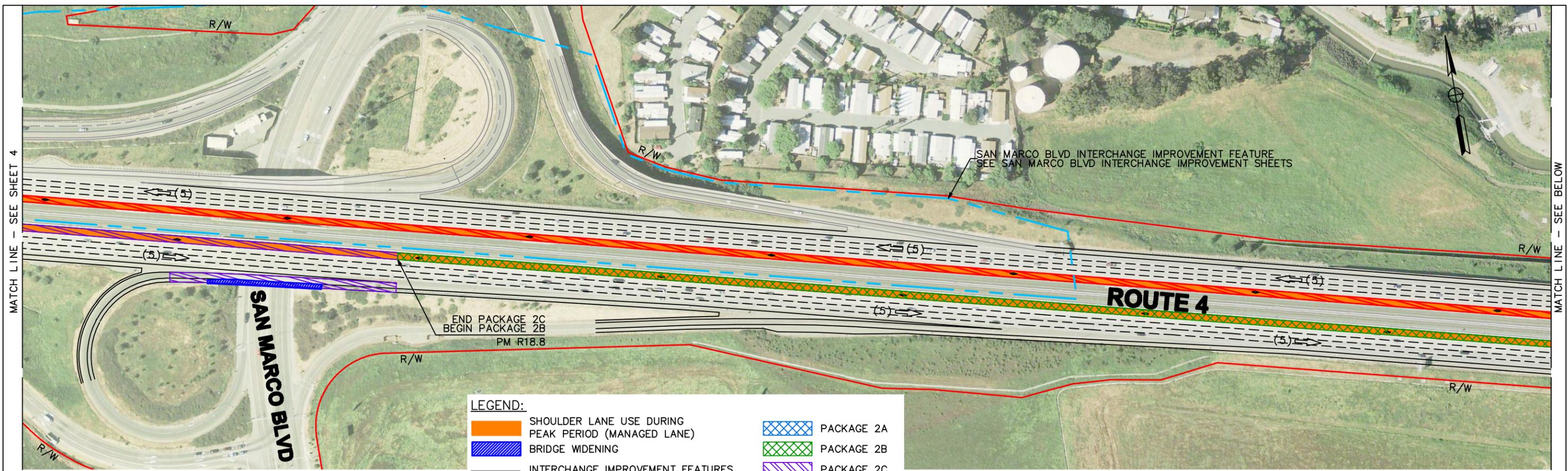
FOR LEGEND, SEE SHEET 1 OF 6.

SCALE: 1" = 200'
JUNE 2016

**SR4 OPERATIONAL IMPROVEMENT PROJECT
IN CONTRA COSTA COUNTY**

ALTERNATIVE 2

SHEET 4 OF 6

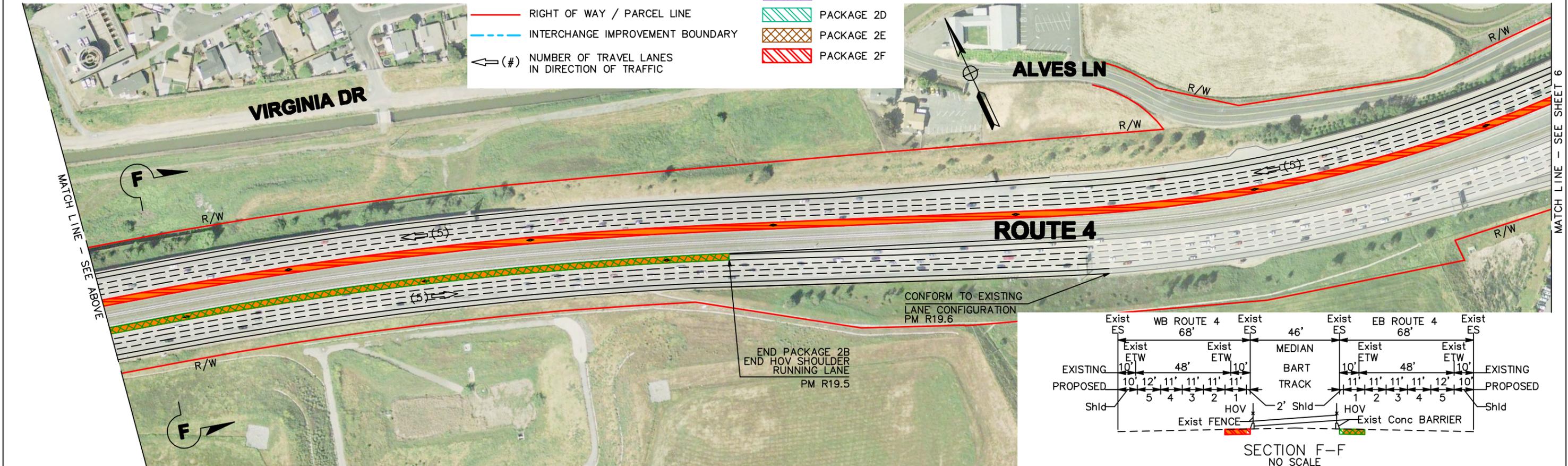


MATCH LINE - SEE SHEET 4

MATCH LINE - SEE BELOW

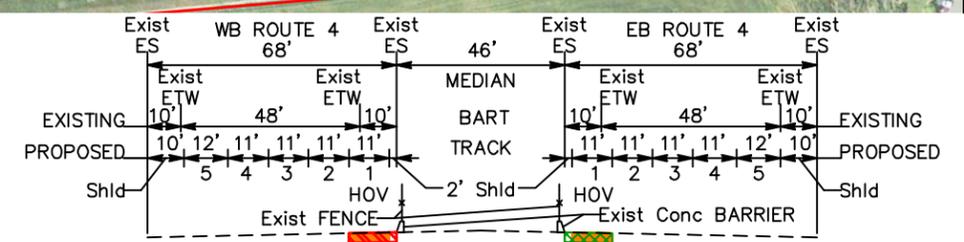
LEGEND:

- SHOULDER LANE USE DURING PEAK PERIOD (MANAGED LANE)
- BRIDGE WIDENING
- INTERCHANGE IMPROVEMENT FEATURES
- RIGHT OF WAY / PARCEL LINE
- INTERCHANGE IMPROVEMENT BOUNDARY
- NUMBER OF TRAVEL LANES IN DIRECTION OF TRAFFIC
- PACKAGE 2A
- PACKAGE 2B
- PACKAGE 2C
- PACKAGE 2D
- PACKAGE 2E
- PACKAGE 2F



MATCH LINE - SEE ABOVE

MATCH LINE - SEE SHEET 6



SECTION F-F
NO SCALE

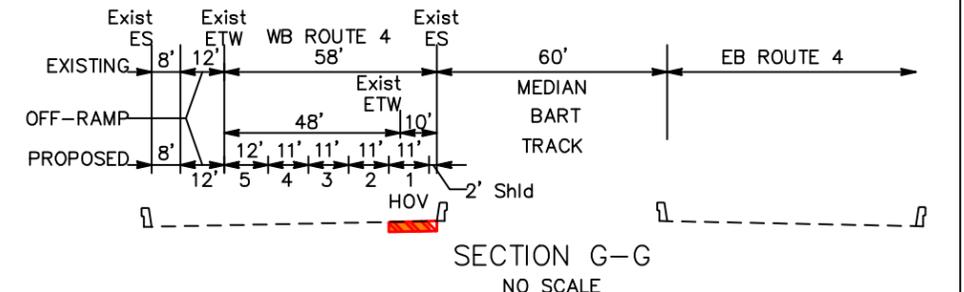
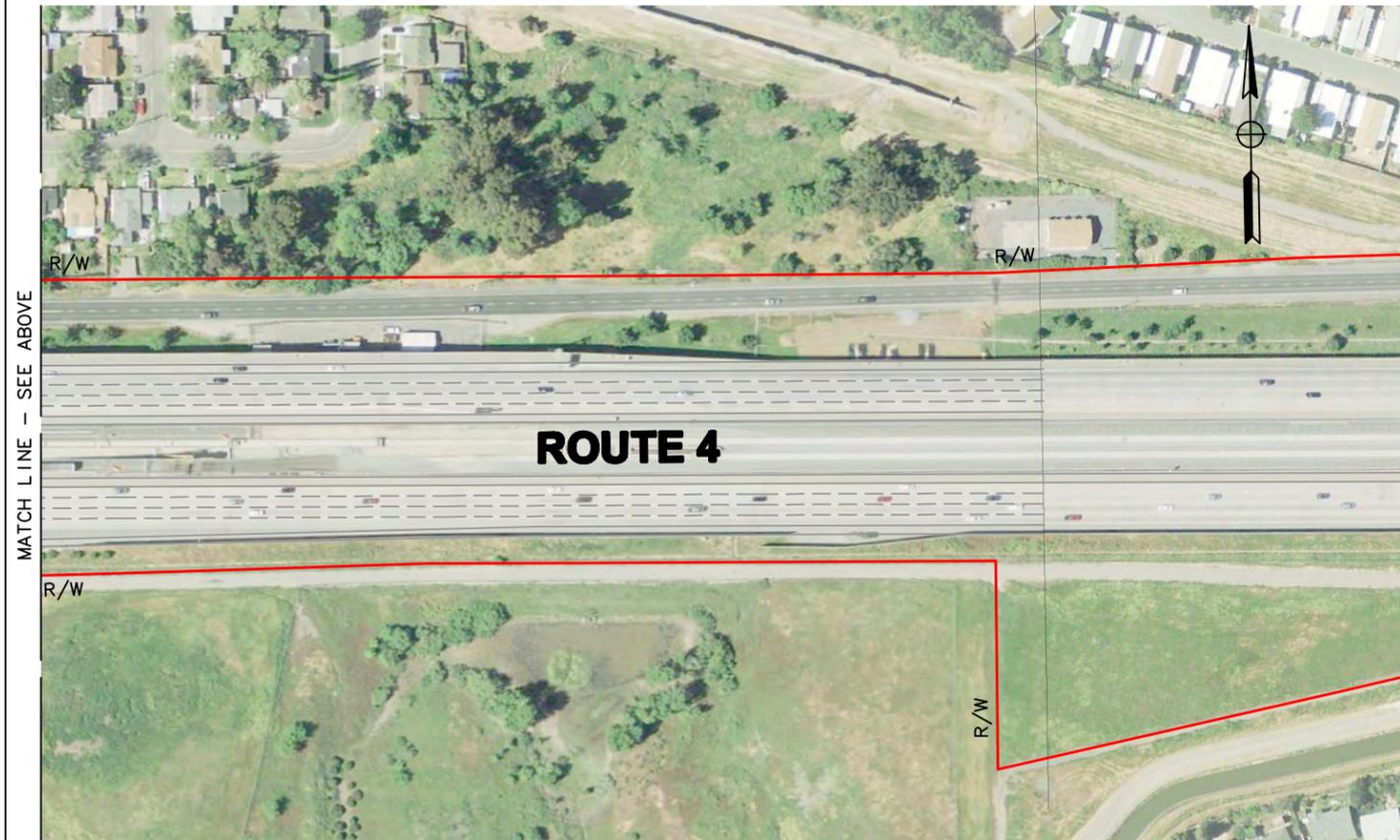
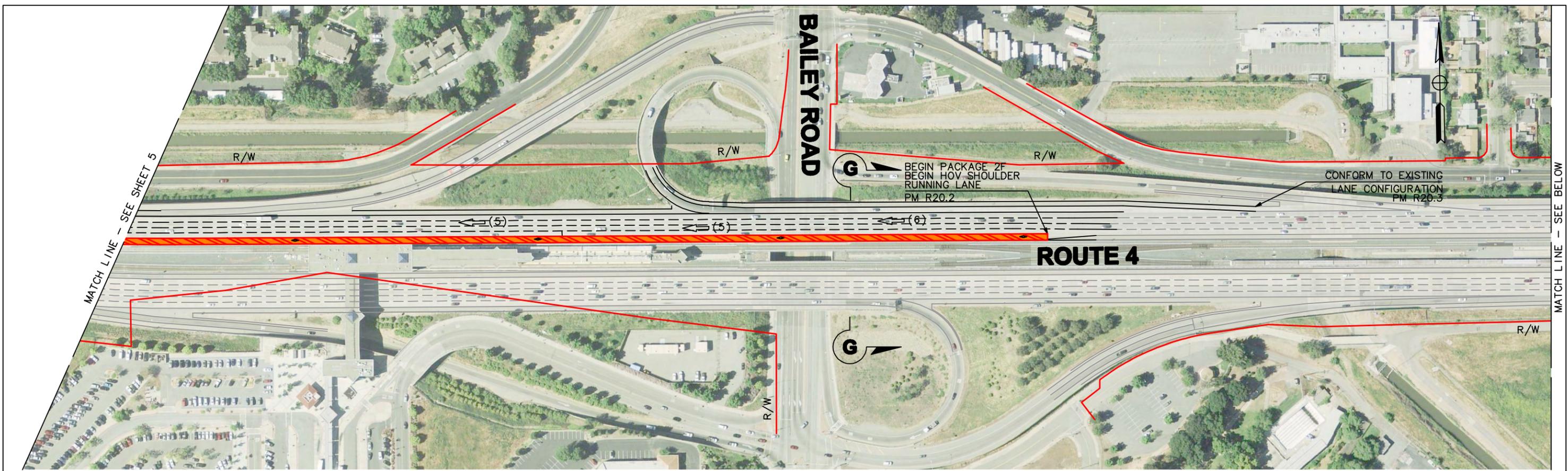
**SR4 OPERATIONAL IMPROVEMENT PROJECT
IN CONTRA COSTA COUNTY**

ALTERNATIVE 2

FOR LEGEND, SEE SHEET 1 OF 6.

SCALE: 1" = 200'
JUNE 2016

SHEET 5 OF 6



- LEGEND:**
- SHOULDER LANE USE DURING PEAK PERIOD (MANAGED LANE)
 - BRIDGE WIDENING
 - INTERCHANGE IMPROVEMENT FEATURES
 - RIGHT OF WAY / PARCEL LINE
 - INTERCHANGE IMPROVEMENT BOUNDARY
 - NUMBER OF TRAVEL LANES IN DIRECTION OF TRAFFIC
 - PACKAGE 2A
 - PACKAGE 2B
 - PACKAGE 2C
 - PACKAGE 2D
 - PACKAGE 2E
 - PACKAGE 2F

FOR LEGEND, SEE SHEET 1 OF 6.

SCALE: 1" = 200'
JUNE 2016

**SR4 OPERATIONAL IMPROVEMENT PROJECT
IN CONTRA COSTA COUNTY**

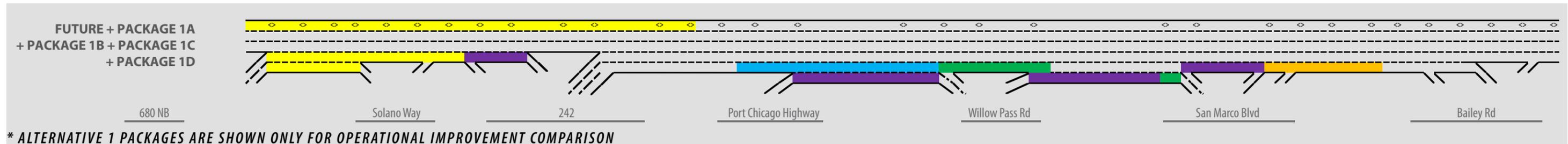
ALTERNATIVE 2

SHEET 6 OF 6

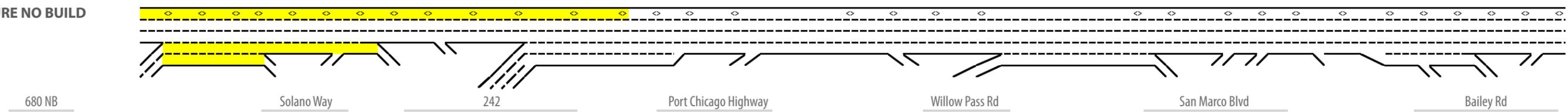
Figure 9

ALTERNATIVE 2 - INSIDE SHOULDER RUNNING HOV LANE

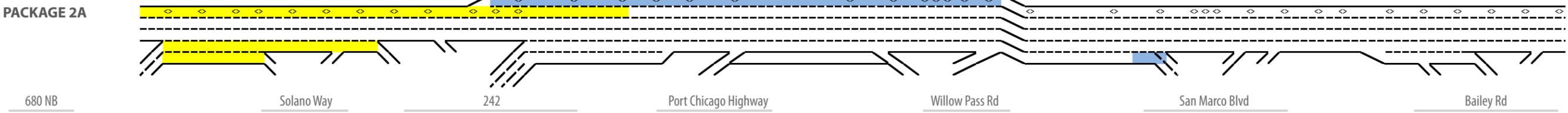
EASTBOUND



FUTURE NO BUILD



FUTURE + PACKAGE 2A



**FUTURE + PACKAGE 2A
+ PACKAGE 2B**



**FUTURE + PACKAGE 2A
+ PACKAGE 2B + PACKAGE 2C**

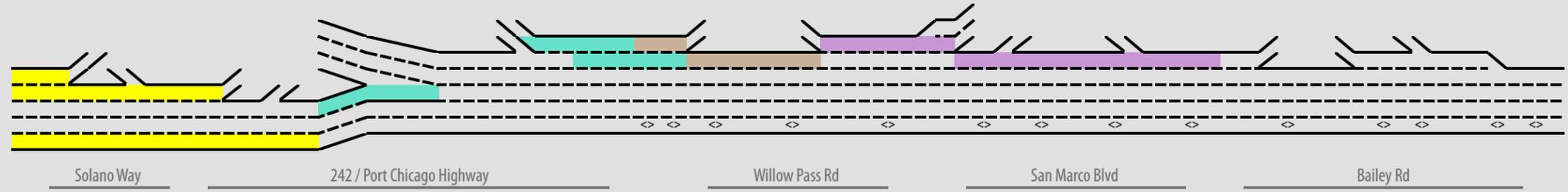


- LEGEND**
- HOV Lane
 - I-680/SR-4 Improvement (Future No Build)
 - Package 1A
 - Package 1B
 - Package 1C
 - Package 1D
 - Package 2A
 - Package 2B
 - Package 2C

ALTERNATIVE 2 - INSIDE SHOULDER RUNNING HOV LANE

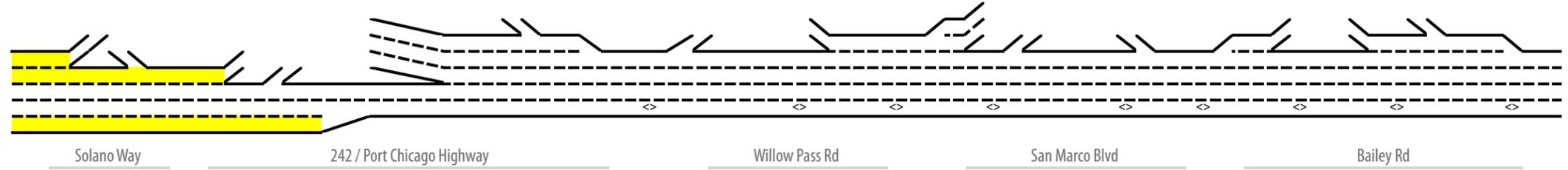


FUTURE + PACKAGE 1E +
PACKAGE 1F + PACKAGE 1G

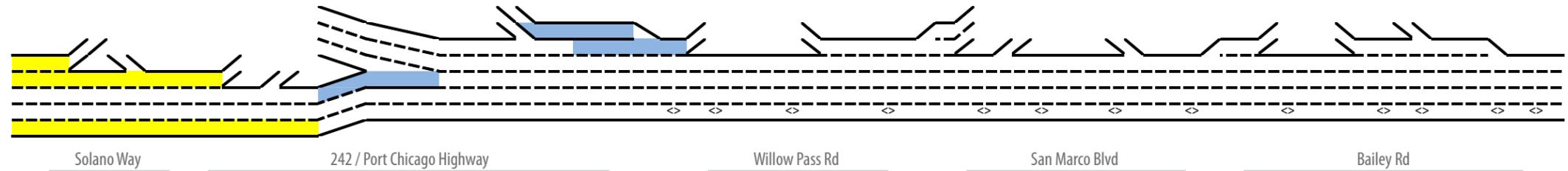


* ALTERNATIVE 1 PACKAGES ARE SHOWN ONLY FOR OPERATIONAL IMPROVEMENT COMPARISON

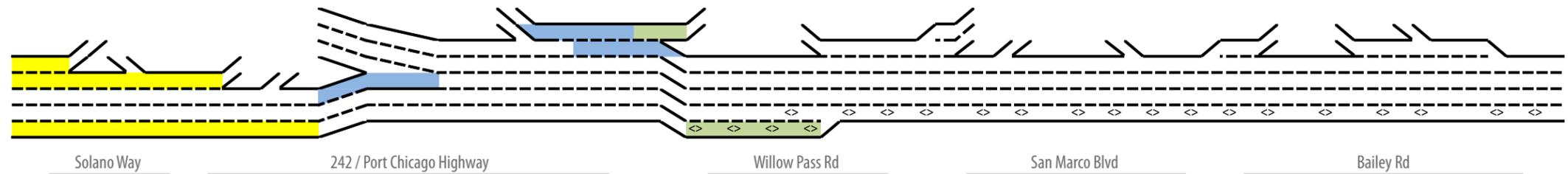
FUTURE NO BUILD



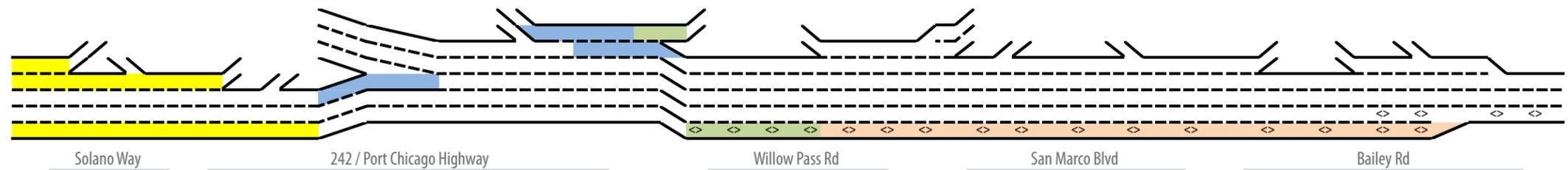
FUTURE + PACKAGE 2D



FUTURE + PACKAGE 2D
+ PACKAGE 2E

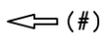
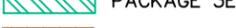


FUTURE + PACKAGE 2D
+ PACKAGE 2E + PACKAGE 2F



- LEGEND**
- HOV Lane
 - I-680/SR-4 Improvement (Future No Build)
 - Package 1E
 - Package 1F
 - Package 1G
 - Package 2D
 - Package 2E
 - Package 2F

LEGEND:

-  BRIDGE WIDENING
-  INTERCHANGE IMPROVEMENT FEATURES
-  RIGHT OF WAY / PARCEL LINE
-  INTERCHANGE IMPROVEMENT BOUNDARY
-  (#) NUMBER OF TRAVEL LANES IN DIRECTION OF TRAFFIC
-  PACKAGE 3A
-  PACKAGE 3B
-  PACKAGE 3C
-  PACKAGE 3D
-  PACKAGE 3E
-  PACKAGE 3F
-  PACKAGE 3G

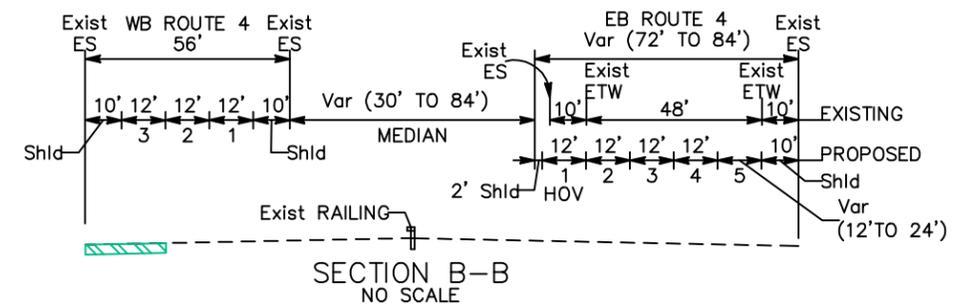
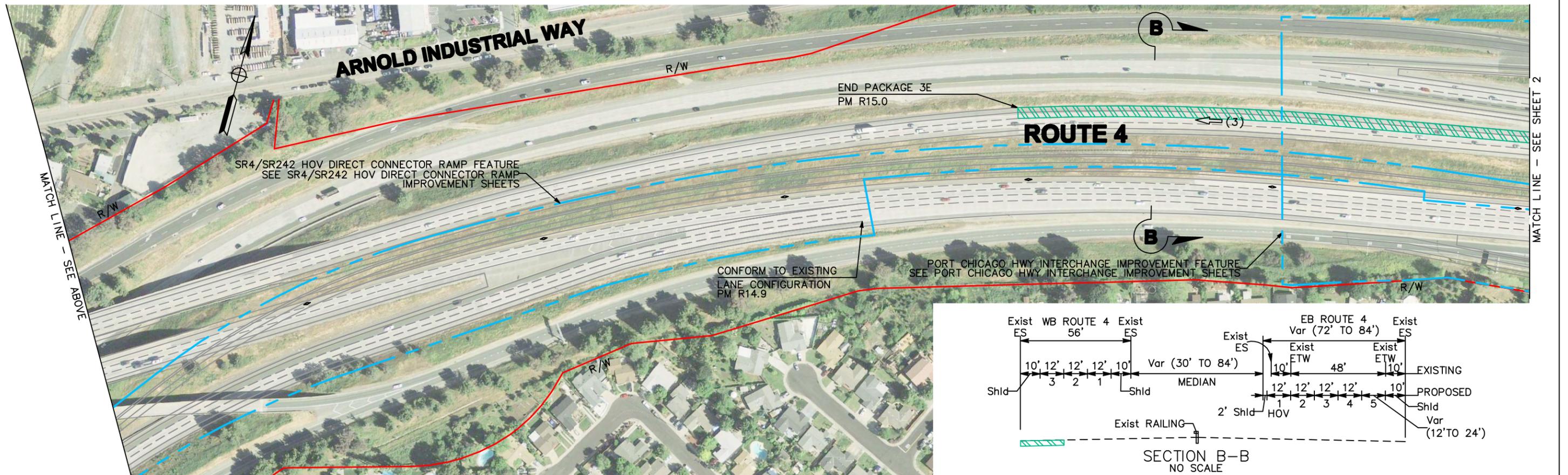
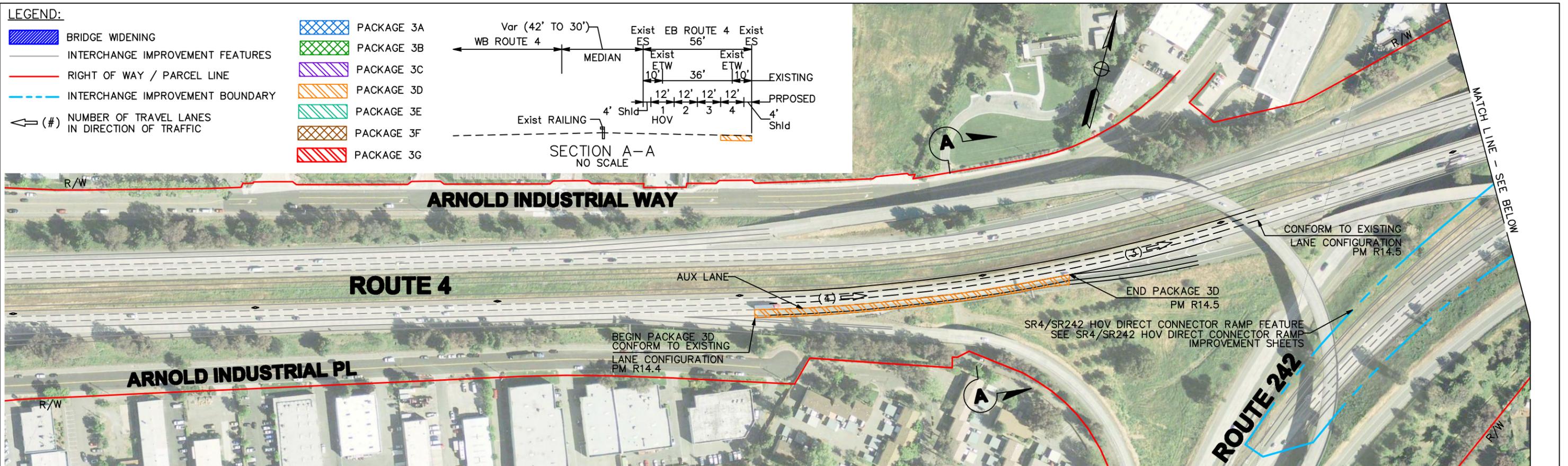
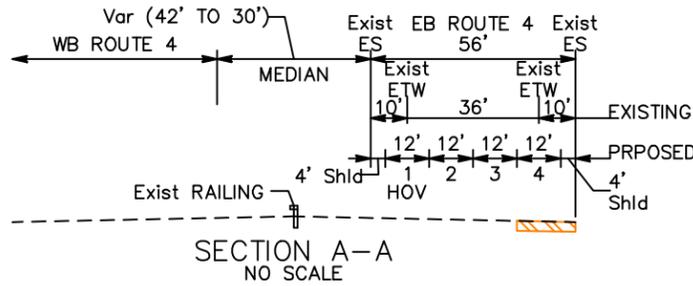
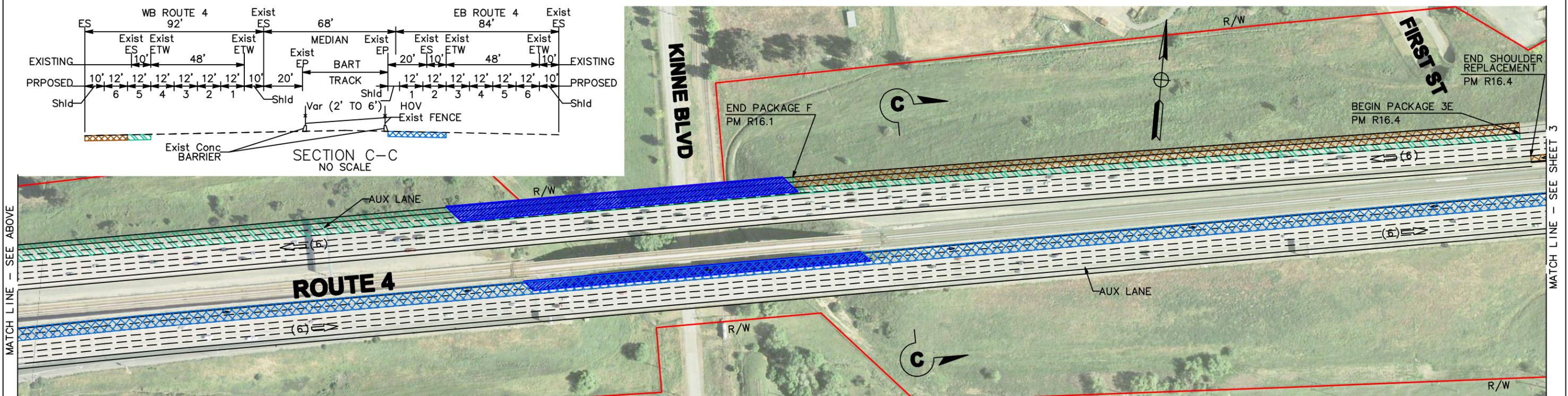
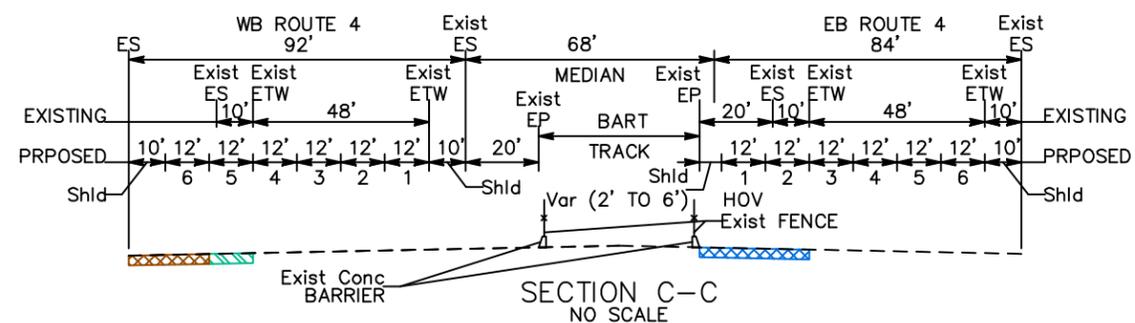
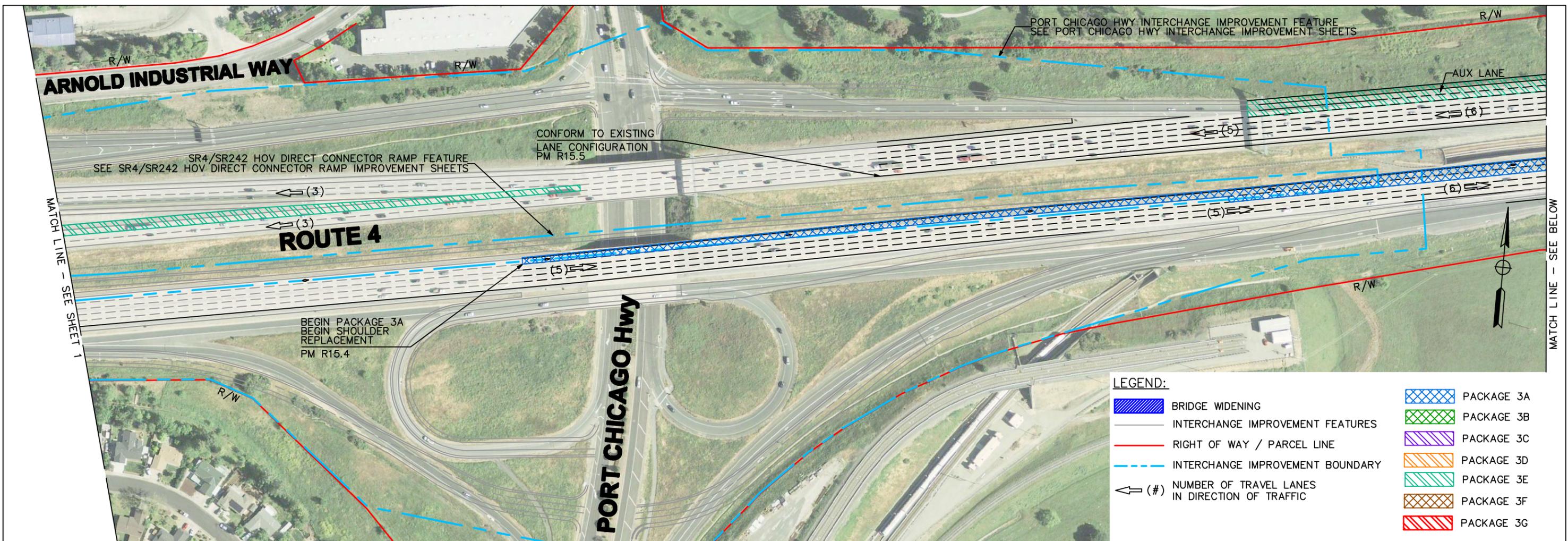


Figure 10

SCALE: 1" = 200'
JUNE 2016

**SR4 OPERATIONAL IMPROVEMENT PROJECT
IN CONTRA COSTA COUNTY**

ALTERNATIVE 3



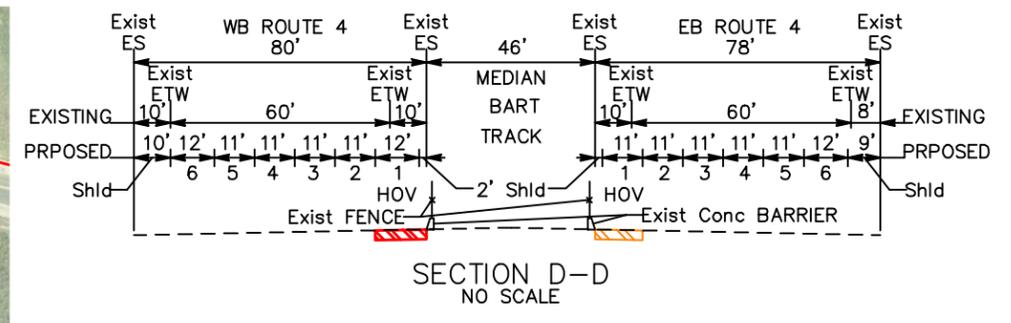
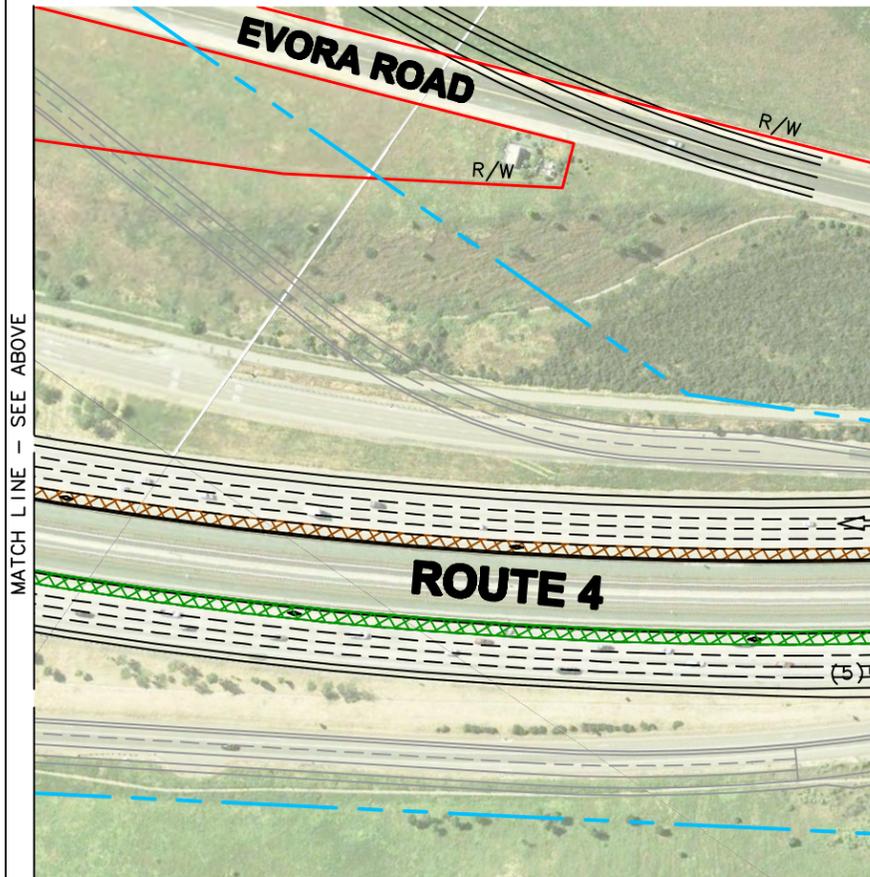
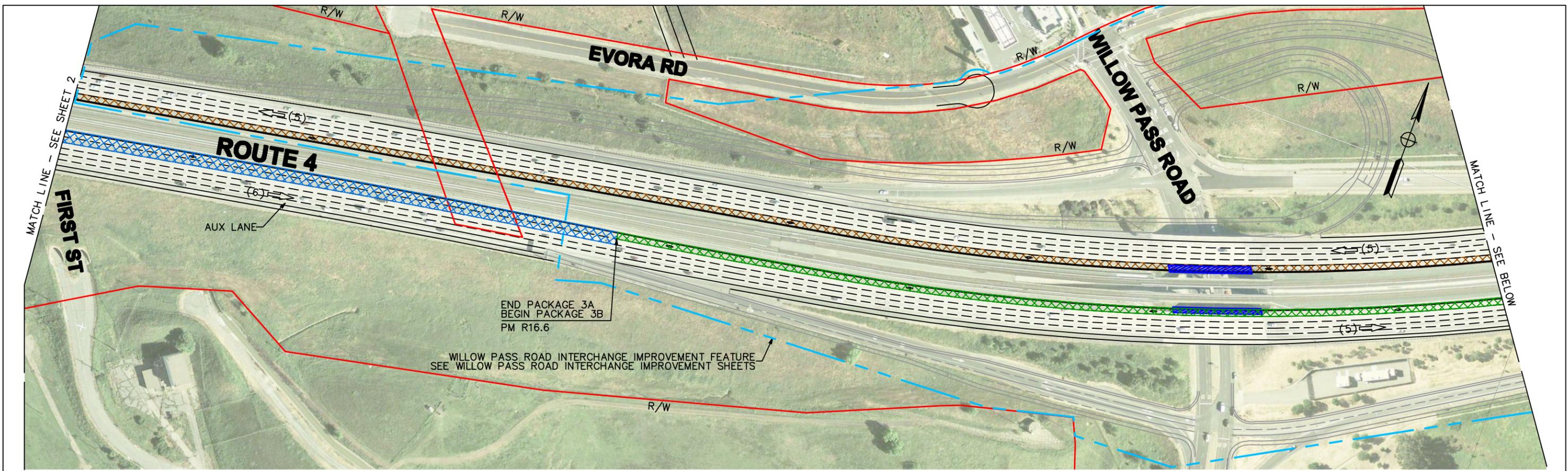
FOR LEGEND, SEE SHEET 1 OF 5.

SCALE: 1" = 200'
JUNE 2016

**SR4 OPERATIONAL IMPROVEMENT PROJECT
IN CONTRA COSTA COUNTY**

ALTERNATIVE 3

SHEET 2 OF 5



LEGEND:

- BRIDGE WIDENING
- INTERCHANGE IMPROVEMENT FEATURES
- PACKAGE 3C
- RIGHT OF WAY / PARCEL LINE
- INTERCHANGE IMPROVEMENT BOUNDARY
- NUMBER OF TRAVEL LANES IN DIRECTION OF TRAFFIC
- PACKAGE 3A
- PACKAGE 3B
- PACKAGE 3C
- PACKAGE 3D
- PACKAGE 3E
- PACKAGE 3F
- PACKAGE 3G

FOR LEGEND, SEE SHEET 1 OF 5.

SCALE: 1" = 200'
JUNE 2016

**SR4 OPERATIONAL IMPROVEMENT PROJECT
IN CONTRA COSTA COUNTY**

ALTERNATIVE 3

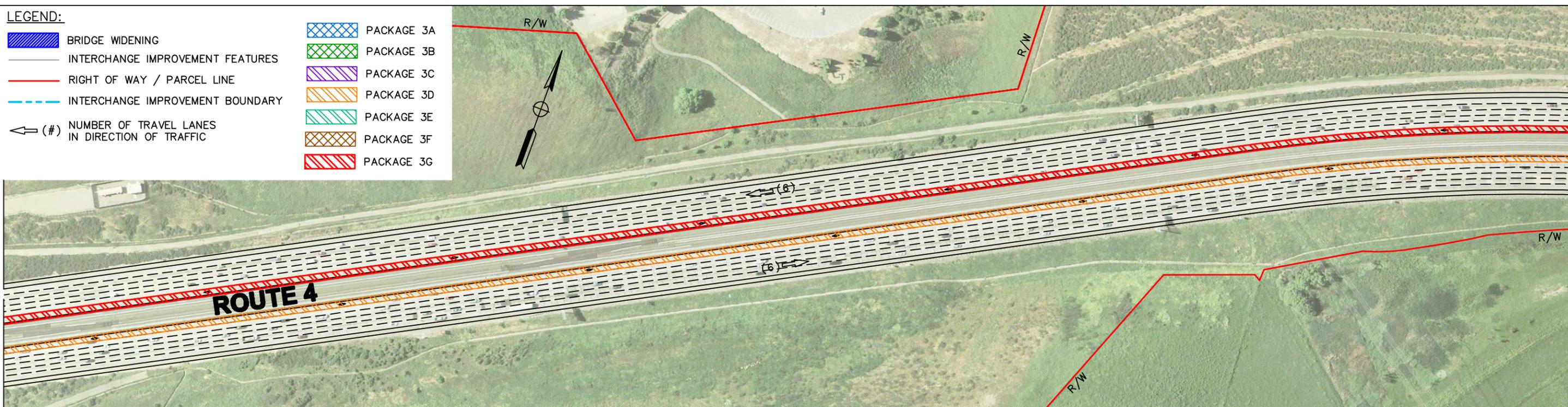
SHEET 3 OF 5

LEGEND:

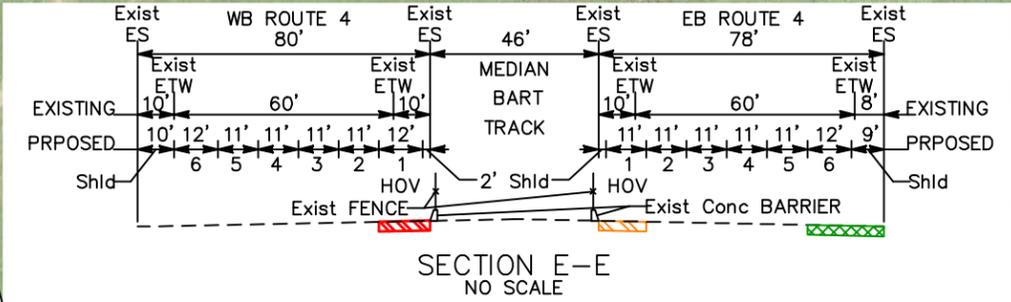
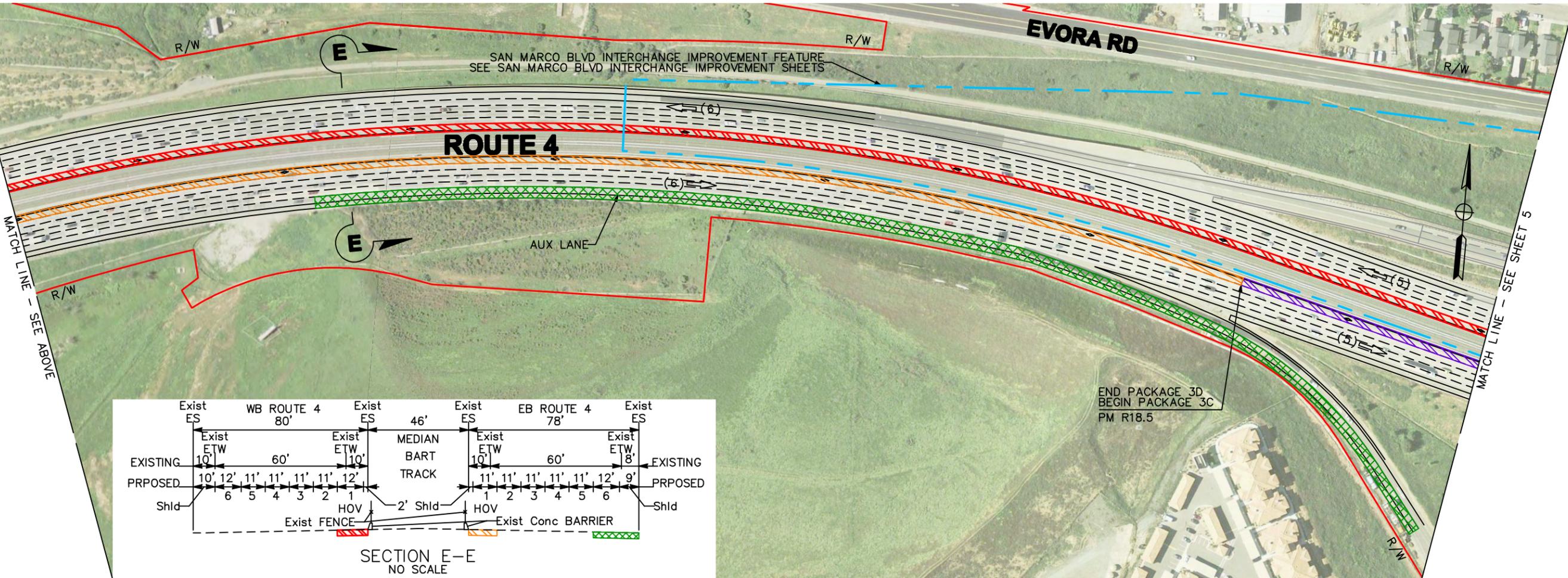
-  BRIDGE WIDENING
-  INTERCHANGE IMPROVEMENT FEATURES
-  RIGHT OF WAY / PARCEL LINE
-  INTERCHANGE IMPROVEMENT BOUNDARY
-  (#) NUMBER OF TRAVEL LANES IN DIRECTION OF TRAFFIC

-  PACKAGE 3A
-  PACKAGE 3B
-  PACKAGE 3C
-  PACKAGE 3D
-  PACKAGE 3E
-  PACKAGE 3F
-  PACKAGE 3G

MATCH LINE - SEE SHEET 3



MATCH LINE - SEE BELOW



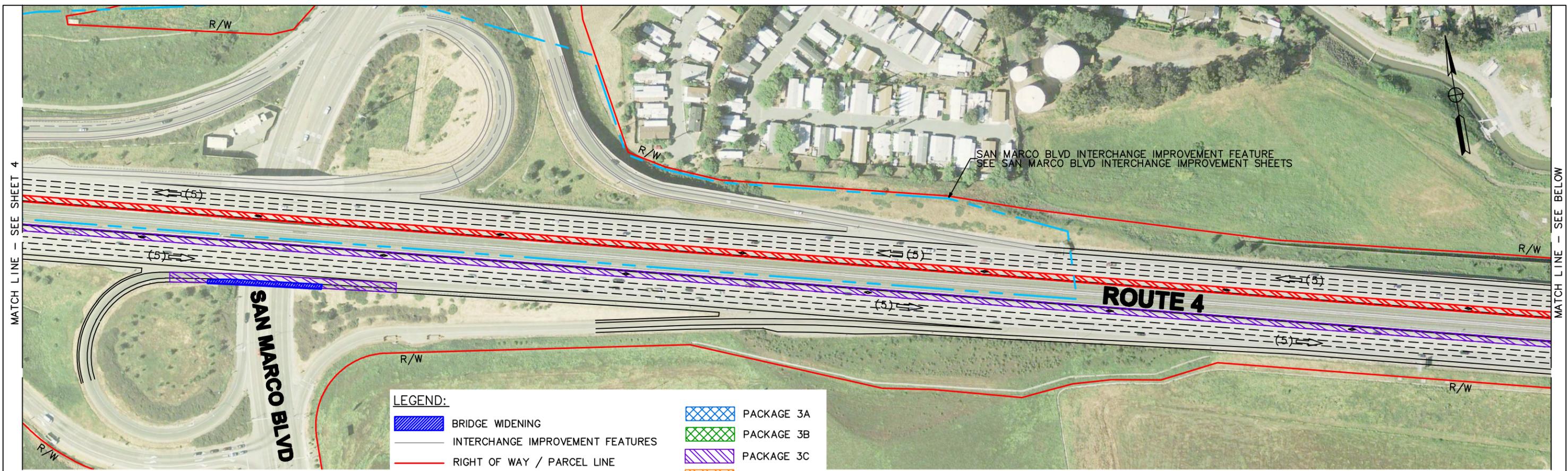
FOR LEGEND, SEE SHEET 1 OF 5.

SCALE: 1" = 200'
JUNE 2016

**SR4 OPERATIONAL IMPROVEMENT PROJECT
IN CONTRA COSTA COUNTY**

ALTERNATIVE 3

SHEET 4 OF 5

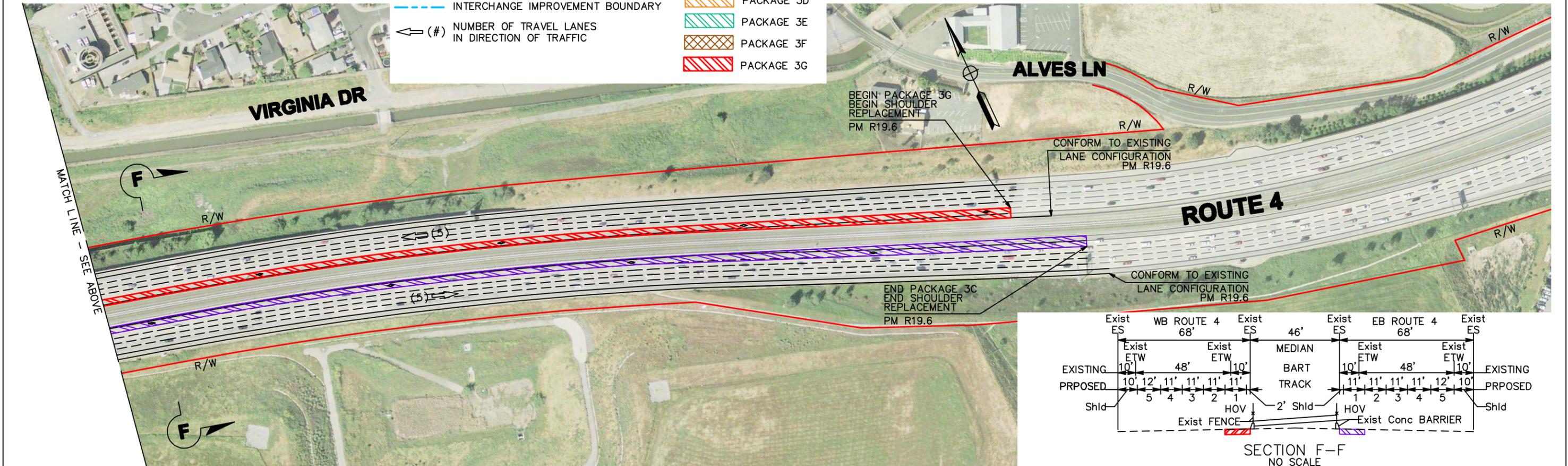


MATCH LINE - SEE SHEET 4

MATCH LINE - SEE BELOW

LEGEND:

- BRIDGE WIDENING
- INTERCHANGE IMPROVEMENT FEATURES
- RIGHT OF WAY / PARCEL LINE
- INTERCHANGE IMPROVEMENT BOUNDARY
- NUMBER OF TRAVEL LANES IN DIRECTION OF TRAFFIC
- PACKAGE 3A
- PACKAGE 3B
- PACKAGE 3C
- PACKAGE 3D
- PACKAGE 3E
- PACKAGE 3F
- PACKAGE 3G



MATCH LINE - SEE ABOVE

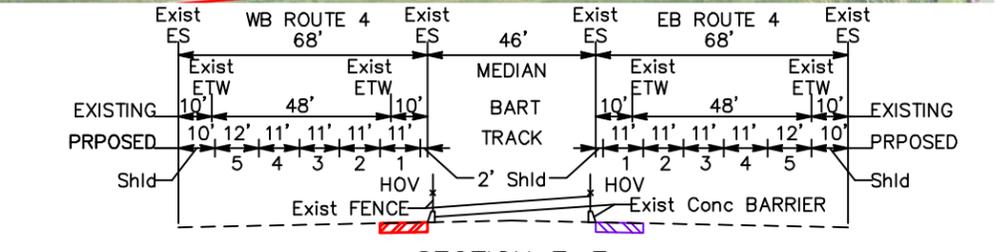
MATCH LINE - SEE BELOW

BEGIN PACKAGE 3G
BEGIN SHOULDER
REPLACEMENT
PM R19.6

CONFORM TO EXISTING
LANE CONFIGURATION
PM R19.6

END PACKAGE 3C
END SHOULDER
REPLACEMENT
PM R19.6

CONFORM TO EXISTING
LANE CONFIGURATION
PM R19.6



**SR4 OPERATIONAL IMPROVEMENT PROJECT
IN CONTRA COSTA COUNTY**

ALTERNATIVE 3

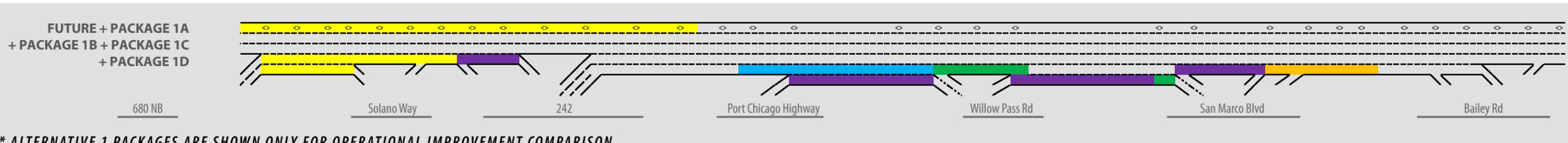
FOR LEGEND, SEE SHEET 1 OF 5.

SCALE: 1" = 200'
JUNE 2016

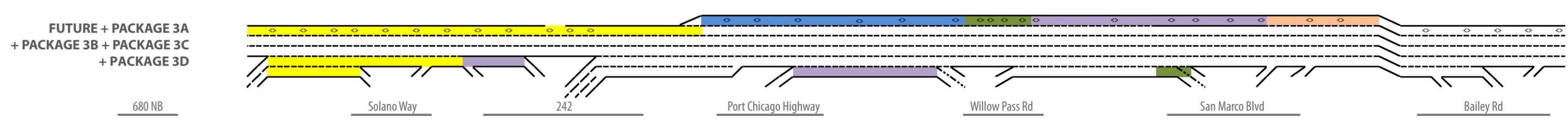
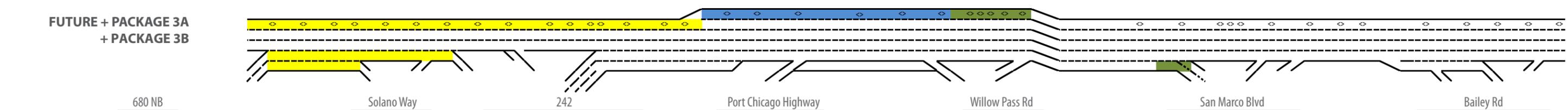
SHEET 5 OF 5

Figure 11

ALTERNATIVE 3 - INSIDE SHOULDER RECONSTRUCTION AND RESTRIPIPING

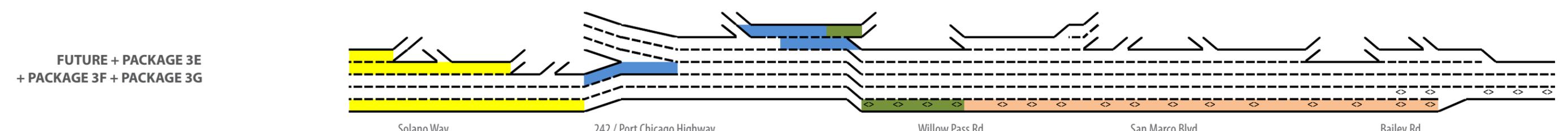
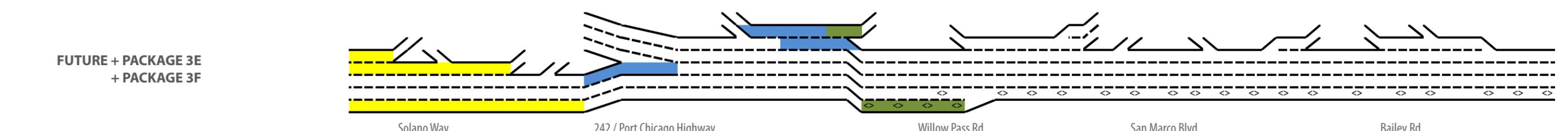
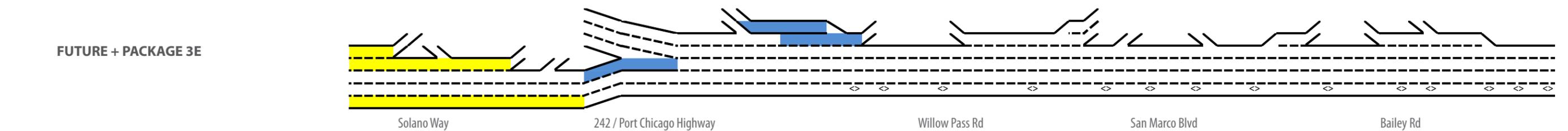
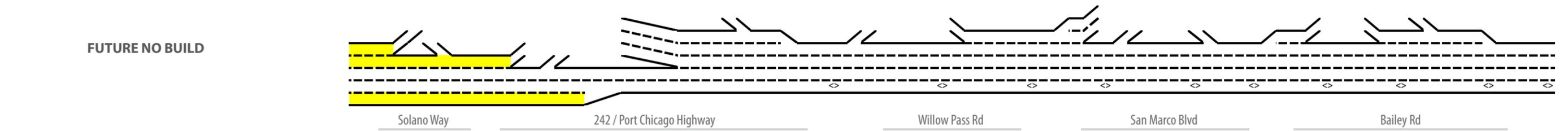
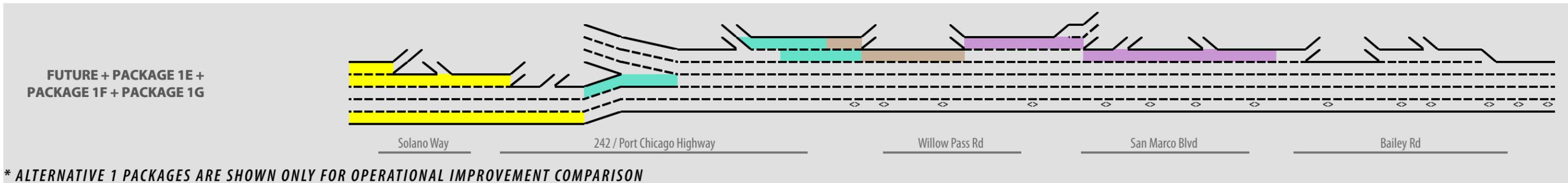


* ALTERNATIVE 1 PACKAGES ARE SHOWN ONLY FOR OPERATIONAL IMPROVEMENT COMPARISON



- LEGEND**
- HOV Lane
 - I-680/SR-4 Improvement (Future No Build)
 - Package 1A
 - Package 1B
 - Package 1C
 - Package 1D
 - Package 3A
 - Package 3B
 - Package 3C
 - Package 3D

ALTERNATIVE 3 - INSIDE SHOULDER RECONSTRUCTION AND RESTRIPIPING



- LEGEND**
- HOV Lane
 - I-680/SR-4 Improvement (Future No Build)
 - Package 1E
 - Package 1F
 - Package 1G
 - Package 3E
 - Package 3F
 - Package 3G

Attachment A: PEAR Environmental Studies Checklist

Attachment A: PEAR Environmental Studies Checklist

Rev. 11/08

Environmental Studies for PA&ED Checklist					
	Not anticipated	Memo to file	Report required	Risk* L M H	Comments
Land Use	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<u>L</u>	Interchange improvements to Willow Pass Road and package 1G are anticipated to require a Section 4(f) Evaluation
Growth	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<u>L</u>	If the first-cut screening for a project package or feature results in a determination that further analysis is required, then the growth analysis follows a six-step evaluation process that would be documented in the CIA
Farmlands/Timberlands	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<u>L</u>	
Community Impacts	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<u>L</u>	Project features and packages that require the acquisition of property outside of the state right-of-way will require the preparation of a CIA
Community Character and Cohesion	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<u>L</u>	
Relocations	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<u>L</u>	
Environmental Justice	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<u>L</u>	Project features and packages that require the acquisition of property outside of the state right-of-way will require the preparation of a CIA, which would include a separate discussion of impacts to environmental justice communities.
Utilities/Emergency Services	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<u>L</u>	
Visual/Aesthetics	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<u>L</u>	To fully assess impacts to all potentially affected viewer groups (drivers, users of nearby park and open space resources, and people

Environmental Studies for PA&ED Checklist

	Not anticipated	Memo to file	Report required	Risk* L M H	Comments
					living near the study area), a moderate level Visual Impact Assessment (VIA) would be required for the majority of the project features and packages. Some of the smaller packages under Alternative 1 may only require visual impact memos.
Cultural Resources:	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<u>L</u>	For the majority of the features and packages under Alternative 1, 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 (HSPR), with appropriate findings of effects.
Archaeological Survey Report	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<u>L</u>	
Historic Resources Evaluation Report	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<u>L</u>	
Historic Property Survey Report	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<u>L</u>	
Historic Resource Compliance Report	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<u>L</u>	
Section 106 / PRC 5024 & 5024.5	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<u>L</u>	The cultural studies will also determine if additional investigations are necessary, and if consultation with the State Historic Preservation Office (SHPO) is needed in accordance with Section 106 of the NHPA and the programmatic agreement (PA)
Native American Coordination	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<u>L</u>	
Finding of Effect	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<u>L</u>	

Environmental Studies for PA&ED Checklist

	Not anticipated	Memo to file	Report required	Risk*	Comments
				L M H	
Data Recovery Plan	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<u>L</u>	
Memorandum of Agreement	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<u>L</u>	
Other:	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<u>L</u>	
Hydrology and Floodplain	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<u>L</u>	For all features or packages that include improvements over creek crossings, a Location Hydraulic Study (LHS) would be prepared
Water Quality and Stormwater Runoff	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<u>L</u>	Temporary and permanent Best Management Practices (BMPs) that are required to comply with the permit would be presented in the Storm Water Data Report prepared for each feature and package of the project, regardless of the selected Alternative.
Geology, Soils, Seismic and Topography	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<u>L</u>	A preliminary geotechnical report should be prepared to evaluate the potential geologic, soils, and/or seismic conditions that may pose structural risks to the project. The risks associated with the local geology and seismic conditions are applicable to all of the features and packages of the project, regardless of the selected alternative.
Paleontology	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<u>L</u>	A Paleontological Evaluation Report (PER) should be prepared for any feature or package of the project that would be constructed in areas not previously

Environmental Studies for PA&ED Checklist

	Not anticipated	Memo to file	Report required	Risk* L M H	Comments
					disturbed by the construction of the existing freeway infrastructure, or with deeper excavation depths (i.e., bridge and ramp structures). Features common to Build Alternatives; and the freeway widening under certain packages of Alternative 1, have the greatest potential for impacts to paleontological resources.
PER	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<u>L</u>	
PMP	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<u>L</u>	
Hazardous Waste/Materials:	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<u>L</u>	As all features and packages of the project would be constructed in close proximity to existing freeway lanes, an investigation for heavy metals/aerially deposited lead along with an Initial Site Assessment (ISA) are recommended. Preliminary Site Investigations (PSIs) would be needed for ground disturbance where known cleanup sites exist.
ISA (Additional)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<u>L</u>	
PSI	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<u>L</u>	
Other:	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<u>L</u>	
Air Quality	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<u>L</u>	All project improvements have potential to result in modifications in traffic patterns, and would require the preparation of an Air Quality Study to evaluate potential

Environmental Studies for PA&ED Checklist

	Not anticipated	Memo to file	Report required	Risk* L M H	Comments
					air quality impacts both in the near term and over the project planning horizon.
Noise and Vibration	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<u>L</u>	A noise study will be prepared for use in future environmental documentation. The draft project report is likely to include a noise abatement decision report (NADR) (i.e., an evaluation of feasible noise barriers) for those project elements that result in noise levels that approach or exceed appropriate noise thresholds for the adjacent land use types.
Energy and Climate Change	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<u>L</u>	An appropriate greenhouse gas emissions analysis should be prepared as part of the environmental document for improvements with potential to increase VMT.
Biological Environment	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<u>L</u>	
Natural Environment Study	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<u>H</u>	All packages and features will require and NES
Section 7:	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<u>L</u>	Depending on the findings of the NES, some features and packages would require Section 7 interagency cooperation to ensure compliance with the Endangered Species Act (ESA) and development of a Habitat Mitigation and

Environmental Studies for PA&ED Checklist

	Not anticipated	Memo to file	Report required	Risk* L M H	Comments
					Monitoring Plan (HMMP).
Formal	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<u>L</u>	
Informal	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<u>L</u>	
No effect	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<u>L</u>	
Section 10	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<u>L</u>	
USFWS Consultation	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<u>L</u>	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.
NMFS Consultation	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<u>L</u>	
Species of Concern (CNPS, USFS, BLM, S, F)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<u>L</u>	
Wetlands & Other Waters/Delineation	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<u>L</u>	All features and packages that propose creek crossings would require a delineation of jurisdictional wetlands and waters of the U.S.
404(b)(1) Alternatives Analysis	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<u>L</u>	
Invasive Species	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<u>L</u>	
Wild & Scenic River Consistency	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<u>L</u>	
Coastal Management Plan	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<u>L</u>	
HMMP	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<u>L</u>	Depending on the findings of the NES, some features and packages would require Section 7 interagency cooperation to ensure compliance with the Endangered Species Act (ESA) and development of a Habitat Mitigation and Monitoring Plan (HMMP).
DFG Consistency Determination	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<u>L</u>	
2081	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<u>L</u>	
Other: East Contra Costa County Habitat Conservation Plan	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<u>L</u>	Features and packages that would

Environmental Studies for PA&ED Checklist

	Not anticipated	Memo to file	Report required	Risk* L M H	Comments
(ECCCCHCP)					potentially impact endangered species within the City of Pittsburg may require a permit from the City of Pittsburg under the ECCC HCP.
Cumulative Impacts	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<u>L</u>	A memo would be require for each project.
Context Sensitive Solutions	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<u>L</u>	
Section 4(f) Evaluation	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<u>L</u>	Interchange improvements to Willow Pass Road and package 1G are anticipated to require a Section 4(f) Evaluation
Permits:					
401 Certification Coordination	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<u>L</u>	
404 Permit Coordination, IP, NWP, or LOP	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<u>L</u>	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.
1602 Agreement Coordination	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<u>L</u>	A Lake or Streambed Alteration Agreement (SAA), in compliance with Section 1602 of the California Fish and Game Code, is required for improvements that will substantially divert, obstruct, or change the natural flow of a river, stream, or lake; substantially change the bed, channel, or bank of a river, stream, or lake; or use material from a streambed.
Local Coastal Development Permit Coordination	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<u>L</u>	
State Coastal Development Permit Coordination	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<u>L</u>	

Environmental Studies for PA&ED Checklist

	Not anticipated	Memo to file	Report required	Risk* L M H	Comments
NPDES Coordination	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<u>L</u>	
US Coast Guard (Section 10)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<u>L</u>	
TRPA	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<u>L</u>	
BCDC	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<u>L</u>	

Attachment B: Estimated Resources by WBS Code

ATTACHMENT B - Resources by WBS Code

Project ID: O414000128

EA: 1J030

Description: SR 4 Operational Improvements (Hours are for each individual IS/EA)

WBS Task Activity Code	Division Chief	Office Chief	Senior	Generalist	Biology	Cultural	Haz Waste	Socio-Economic	Water Quality	Section 4(f)	Stewardship	Noise/Air	Sup Svcs	Design	Hydraulics	Landscape	Geology/Paleo	Right of Way	Surveys	Total	
Assigned Unit																					
Project Management																					
100.10 – Project Management - PA&ED																					-
100.15 – Project Management - PS&E																					-
100.20 – Project Management - Construction																					-
100.25 – Project Management - Right of Way																					-
Total Project Management	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Perform Preliminary Engineering Studies and Draft Project Report																					
160.05 – Updated Project Information	8	8	8	32	8	8	8		40			8				8	8			144	
160.10 – Engineering Studies																					-
160.15 – Draft Project Report																					-
160.30 – Environmental Study Request																					-
160.40 – NEPA Assignment				8																	8
Total Perform Prelim Eng Studies & Draft PR	8	8	8	40	8	8	8	-	40	-	-	8	-	-	-	8	8	-	-	152	
Perform Environmental Studies and Prepare Draft Environmental Document - Task Management Activities																					
165.05 – Env Scoping of Alternatives			8	64	8	8	8					8				8	8			120	
165.10 – General Env Studies			32				24	40	48	40		100				40	40			364	
165.15 – Biological Studies	8	8	16		140					40										212	
165.20 – Cultural Resource Studies		8	16			158														182	
165.25 – Draft Env Document	24	32	40	300	24	24	24													468	
165.30 – NEPA Assignment				12																12	
Total Perform Env Studies & Prepare DED	32	48	112	376	172	190	56	40	48	80	-	108	-	-	-	48	48	-	-	1,358	
Obtain Permits, Licenses, Agreements and Certifications (PLACs) and Route Adoptions during PA&ED Component - Task Management Activities																					
170.05 – Required PLACs																					-
170.10 – PLACs					80				25												105
170.15 – Railroad Agreements																					-
170.20 – Freeway Agreements																					-
170.25 – Agreement for Material Sites																					-
170.30 – Executed Maintenance Agreements																					-
170.40 – Route Adoptions																					-
170.45 – MOU from TERO																					-
170.55 – NEPA Assignment				12																	12
Obtain PLACS & Rte Adoptions during PA&ED	-	-	-	12	80	-	-	-	25	-	-	-	-	-	-	-	-	-	-	-	117
Circulate Draft Environmental Document and Select Preferred Project Alternative - Task Management Activities																					
175.05 – DED Circulation		8	16	40																	64
175.10 – Public Hearing			16	40		8															64
175.15 – Public Comment Responses & Corr			16	40	8							8					8				80
175.20 – Project Preferred Alternative																					-
175.25 – NEPA Assignment				8																	8
Total Circ DED & Select Preferred Proj Alt	-	8	48	128	8	8	-	-	-	-	-	8	-	-	-	-	8	-	-	-	216
Prepare and Approve Project Report and Final Environmental Document																					
180.05 – Final Project Report				24	8	8	8		34			8				8	8			106	
180.10 – Final Env Document	16	24	32	60	30	30	8	16		40		16				16	24			312	
180.15 – Completed Env Document			8	16																	24
180.20 – NEPA Assignment				16																	16
Total Prep and Approve PR & FED	16	24	40	116	38	38	16	16	34	40	-	24	-	-	-	24	32	-	-	458	
Prepare Base Maps and Plan Sheets for PS&E Development																					
185.05 – Updated Project Information																					-

Project ID: O414000128

EA: 1J030

Description: SR 4 Operational Improvements (Hours are for each individual IS/EA)

WBS Task Activity Code	Division Chief	Office Chief	Senior	Generalist	Biology	Cultural	Haz Waste	Socio-Economic	Water Quality	Section 4(f)	Stewardship	Noise/Air	Sup Svcs	Design	Hydraulics	Landscape	Geology/Paleo	Right of Way	Surveys	Total	
Assigned Unit																					
185.15 – Preliminary Design																					-
Total Prep Base Maps & Plan Sheets	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Right of Way Property Management and Excess Land																					
195.40 – Property Management																					-
195.45 – Excess Land																					-
Total RW Property Mgmt and Excess Land	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Utility Relocation																					
200.15 – Approved Utility Relocation Plan																					-
200.20 – Utility Relocation Package																					-
Total Utility Coordination	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Obtain Permits, Licenses, Agreements, and Certifications (PLACs) during PS&E Component - Task Management Activities																					
205.05 – PLACs Determination																					-
205.10 – PLACs																					-
205.15 – Railroad Agreements																					-
205.25 – Agreement for Material Sites																					-
205.30 – Executed Maintenance Agreements																					-
205.45 – MOU from TERO																					-
205.55 – NEPA Delegation																					-
Total Permits & Agreements during PS&E	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Obtain Right of Way Interests for Project Right of Way Certification																					
225.75 – Right of Way Clearance																					-
Total Obtain RW Interests for Proj RW Cert	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Prepare Draft PS&E																					
230.05 – Draft Roadway Plans																					-
230.10 – Draft Highway Planting Plans																					-
230.30 – Draft Drainage Plans																					-
230.35 – Draft Specifications																					-
230.60 – Updated Project Info for PS&E Pkg																					-
230.90 – NEPA Assignment																					-
230.99 – Other Draft PS&E Products																					-
Total Prepare Draft PS&E	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Mitigate Environmental Impacts and Clean-up Hazardous Waste - Task Management Activities																					
235.05 – Environmental Mitigation																					-
235.10 – Detailed Site Investigation for HW																					-
235.15 – HW Management Plan																					-
235.20 – HW PS&E																					-
235.25 – HW Clean-up																					-
235.30 – Haz Substances Disclosure Doc																					-
235.35 – Long Term Mitigation Monitoring																					-
235.40 – Updated Env Commitments Record																					-
235.45 – NEPA Assignment																					-
Total Mit Env Impacts & Clean-up HW	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Post Right of Way Certification Work																					
245.75 – Right of Way Clearance																					-
Total Post RW Clearance Work	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Circulate, Review and Prepare Final District PS&E Package																					
255.05 – Circ. & Rev. Draft Dist PS&E Package																					-

Project ID: O414000128

EA: 1J030

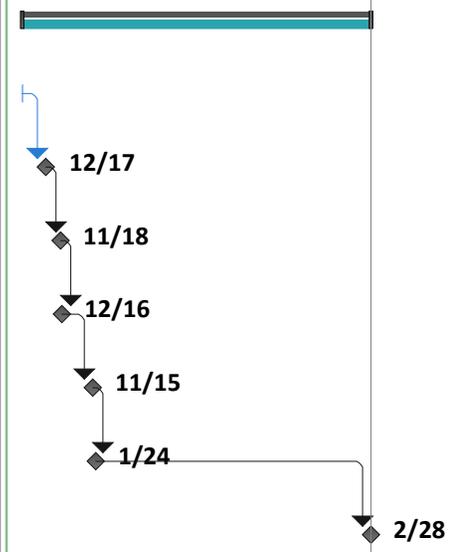
Description: SR 4 Operational Improvements (Hours are for each individual IS/EA)

WBS Task Activity Code	Division Chief	Office Chief	Senior	Generalist	Biology	Cultural	Haz Waste	Socio-Economic	Water Quality	Section 4(f)	Stewardship	Noise/Air	Sup Svcs	Design	Hydraulics	Landscape	Geology/Paleo	Right of Way	Surveys	Total	
Assigned Unit																					
255.10 – Updated PS&E Package																					-
255.15 – Environmental Reevaluation																					-
255.20 – Final District PS&E Package																					-
255.40 – Resident Engineer's Pending File																					-
255.45 – NEPA Assignment																					-
Total Circ, Rev and Prepare Final Dist PS&E Pkg	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Contract Bid Documents "Ready to List"																					
260.75 - Env Cert at RTL																					-
Total Contract Bid Documents "RTL"	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Construction Engineering and General Contract Administration																					
270.15 – Construction Stakes																					-
270.33 – Construction Inspection																					-
270.66 – Technical Support																					-
Total Const Engineering & Gen Contract Admin.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Administration of Permits, Licenses, Agreements and Certifications (PLACs) and Environmental Stewardship																					
280.10 – PLAC Compliance																					-
280.40 – PLAC Violations																					-
280.50 – Other Environmental Compliance																					-
280.60 – Other Environmental Violations																					-
280.70 – Updated ECR																					-
280.75 – Environmental Reevaluation																					-
280.80 – Updated PLACs																					-
Total Admin of PLACs and Env Stewardship	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Change Order Administration																					
285.05 – Change Order Process																					-
285.10 – Functional Support																					-
Total Change Order Administration	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Disputes and Claims																					
290.40 – Potential Claim Record																					-
Total Disputes and Claims	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Accept Contract/Prepare Final Construction Estimate and Final Report																					
295.35 – Certificate of Environmental Compliance																					-
295.40 – Long Term Env Mit/Mont after CCA																					-
Total Accept Contract	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Project Hours	56	88	208	672	306	244	80	56	147	120	-	148	-	-	-	80	96	-	-	2,301	

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Attachment C: Schedule (Gantt Chart)

ID	Task Name	Duration	Start	Finish	Predecessors	2009	2014	2019	2024	2029	2034	2039	2044
1													
2													
3	SR4 OIP Project Milestones	5651 days	7/3/17	2/28/39									
4	Begin Environmental (PA/ED) Phase	1 day	7/3/17	7/3/17									
5	Circulate Draft ED	0 days	12/17/18	12/17/18	4FS+380 days								
6	Complete PA/ED Phase	0 days	11/18/19	11/18/19	5FS+240 days								
7	Begin PS&E Phase	0 days	12/16/19	12/16/19	6FS+20 days								
8	ROW Certification	0 days	11/15/21	11/15/21	7FS+500 days								
9	Begin Construction (First Package)[1]	0 days	1/24/22	1/24/22	8FS+50 days								
10	End Construction (Last Package)	0 days	2/28/39	2/28/39	9FS+4460 days								



Project: Environmental Milestone Date: 7/12/16	Task		Inactive Task		Start-only	
	Split		Inactive Milestone		Finish-only	
	Milestone		Inactive Summary		Deadline	
	Summary		Manual Task		Progress	
	Project Summary		Duration-only		Manual Progress	
	External Tasks		Manual Summary Rollup			
	External Milestone		Manual Summary			

**Attachment D:
PEAR Environmental Commitments Cost
Estimate (Standard PSR)**

Attachment D: PEAR Environmental Commitments Cost Estimate

Standard PSR Only

(Prepare a separate form for each viable alternative described in the Project Study Report)

PART 1 PROJECT INFORMATION

rev. 11/08

District-County-Route-Post Mile 04-CC-SR4- PM 14.3/19.6	EA: 1J030
Project Description: Package 1A would extend the existing general purpose lane where the existing eastbound SR4 lane drops at Port Chicago Highway. The lane extension would end at a mandatory exit to the Willow Pass Road off-ramp.	
Form completed by (Name/District Office): Jennifer Gallerani Marquez, Project Manager, Circlepoint	
Project Manager: Laurie Lau	Phone Number: (510) 286-5568
Date: December 1, 2015	

PART 2 PERMITS AND AGREEMENTS

	Permits and Agreements (\$\$)
<input checked="" type="checkbox"/> Fish and Game 1602 Agreement	\$3,500.00
<input type="checkbox"/> Coastal Development Permit	0.00
<input type="checkbox"/> State Lands Agreement	0.00
<input checked="" type="checkbox"/> Section 401 Water Quality Certification	\$4,500.00
<input checked="" type="checkbox"/> Section 404 Permit – Nationwide (U.S. Army Corps)	\$5,500.00
<input type="checkbox"/> Section 404 Permit – Individual (U.S. Army Corps)	0.00
<input type="checkbox"/> Section 10 Navigable Waters Permit (U.S. Army Corps)	0.00
<input type="checkbox"/> Section 9 Permit (U.S. Coast Guard)	0.00
<input checked="" type="checkbox"/> Other: Section 7 Incidental Take Permit	\$7,000.00
Total (enter zeros if no cost)	\$20,500.00

PART 3. ENVIRONMENTAL COMMITMENTS FOR PERMANENT IMPACTS

To complete the following information:

- Report costs in \$1,000s.
- Include all costs to complete the commitment:
 - O.K. to break down by phase: Design, ROW, Construction, and/or provide Sub-Total.
 - Capital outlay and staff support. Refer to Estimated Resources by WBS Code. For example, if you estimated 80 hours for biological monitoring (WBS 235.35 Long Term Mitigation Monitoring), convert those hours to a dollar amount for this entry. For current conversion rates from PY to dollars, see the Project Manager.
 - Cost of right of way or easements.
 - If compensatory mitigation is anticipated (for wetlands, for example), insert a range for purchasing credits in a mitigation bank.
 - Long-term monitoring and reporting
 - Any follow-up maintenance
 - Use current costs; the Project Manager will add an appropriate escalation factor.
 - This is an estimating tool, so a range is not only acceptable, but advisable.

Environmental Commitments Package 1A					
	Estimated Cost in \$1,000's				Notes
	<u>Phases</u>				
	<u>Design</u>	<u>ROW</u>	<u>Construction</u>	<u>Sub-Total</u>	
Noise abatement or mitigation					
Special landscaping					
Archaeological resources			100	100	
Biological resources			30-40/acre	30-40/acre	Red-legged frog upland mitigation at bank
Historical resources					
Scenic resources					
Wetland/riparian resources	8.5			8.5	Wetland delineation
Res./bus. relocations					
Other: Paleontological resources			50	50	
Total (enter zeros if no cost)				188.5+	

Attachment D: PEAR Environmental Commitments Cost Estimate

Standard PSR Only

(Prepare a separate form for each viable alternative described in the Project Study Report)

PART 1 PROJECT INFORMATION

rev. 11/08

District-County-Route-Post Mile 04-CC-SR4- PM 14.3/19.6	EA: 1J030
Project Description: Package 1B would construct a new general purpose lane along eastbound SR4, between the Willow Pass Road off-ramp and the Willow Pass Road on-ramp. The new general purpose lane would eliminate the mandatory exit at the Willow Pass Road off ramp from Package 1A, and would connect to the existing auxiliary lane between the Willow Pass Road on-ramp and the San Marco Boulevard off-ramp. This package would also construct a second exit lane at the eastbound SR4 off-ramp to San Marco Boulevard.	
Form completed by (Name/District Office): Jennifer Gallerani, Project Manager, Circlepoint	
Project Manager: Laurie Lau	Phone Number: (510) 286-5568
Date: December 1, 2015	

PART 2 PERMITS AND AGREEMENTS

	Permits and Agreements (\$\$)
<input type="checkbox"/> Fish and Game 1602 Agreement	0.00
<input type="checkbox"/> Coastal Development Permit	0.00
<input type="checkbox"/> State Lands Agreement	0.00
<input checked="" type="checkbox"/> Section 401 Water Quality Certification	\$4,500.00
<input type="checkbox"/> Section 404 Permit – Nationwide (U.S. Army Corps)	0.00
<input type="checkbox"/> Section 404 Permit – Individual (U.S. Army Corps)	0.00
<input type="checkbox"/> Section 10 Navigable Waters Permit (U.S. Army Corps)	0.00
<input type="checkbox"/> Section 9 Permit (U.S. Coast Guard)	0.00
<input checked="" type="checkbox"/> Other: Section 7 Incidental Take Permit	\$7,000.00
Total (enter zeros if no cost)	
	\$11,500.00

PART 3. ENVIRONMENTAL COMMITMENTS FOR PERMANENT IMPACTS

To complete the following information:

- Report costs in \$1,000s.
- Include all costs to complete the commitment:
 - O.K. to break down by phase: Design, ROW, Construction, and/or provide Sub-Total.
 - Capital outlay and staff support. Refer to Estimated Resources by WBS Code. For example, if you estimated 80 hours for biological monitoring (WBS 235.35 Long Term Mitigation Monitoring), convert those hours to a dollar amount for this entry. For current conversion rates from PY to dollars, see the Project Manager.
 - Cost of right of way or easements.
 - If compensatory mitigation is anticipated (for wetlands, for example), insert a range for purchasing credits in a mitigation bank.
 - Long-term monitoring and reporting
 - Any follow-up maintenance
 - Use current costs; the Project Manager will add an appropriate escalation factor.
 - This is an estimating tool, so a range is not only acceptable, but advisable.

Environmental Commitments Package 1B					
	Estimated Cost in \$1,000's				Notes
	<u>Phases</u>				
	<u>Design</u>	<u>ROW</u>	<u>Construction</u>	<u>Sub-Total</u>	
Noise abatement or mitigation					
Special landscaping					
Archaeological resources			100	100	
Biological resources			30-40/acre	30-40/acre	Red-legged frog upland mitigation at bank
Historical resources					
Scenic resources					
Wetland/riparian resources					Wetland delineation
Res./bus. relocations					
Other: Paleontological resources			50	50	
Total (enter zeros if no cost)				180+	

Attachment D: PEAR Environmental Commitments Cost Estimate

Standard PSR Only

(Prepare a separate form for each viable alternative described in the Project Study Report)

PART 1 PROJECT INFORMATION

rev. 11/08

District-County-Route-Post Mile 04-CC-SR4- PM 14.3/19.6	EA: 1J030
Project Description: Package 1C would construct an auxiliary lane along eastbound SR4, from the San Marco Boulevard loop on-ramp to the existing deceleration lane at the Bailey Road off-ramp.	
Form completed by (Name/District Office): Jennifer Gallerani, Project Manager, Circlepoint	
Project Manager: Laurie Lau	Phone Number: (510) 286-5568
Date: December 1, 2015	

PART 2 PERMITS AND AGREEMENTS

	Permits and Agreements (\$\$)
<input type="checkbox"/> Fish and Game 1602 Agreement	0.00
<input type="checkbox"/> Coastal Development Permit	0.00
<input type="checkbox"/> State Lands Agreement	0.00
<input checked="" type="checkbox"/> Section 401 Water Quality Certification	\$4,500.00
<input type="checkbox"/> Section 404 Permit – Nationwide (U.S. Army Corps)	0.00
<input type="checkbox"/> Section 404 Permit – Individual (U.S. Army Corps)	0.00
<input type="checkbox"/> Section 10 Navigable Waters Permit (U.S. Army Corps)	0.00
<input type="checkbox"/> Section 9 Permit (U.S. Coast Guard)	0.00
<input type="checkbox"/> Other: Section 7 Incidental Take Permit	0.00
Total (enter zeros if no cost)	\$4,500.00

PART 3. ENVIRONMENTAL COMMITMENTS FOR PERMANENT IMPACTS

To complete the following information:

- Report costs in \$1,000s.
- Include all costs to complete the commitment:
 - O.K. to break down by phase: Design, ROW, Construction, and/or provide Sub-Total.
 - Capital outlay and staff support. Refer to Estimated Resources by WBS Code. For example, if you estimated 80 hours for biological monitoring (WBS 235.35 Long Term Mitigation Monitoring), convert those hours to a dollar amount for this entry. For current conversion rates from PY to dollars, see the Project Manager.
 - Cost of right of way or easements.
 - If compensatory mitigation is anticipated (for wetlands, for example), insert a range for purchasing credits in a mitigation bank.
 - Long-term monitoring and reporting
 - Any follow-up maintenance
 - Use current costs; the Project Manager will add an appropriate escalation factor.
 - This is an estimating tool, so a range is not only acceptable, but advisable.

Environmental Commitments Package 1C					
	Estimated Cost in \$1,000's				Notes
	<u>Phases</u>				
	<u>Design</u>	<u>ROW</u>	<u>Construction</u>	<u>Sub-Total</u>	
Noise abatement or mitigation					
Special landscaping					
Archaeological resources			100	100	
Biological resources					Red-legged frog upland mitigation at bank
Historical resources					
Scenic resources					
Wetland/riparian resources					Wetland delineation
Res./bus. relocations					
Other: Paleontological resources			50	50	
Total (enter zeros if no cost)				150	

Attachment D: PEAR Environmental Commitments Cost Estimate

Standard PSR Only

(Prepare a separate form for each viable alternative described in the Project Study Report)

PART 1 PROJECT INFORMATION

rev. 11/08

District-County-Route-Post Mile 04-CC-SR4- PM 14.3/19.6	EA: 1J030
<p>Project Description: Package 1D would construct the following improvements at four different locations along eastbound SR4:</p> <ul style="list-style-type: none"> • extend the general purpose lane from the I-680 on-ramp to the Port Chicago Highway off-ramp • construct an auxiliary lane between the Port Chicago Highway on-ramp and the Willow Pass Road off-ramp • construct an auxiliary lane between the Willow Pass Road on-ramp and the San Marco Blvd. off-ramp • construct a general purpose lane from the San Marco Boulevard off-ramp to San Marco Boulevard on-ramp. 	
Form completed by (Name/District Office): Jennifer Gallerani, Project Manager, Circlepoint	
Project Manager: Laurie Lau	Phone Number: (510) 286-5568
Date: December 1, 2015	

PART 2 PERMITS AND AGREEMENTS

	Permits and Agreements (\$\$)
<input checked="" type="checkbox"/> Fish and Game 1602 Agreement	\$3,500.00
<input type="checkbox"/> Coastal Development Permit	0.00
<input type="checkbox"/> State Lands Agreement	0.00
<input checked="" type="checkbox"/> Section 401 Water Quality Certification	\$4,500.00
<input checked="" type="checkbox"/> Section 404 Permit – Nationwide (U.S. Army Corps)	\$5,500.00
<input type="checkbox"/> Section 404 Permit – Individual (U.S. Army Corps)	0.00
<input type="checkbox"/> Section 10 Navigable Waters Permit (U.S. Army Corps)	0.00
<input type="checkbox"/> Section 9 Permit (U.S. Coast Guard)	0.00
<input checked="" type="checkbox"/> Other: Section 7 Incidental Take Permit	\$7,000.00
Total (enter zeros if no cost)	\$20,500.00

PART 3. ENVIRONMENTAL COMMITMENTS FOR PERMANENT IMPACTS

To complete the following information:

- Report costs in \$1,000s.
- Include all costs to complete the commitment:
 - O.K. to break down by phase: Design, ROW, Construction, and/or provide Sub-Total.
 - Capital outlay and staff support. Refer to Estimated Resources by WBS Code. For example, if you estimated 80 hours for biological monitoring (WBS 235.35 Long Term Mitigation Monitoring), convert those hours to a dollar amount for this entry. For current conversion rates from PY to dollars, see the Project Manager.
 - Cost of right of way or easements.
 - If compensatory mitigation is anticipated (for wetlands, for example), insert a range for purchasing credits in a mitigation bank.
 - Long-term monitoring and reporting
 - Any follow-up maintenance
 - Use current costs; the Project Manager will add an appropriate escalation factor.
 - This is an estimating tool, so a range is not only acceptable, but advisable.

Environmental Commitments Package 1D					
	Estimated Cost in \$1,000's				Notes
	<u>Phases</u>				
	<u>Design</u>	<u>ROW</u>	<u>Construction</u>	<u>Sub-Total</u>	
Noise abatement or mitigation					
Special landscaping					
Archaeological resources			100	100	
Biological resources			30-40/acre	30-40/acre	Red-legged frog upland mitigation at bank
Historical resources					
Scenic resources					
Wetland/riparian resources	8.5			8.5	Wetland delineation
Res./bus. relocations					
Other: Paleontological resources			50	50	
Total (enter zeros if no cost)				188.5+	

Attachment D: PEAR Environmental Commitments Cost Estimate

Standard PSR Only

(Prepare a separate form for each viable alternative described in the Project Study Report)

PART 1 PROJECT INFORMATION

rev. 11/08

District-County-Route-Post Mile 04-CC-SR4- PM 14.3/19.6	EA: 1J030
<p>Project Description: Package 1E would construct the following improvements at three locations along westbound SR4:</p> <ul style="list-style-type: none"> construct a general purpose lane from the Willow Pass Road on-ramp to the existing added mainline lane just east of the Port Chicago Highway off-ramp construct a second exit lane at the Port Chicago Highway off-ramp modify one of the mandatory exit lanes to SR242 to an optional exit lane, which would allow three freeway lanes to exit to SR242 and three lanes to continue on westbound SR4 	
Form completed by (Name/District Office): Jennifer Gallerani, Project Manager, Circlepoint	
Project Manager: Laurie Lau	Phone Number: (510) 286-5568
Date: December 1, 2015	

PART 2 PERMITS AND AGREEMENTS

	Permits and Agreements (\$\$)
<input checked="" type="checkbox"/> Fish and Game 1602 Agreement	\$3,500.00
<input type="checkbox"/> Coastal Development Permit	0.00
<input type="checkbox"/> State Lands Agreement	0.00
<input checked="" type="checkbox"/> Section 401 Water Quality Certification	\$4,500.00
<input checked="" type="checkbox"/> Section 404 Permit – Nationwide (U.S. Army Corps)	\$5,500.00
<input type="checkbox"/> Section 404 Permit – Individual (U.S. Army Corps)	0.00
<input type="checkbox"/> Section 10 Navigable Waters Permit (U.S. Army Corps)	0.00
<input type="checkbox"/> Section 9 Permit (U.S. Coast Guard)	0.00
<input checked="" type="checkbox"/> Other: Section 7 Incidental Take Permit	\$7,000.00
Total (enter zeros if no cost)	\$20,500.00

PART 3. ENVIRONMENTAL COMMITMENTS FOR PERMANENT IMPACTS

To complete the following information:

- Report costs in \$1,000s.
- Include all costs to complete the commitment:
 - O.K. to break down by phase: Design, ROW, Construction, and/or provide Sub-Total.
 - Capital outlay and staff support. Refer to Estimated Resources by WBS Code. For example, if you estimated 80 hours for biological monitoring (WBS 235.35 Long Term Mitigation Monitoring), convert those hours to a dollar amount for this entry. For current conversion rates from PY to dollars, see the Project Manager.
 - Cost of right of way or easements.
 - If compensatory mitigation is anticipated (for wetlands, for example), insert a range for purchasing credits in a mitigation bank.
 - Long-term monitoring and reporting
 - Any follow-up maintenance
 - Use current costs; the Project Manager will add an appropriate escalation factor.
 - This is an estimating tool, so a range is not only acceptable, but advisable.

Environmental Commitments Package 1E					
	Estimated Cost in \$1,000's				Notes
	<u>Phases</u>				
	<u>Design</u>	<u>ROW</u>	<u>Construction</u>	<u>Sub-Total</u>	
Noise abatement or mitigation					
Special landscaping					
Archaeological resources			100	100	
Biological resources			30-40/acre	30-40/acre	Red-legged frog upland mitigation at bank
Historical resources					
Scenic resources					
Wetland/riparian resources	8.5			8.5	Wetland delineation
Res./bus. relocations					
Other: Paleontological resources			50	50	
Total (enter zeros if no cost)				188.5+	

Attachment D: PEAR Environmental Commitments Cost Estimate

Standard PSR Only

(Prepare a separate form for each viable alternative described in the Project Study Report)

PART 1 PROJECT INFORMATION

rev. 11/08

District-County-Route-Post Mile 04-CC-SR4- PM 14.3/19.6	EA: 1J030
Project Description: Package 1F would construct a general purpose lane along westbound SR4, between the Willow Pass Road off-ramp and Willow Pass Road on-ramp. The construction of this general purpose lane in combination with Package 1E and the existing auxiliary lane between the San Marco Boulevard on-ramp and Willow Pass Road off-ramp would result in a new general purpose lane between the San Marco Boulevard on-ramp and SR4 242 diverging branch connector. This package would also construct an auxiliary lane from the Willow Pass Road on-ramp to the second exit lane to Port Chicago Highway.	
Form completed by (Name/District Office): Jennifer Gallerani, Project Manager, Circlepoint	
Project Manager: Laurie Lau	Phone Number: (510) 286-5568
Date: December 1, 2015	

PART 2 PERMITS AND AGREEMENTS

	Permits and Agreements (\$\$)
<input type="checkbox"/> Fish and Game 1602 Agreement	0.00
<input type="checkbox"/> Coastal Development Permit	0.00
<input type="checkbox"/> State Lands Agreement	0.00
<input checked="" type="checkbox"/> Section 401 Water Quality Certification	\$4,500.00
<input type="checkbox"/> Section 404 Permit – Nationwide (U.S. Army Corps)	0.00
<input type="checkbox"/> Section 404 Permit – Individual (U.S. Army Corps)	0.00
<input type="checkbox"/> Section 10 Navigable Waters Permit (U.S. Army Corps)	0.00
<input type="checkbox"/> Section 9 Permit (U.S. Coast Guard)	0.00
<input checked="" type="checkbox"/> Other: Section 7 Incidental Take Permit	\$7,000.00
Total (enter zeros if no cost)	\$11,500.00

PART 3. ENVIRONMENTAL COMMITMENTS FOR PERMANENT IMPACTS

To complete the following information:

- Report costs in \$1,000s.
- Include all costs to complete the commitment:
 - O.K. to break down by phase: Design, ROW, Construction, and/or provide Sub-Total.
 - Capital outlay and staff support. Refer to Estimated Resources by WBS Code. For example, if you estimated 80 hours for biological monitoring (WBS 235.35 Long Term Mitigation Monitoring), convert those hours to a dollar amount for this entry. For current conversion rates from PY to dollars, see the Project Manager.
 - Cost of right of way or easements.
 - If compensatory mitigation is anticipated (for wetlands, for example), insert a range for purchasing credits in a mitigation bank.
 - Long-term monitoring and reporting
 - Any follow-up maintenance
 - Use current costs; the Project Manager will add an appropriate escalation factor.
 - This is an estimating tool, so a range is not only acceptable, but advisable.

Environmental Commitments Package 1F					
	Estimated Cost in \$1,000's				Notes
	<u>Phases</u>				
	<u>Design</u>	<u>ROW</u>	<u>Construction</u>	<u>Sub-Total</u>	
Noise abatement or mitigation					
Special landscaping					
Archaeological resources			100	100	
Biological resources			30-40/acre	30-40/acre	Red-legged frog upland mitigation at bank
Historical resources					
Scenic resources					
Wetland/riparian resources					Wetland delineation
Res./bus. relocations					
Other: Paleontological resources			50	50	
Total (enter zeros if no cost)				180+	

Attachment D: PEAR Environmental Commitments Cost Estimate

Standard PSR Only

(Prepare a separate form for each viable alternative described in the Project Study Report)

PART 1 PROJECT INFORMATION

rev. 11/08

District-County-Route-Post Mile 04-CC-SR4- PM 14.3/19.6	EA: 1J030
Project Description: Package 1G would construct an auxiliary lane along westbound SR4, between the San Marco Boulevard on-ramp to the Willow Pass Road off-ramp. This package would also extend the existing acceleration lane at the Bailey Road on-ramp to the existing auxiliary lane between the San Marco Boulevard on-ramp and the Willow Pass Road off-ramp.	
Form completed by (Name/District Office): Jennifer Gallerani, Project Manager, Circlepoint	
Project Manager: Laurie Lau	Phone Number: (510) 286-5568
Date: December 1, 2015	

PART 2 PERMITS AND AGREEMENTS

	Permits and Agreements (\$\$)
<input type="checkbox"/> Fish and Game 1602 Agreement	0.00
<input type="checkbox"/> Coastal Development Permit	0.00
<input type="checkbox"/> State Lands Agreement	0.00
<input checked="" type="checkbox"/> Section 401 Water Quality Certification	\$4,500.00
<input type="checkbox"/> Section 404 Permit – Nationwide (U.S. Army Corps)	0.00
<input type="checkbox"/> Section 404 Permit – Individual (U.S. Army Corps)	0.00
<input type="checkbox"/> Section 10 Navigable Waters Permit (U.S. Army Corps)	0.00
<input type="checkbox"/> Section 9 Permit (U.S. Coast Guard)	0.00
<input type="checkbox"/> Other: Section 7 Incidental Take Permit	0.00
Total (enter zeros if no cost)	\$4,500.00

PART 3. ENVIRONMENTAL COMMITMENTS FOR PERMANENT IMPACTS

To complete the following information:

- Report costs in \$1,000s.
- Include all costs to complete the commitment:
 - O.K. to break down by phase: Design, ROW, Construction, and/or provide Sub-Total.
 - Capital outlay and staff support. Refer to Estimated Resources by WBS Code. For example, if you estimated 80 hours for biological monitoring (WBS 235.35 Long Term Mitigation Monitoring), convert those hours to a dollar amount for this entry. For current conversion rates from PY to dollars, see the Project Manager.
 - Cost of right of way or easements.
 - If compensatory mitigation is anticipated (for wetlands, for example), insert a range for purchasing credits in a mitigation bank.
 - Long-term monitoring and reporting
 - Any follow-up maintenance
 - Use current costs; the Project Manager will add an appropriate escalation factor.
 - This is an estimating tool, so a range is not only acceptable, but advisable.

Environmental Commitments Package 1G					
	Estimated Cost in \$1,000's				Notes
	<u>Phases</u>				
	<u>Design</u>	<u>ROW</u>	<u>Construction</u>	<u>Sub-Total</u>	
Noise abatement or mitigation					
Special landscaping					
Archaeological resources			100	100	
Biological resources					Red-legged frog upland mitigation at bank
Historical resources					
Scenic resources					
Wetland/riparian resources					Wetland delineation
Res./bus. relocations					
Other: Paleontological resources			50	50	
Total (enter zeros if no cost)				150	

Attachment D: PEAR Environmental Commitments Cost Estimate

Standard PSR Only

(Prepare a separate form for each viable alternative described in the Project Study Report)

PART 1 PROJECT INFORMATION

rev. 11/08

District-County-Route-Post Mile 04-CC-SR4- PM 14.3/19.6	EA: 1J030
Project Description: Package 2A would convert the eastbound inside shoulder to a managed HOV lane from just east of the SR4 / SR242 Interchange (PM 14.7) to the Willow Pass Road on-ramp (PM 17.2). This package would provide similar operational improvements during the peak period as Packages 1A and 1B of Alternative 1 by adding a new general purpose lane along eastbound SR4 from where the existing eastbound SR4 lane drops at Port Chicago Highway to the existing auxiliary lane between the Willow Pass Road on-ramp and the San Marco Boulevard off-ramp. The Willow Pass Road bridge structure will be widened by 12 feet. Package 2A would also add an auxiliary lane from the Port Chicago Highway diagonal on-ramp to Willow Pass Road off-ramp by reconstructing the pavement structural section for the existing 20-foot inside median, and widening the bridge structures at the Port Chicago Highway, Kinne Boulevard, and Willow Pass Road by 12 feet, 24 feet, and 12 feet respectively. Package 2A would construct a second exit lane at the eastbound SR4 off ramp to San Marco Boulevard. The existing mainline pavement would be resurfaced with a thin asphalt overlay.	
Form completed by (Name/District Office): Jennifer Gallerani Marquez, Project Manager, Circlepoint	
Project Manager: Laurie Lau	Phone Number: (510) 286-5568
Date: June 24, 2016	

PART 2 PERMITS AND AGREEMENTS

	Permits and Agreements (\$\$)
<input checked="" type="checkbox"/> Fish and Game 1602 Agreement	\$3,500.00
<input type="checkbox"/> Coastal Development Permit	0.00
<input type="checkbox"/> State Lands Agreement	0.00
<input checked="" type="checkbox"/> Section 401 Water Quality Certification	\$4,500.00
<input checked="" type="checkbox"/> Section 404 Permit – Nationwide (U.S. Army Corps)	\$5,500.00
<input type="checkbox"/> Section 404 Permit – Individual (U.S. Army Corps)	0.00
<input type="checkbox"/> Section 10 Navigable Waters Permit (U.S. Army Corps)	0.00
<input type="checkbox"/> Section 9 Permit (U.S. Coast Guard)	0.00
<input type="checkbox"/> Other: Section 7 Incidental Take Permit	\$7,000.00
Total (enter zeros if no cost)	\$20,500.00

PART 3. ENVIRONMENTAL COMMITMENTS FOR PERMANENT IMPACTS

To complete the following information:

- Report costs in \$1,000s.
- Include all costs to complete the commitment:
 - O.K. to break down by phase: Design, ROW, Construction, and/or provide Sub-Total.
 - Capital outlay and staff support. Refer to Estimated Resources by WBS Code. For example, if you estimated 80 hours for biological monitoring (WBS 235.35 Long Term Mitigation Monitoring), convert those hours to a dollar amount for this entry. For current conversion rates from PY to dollars, see the Project Manager.
 - Cost of right of way or easements.
 - If compensatory mitigation is anticipated (for wetlands, for example), insert a range for purchasing credits in a mitigation bank.
 - Long-term monitoring and reporting
 - Any follow-up maintenance
 - Use current costs; the Project Manager will add an appropriate escalation factor.
 - This is an estimating tool, so a range is not only acceptable, but advisable.

Environmental Commitments Package 2A					
	Estimated Cost in \$1,000's				Notes
	<u>Phases</u>				
	<u>Design</u>	<u>ROW</u>	<u>Construction</u>	<u>Sub-Total</u>	
Noise abatement or mitigation					
Special landscaping					
Archaeological resources			100	100	
Biological resources			30-40/acre	30-40/acre	Red-legged frog upland mitigation at bank
Historical resources					
Scenic resources					
Wetland/riparian resources	8.5			8.5	Wetland delineation
Res./bus. relocations					
Other: Paleontological resources			50	50	
Total (enter zeros if no cost)				188.5+	

**Attachment D: PEAR Environmental Commitments Cost
Estimate**
Standard PSR Only

(Prepare a separate form for each viable alternative described in the Project Study Report)

PART 1 PROJECT INFORMATION

rev. 11/08

District-County-Route-Post Mile 04-CC-SR4- PM 14.3/19.6	EA: 1J030
Project Description: Package 2B would convert the eastbound inside shoulder to a managed HOV lane from the San Marco Blvd loop on-ramp (PM 18.8) to just west of the Bailey Road Interchange (PM 19.5). This package would achieve similar operational improvements during the peak periods as Package 1C of Alternative 1 by adding an auxiliary lane along eastbound SR4, from the San Marco Boulevard loop on-ramp to the existing deceleration lane at the Bailey Road off-ramp. Package 2B would also extend the general purpose lane from the San Marco Boulevard off-ramp to San Marco Boulevard on-ramp by narrowing the existing 12-foot freeway travel lanes to 11-foot wide lanes. The existing mainline pavement would be resurfaced with a thin asphalt overlay.	
Form completed by (Name/District Office): Jennifer Gallerani Marquez, Project Manager, Circlepoint	
Project Manager: Laurie Lau	Phone Number: (510) 286-5568
Date: June 24, 2016	

PART 2 PERMITS AND AGREEMENTS

	Permits and Agreements (\$\$)
<input type="checkbox"/> Fish and Game 1602 Agreement	0.00
<input type="checkbox"/> Coastal Development Permit	0.00
<input type="checkbox"/> State Lands Agreement	0.00
<input checked="" type="checkbox"/> Section 401 Water Quality Certification	\$4,500.00
<input type="checkbox"/> Section 404 Permit – Nationwide (U.S. Army Corps)	\$0.00
<input type="checkbox"/> Section 404 Permit – Individual (U.S. Army Corps)	0.00
<input type="checkbox"/> Section 10 Navigable Waters Permit (U.S. Army Corps)	0.00
<input type="checkbox"/> Section 9 Permit (U.S. Coast Guard)	0.00
<input checked="" type="checkbox"/> Other: Section 7 Incidental Take Permit	\$0.00
Total (enter zeros if no cost)	\$4,500.00

PART 3. ENVIRONMENTAL COMMITMENTS FOR PERMANENT IMPACTS

To complete the following information:

- Report costs in \$1,000s.
- Include all costs to complete the commitment:
 - O.K. to break down by phase: Design, ROW, Construction, and/or provide Sub-Total.
 - Capital outlay and staff support. Refer to Estimated Resources by WBS Code. For example, if you estimated 80 hours for biological monitoring (WBS 235.35 Long Term Mitigation Monitoring), convert those hours to a dollar amount for this entry. For current conversion rates from PY to dollars, see the Project Manager.
 - Cost of right of way or easements.
 - If compensatory mitigation is anticipated (for wetlands, for example), insert a range for purchasing credits in a mitigation bank.
 - Long-term monitoring and reporting
 - Any follow-up maintenance
 - Use current costs; the Project Manager will add an appropriate escalation factor.
 - This is an estimating tool, so a range is not only acceptable, but advisable.

Environmental Commitments Package 2B					
	Estimated Cost in \$1,000's				Notes
	<u>Phases</u>				
	<u>Design</u>	<u>ROW</u>	<u>Construction</u>	<u>Sub-Total</u>	
Noise abatement or mitigation					
Special landscaping					
Archaeological resources			100	100	
Biological resources					
Historical resources					
Scenic resources					
Wetland/riparian resources					
Res./bus. relocations					
Other: Paleontological resources			50	50	
Total (enter zeros if no cost)				150+	

Attachment D: PEAR Environmental Commitments Cost Estimate

Standard PSR Only

(Prepare a separate form for each viable alternative described in the Project Study Report)

PART 1 PROJECT INFORMATION

rev. 11/08

District-County-Route-Post Mile 04-CC-SR4- PM 14.3/19.6	EA: 1J030
<p>Project Description: Package 2C would convert the eastbound inside shoulder to a managed HOV lane from the Willow Pass Road on-ramp (PM 17.2) to the San Marco Boulevard off-ramp (PM 18.8). This package would achieve similar operational improvements during the peak periods as Package 1D of Alternative 1 by adding an auxiliary lane along eastbound SR4, from the Willow Pass Road on-ramp to the San Marco Boulevard off-ramp and a general purpose lane at the San Marco Boulevard Interchange. Improvements under this package would be implemented by restriping the lanes from 12-foot to 11-foot wide lanes, reconstructing the inside shoulder pavement structural section, and widening the San Marco Boulevard bridge structure by 10 feet to accommodate traffic. The existing mainline pavement would be resurfaced with a thin asphalt overlay. Additionally, Package 2C would narrow the existing 10-foot outside and 10-foot inside shoulders to 4 foot and 4 -foot, respectively, from the SR242 off-ramp (PM 14.4) to the Port Chicago Highway off ramp (PM 14.5) to accommodate a new general purpose travel lane. This general purpose travel lane would extend the general purpose travel lane from the I 680 on-ramp to the Port Chicago Highway off-ramp. In addition, Package 2C would add an auxiliary lane from the Port Chicago Highway on-ramp to the Willow Pass Road off-ramp by restripe the pavement constructed as part of Package 2A. A combination of Packages 2A, 2B, and 2C would achieve similar operational improvements during peak period as Packages 1A, 1B, 1C, and 1D of Alternative 1.</p>	
Form completed by (Name/District Office): Jennifer Marquez Gallerani, Project Manager, Circlepoint	
Project Manager: Laurie Lau	Phone Number: (510) 286-5568
Date: June 24, 2016	

PART 2 PERMITS AND AGREEMENTS

	Permits and Agreements (\$\$)
<input type="checkbox"/> Fish and Game 1602 Agreement	0.00
<input type="checkbox"/> Coastal Development Permit	0.00
<input type="checkbox"/> State Lands Agreement	0.00
<input checked="" type="checkbox"/> Section 401 Water Quality Certification	4,500.00
<input type="checkbox"/> Section 404 Permit – Nationwide (U.S. Army Corps)	0.00
<input type="checkbox"/> Section 404 Permit – Individual (U.S. Army Corps)	0.00
<input type="checkbox"/> Section 10 Navigable Waters Permit (U.S. Army	0.00

Corps)	
<input type="checkbox"/> Section 9 Permit (U.S. Coast Guard)	0.00
<input type="checkbox"/> Other: Section 7 Incidental Take Permit	0.00
Total (enter zeros if no cost)	4,500.00

PART 3. ENVIRONMENTAL COMMITMENTS FOR PERMANENT IMPACTS

To complete the following information:

- Report costs in \$1,000s.
- Include all costs to complete the commitment:
 - O.K. to break down by phase: Design, ROW, Construction, and/or provide Sub-Total.
 - Capital outlay and staff support. Refer to Estimated Resources by WBS Code. For example, if you estimated 80 hours for biological monitoring (WBS 235.35 Long Term Mitigation Monitoring), convert those hours to a dollar amount for this entry. For current conversion rates from PY to dollars, see the Project Manager.
 - Cost of right of way or easements.
 - If compensatory mitigation is anticipated (for wetlands, for example), insert a range for purchasing credits in a mitigation bank.
 - Long-term monitoring and reporting
 - Any follow-up maintenance
 - Use current costs; the Project Manager will add an appropriate escalation factor.
 - This is an estimating tool, so a range is not only acceptable, but advisable.

Environmental Commitments Package 2C					
	Estimated Cost in \$1,000's				Notes
	<u>Phases</u>				
	<u>Design</u>	<u>ROW</u>	<u>Construction</u>	<u>Sub-Total</u>	
Noise abatement or mitigation					
Special landscaping					
Archaeological resources			100	100	
Biological resources					Red-legged frog upland mitigation at bank
Historical resources					
Scenic resources					
Wetland/riparian resources					Wetland delineation
Res./bus. relocations					
Other: Paleontological resources			50	50	
Total (enter zeros if no cost)				150	

Attachment D: PEAR Environmental Commitments Cost Estimate

Standard PSR Only

(Prepare a separate form for each viable alternative described in the Project Study Report)

PART 1 PROJECT INFORMATION

rev. 11/08

District-County-Route-Post Mile 04-CC-SR4- PM 14.3/19.6	EA: 1J030
<p>Project Description: Package 2D would construct the following improvements at three locations along westbound SR4 and would be identical to Package 1E of Alternative 1:</p> <ul style="list-style-type: none"> construct a general purpose lane from the Willow Pass Road on-ramp to the existing added mainline lane just east of the Port Chicago Highway off-ramp construct a second exit lane to the Port Chicago Highway off-ramp widen Kinne Boulevard bridge structure by approximately 33 feet to accommodate the added general purpose lane and second exit lane modify one of the mandatory exit lanes to SR242 to an optional exit lane, which would allow three freeway lanes to exit to SR242 and three lanes to continue on westbound SR4 	
Form completed by (Name/District Office): Jennifer Gallerani Marquez, Project Manager, Circlepoint	
Project Manager: Laurie Lau	Phone Number: (510) 286-5568
Date: June 24, 2016	

PART 2 PERMITS AND AGREEMENTS

	Permits and Agreements (\$\$)
<input checked="" type="checkbox"/> Fish and Game 1602 Agreement	\$3,500.00
<input type="checkbox"/> Coastal Development Permit	0.00
<input type="checkbox"/> State Lands Agreement	0.00
<input checked="" type="checkbox"/> Section 401 Water Quality Certification	\$4,500.00
<input checked="" type="checkbox"/> Section 404 Permit – Nationwide (U.S. Army Corps)	\$5,500.00
<input type="checkbox"/> Section 404 Permit – Individual (U.S. Army Corps)	0.00
<input type="checkbox"/> Section 10 Navigable Waters Permit (U.S. Army Corps)	0.00
<input type="checkbox"/> Section 9 Permit (U.S. Coast Guard)	0.00
<input type="checkbox"/> Other: Section 7 Incidental Take Permit	\$7,000.00
Total (enter zeros if no cost)	\$20,500.00

PART 3. ENVIRONMENTAL COMMITMENTS FOR PERMANENT IMPACTS

To complete the following information:

- Report costs in \$1,000s.
- Include all costs to complete the commitment:
 - O.K. to break down by phase: Design, ROW, Construction, and/or provide Sub-Total.
 - Capital outlay and staff support. Refer to Estimated Resources by WBS Code. For example, if you estimated 80 hours for biological monitoring (WBS 235.35 Long Term Mitigation Monitoring), convert those hours to a dollar amount for this entry. For current conversion rates from PY to dollars, see the Project Manager.
 - Cost of right of way or easements.
 - If compensatory mitigation is anticipated (for wetlands, for example), insert a range for purchasing credits in a mitigation bank.
 - Long-term monitoring and reporting
 - Any follow-up maintenance
 - Use current costs; the Project Manager will add an appropriate escalation factor.
 - This is an estimating tool, so a range is not only acceptable, but advisable.

Environmental Commitments Package 2D					
	Estimated Cost in \$1,000's				Notes
	<u>Phases</u>				
	<u>Design</u>	<u>ROW</u>	<u>Construction</u>	<u>Sub-Total</u>	
Noise abatement or mitigation					
Special landscaping					
Archaeological resources			100	100	
Biological resources			30-40/acre	30-40/acre	Red-legged frog upland mitigation at bank
Historical resources					
Scenic resources					
Wetland/riparian resources	8.5			8.5	Wetland delineation
Res./bus. relocations					
Other: Paleontological resources			50	50	
Total (enter zeros if no cost)				188.5+	

Attachment D: PEAR Environmental Commitments Cost Estimate

Standard PSR Only

(Prepare a separate form for each viable alternative described in the Project Study Report)

PART 1 PROJECT INFORMATION

rev. 11/08

District-County-Route-Post Mile 04-CC-SR4- PM 14.3/19.6	EA: 1J030
<p>Project Description:</p> <p>Package 2E would convert the westbound inside shoulder to a managed HOV lane from the Willow Pass Road off-ramp (PM 17.2) to just west of the Port Chicago Highway Interchange (PM 16.4), where the existing HOV lane ends. Package 2E would extend the second exit lane to the Port Chicago Highway off-ramp to provide an auxiliary lane from Willow Pass Road on-ramp to Port Chicago Highway off-ramp and add a general purpose land along the westbound SR4, between the Willow Pass Road off-ramp to the Willow Pass Road on-ramp. This alternative would achieve similar operational improvements during the peak periods as Packages 1F of Alternative 1. Improvements under this package would be implemented by narrowing the existing 12-foot freeway travel lanes to 11-foot wide lanes, reconstructing the inside shoulder pavement structural section to accommodate traffic, and widening the bridge structure at Willow Pass Road by 14 feet. The existing mainline pavement would be resurfaced with a thin asphalt overlay.</p>	
Form completed by (Name/District Office): Jennifer Gallerani Marquez, Project Manager, Circlepoint	
Project Manager: Laurie Lau	Phone Number: (510) 286-5568
Date: June 24, 2016	

PART 2 PERMITS AND AGREEMENTS

	Permits and Agreements (\$\$)
<input checked="" type="checkbox"/> Fish and Game 1602 Agreement	\$3,500.00
<input type="checkbox"/> Coastal Development Permit	0.00
<input type="checkbox"/> State Lands Agreement	0.00
<input checked="" type="checkbox"/> Section 401 Water Quality Certification	\$4,500.00
<input checked="" type="checkbox"/> Section 404 Permit – Nationwide (U.S. Army Corps)	\$5,500.00
<input type="checkbox"/> Section 404 Permit – Individual (U.S. Army Corps)	0.00
<input type="checkbox"/> Section 10 Navigable Waters Permit (U.S. Army Corps)	0.00
<input type="checkbox"/> Section 9 Permit (U.S. Coast Guard)	0.00
<input checked="" type="checkbox"/> Other: Section 7 Incidental Take Permit	\$7,000.00
Total (enter zeros if no cost)	
	\$20,500.00

PART 3. ENVIRONMENTAL COMMITMENTS FOR PERMANENT IMPACTS

To complete the following information:

- Report costs in \$1,000s.
- Include all costs to complete the commitment:
 - O.K. to break down by phase: Design, ROW, Construction, and/or provide Sub-Total.
 - Capital outlay and staff support. Refer to Estimated Resources by WBS Code. For example, if you estimated 80 hours for biological monitoring (WBS 235.35 Long Term Mitigation Monitoring), convert those hours to a dollar amount for this entry. For current conversion rates from PY to dollars, see the Project Manager.
 - Cost of right of way or easements.
 - If compensatory mitigation is anticipated (for wetlands, for example), insert a range for purchasing credits in a mitigation bank.
 - Long-term monitoring and reporting
 - Any follow-up maintenance
 - Use current costs; the Project Manager will add an appropriate escalation factor.
 - This is an estimating tool, so a range is not only acceptable, but advisable.

Environmental Commitments Package 2E					
	Estimated Cost in \$1,000's				Notes
	<u>Phases</u>				
	<u>Design</u>	<u>ROW</u>	<u>Construction</u>	<u>Sub-Total</u>	
Noise abatement or mitigation					
Special landscaping					
Archaeological resources			100	100	
Biological resources			30-40/acre	30-40/acre	Red-legged frog upland mitigation at bank
Historical resources					
Scenic resources					
Wetland/riparian resources	8.5			8.5	Wetland delineation
Res./bus. relocations					
Other: Paleontological resources			50	50	
Total (enter zeros if no cost)				188.5+	

Attachment D: PEAR Environmental Commitments Cost Estimate

Standard PSR Only

(Prepare a separate form for each viable alternative described in the Project Study Report)

PART 1 PROJECT INFORMATION

rev. 11/08

District-County-Route-Post Mile 04-CC-SR4- PM 14.3/19.6	EA: 1J030
<p>Project Description: Package 2F would convert the westbound inside shoulder to a managed HOV lane from the Bailey Road Interchange (PM 20.3) to the Willow Pass Road off-ramp (PM 17.2). Package 2F would achieve similar operational improvements during the peak periods as Package 1G of Alternative 1 by adding an auxiliary lane along westbound SR4, between the San Marco Boulevard on-ramp to the Willow Pass Road off-ramp. This package would also extend the existing acceleration lane at the Bailey Road on-ramp to the existing auxiliary lane between the San Marco Boulevard on-ramp and the Willow Pass Road off-ramp by narrowing the existing 12-foot freeway travel lanes to 11-foot, reconstructing the inside shoulder pavement structural section to accommodate traffic, and widening the bridge structure at San Marco Boulevard by 14 feet. The existing mainline pavement would be resurfaced with a thin asphalt overlay.</p>	
<p>Form completed by (Name/District Office): Jennifer Gallerani Marquez, Project Manager, Circlepoint</p>	
<p>Project Manager: Laurie Lau</p>	<p>Phone Number: (510) 286-5568</p>
<p>Date: June 24, 2016</p>	

PART 2 PERMITS AND AGREEMENTS

	Permits and Agreements (\$\$)
<input type="checkbox"/> Fish and Game 1602 Agreement	0.00
<input type="checkbox"/> Coastal Development Permit	0.00
<input type="checkbox"/> State Lands Agreement	0.00
<input checked="" type="checkbox"/> Section 401 Water Quality Certification	\$4,500.00
<input type="checkbox"/> Section 404 Permit – Nationwide (U.S. Army Corps)	0.00
<input type="checkbox"/> Section 404 Permit – Individual (U.S. Army Corps)	0.00
<input type="checkbox"/> Section 10 Navigable Waters Permit (U.S. Army Corps)	0.00
<input type="checkbox"/> Section 9 Permit (U.S. Coast Guard)	0.00
<input type="checkbox"/> Other: Section 7 Incidental Take Permit	0.00
Total (enter zeros if no cost)	\$4,500.00

PART 3. ENVIRONMENTAL COMMITMENTS FOR PERMANENT IMPACTS

To complete the following information:

- Report costs in \$1,000s.
- Include all costs to complete the commitment:
 - O.K. to break down by phase: Design, ROW, Construction, and/or provide Sub-Total.
 - Capital outlay and staff support. Refer to Estimated Resources by WBS Code. For example, if you estimated 80 hours for biological monitoring (WBS 235.35 Long Term Mitigation Monitoring), convert those hours to a dollar amount for this entry. For current conversion rates from PY to dollars, see the Project Manager.
 - Cost of right of way or easements.
 - If compensatory mitigation is anticipated (for wetlands, for example), insert a range for purchasing credits in a mitigation bank.
 - Long-term monitoring and reporting
 - Any follow-up maintenance
 - Use current costs; the Project Manager will add an appropriate escalation factor.
 - This is an estimating tool, so a range is not only acceptable, but advisable.

Environmental Commitments Package 2F					
	Estimated Cost in \$1,000's				Notes
	<u>Phases</u>				
	<u>Design</u>	<u>ROW</u>	<u>Construction</u>	<u>Sub-Total</u>	
Noise abatement or mitigation					
Special landscaping					
Archaeological resources			100	100	
Biological resources			30-40/acre	0	Red-legged frog upland mitigation at bank
Historical resources					
Scenic resources					
Wetland/riparian resources					Wetland delineation
Res./bus. relocations					
Other: Paleontological resources			50	50	
Total (enter zeros if no cost)				150	

Attachment D: PEAR Environmental Commitments Cost Estimate

Standard PSR Only

(Prepare a separate form for each viable alternative described in the Project Study Report)

PART 1 PROJECT INFORMATION

rev. 11/08

District-County-Route-Post Mile 04-CC-SR4- PM 14.3/19.6	EA: 1J030
<p>Project Description: Package 3A would convert the existing eastbound inside shoulder to an HOV/general purpose travel lane from Port Chicago Highway Interchange (PM 15.4) to the Willow Pass Road off-ramp (PM 16.6). This package would provide similar operational improvements during peak periods as Package 1A of Alternative 1 by adding a new general purpose lane along the eastbound SR4 from where the existing eastbound SR4 lane drops at Port Chicago Highway to the Willow Pass Road off-ramp, where it would be a mandatory exit lane. Additionally, Package 3A would add an auxiliary lane from the Port Chicago Highway diagonal on-ramp to the Willow Pass Road off-ramp. The improvements can be implemented by reconstructing the pavement structural section for the existing 20-foot inside median and widening the structures at the Kinne Boulevard bridge structure by 24 feet. Package 3A would also construct a second exit lane at the eastbound SR4 off-ramp to the San Marco Boulevard off-ramp. The existing mainline pavement would be resurfaced with a thin asphalt overlay.</p>	
<p>Form completed by (Name/District Office): Jennifer Gallerani, Project Manager, Circlepoint</p>	
<p>Project Manager: Laurie Lau</p>	<p>Phone Number: (510) 286-5568</p>
<p>Date: June 24, 2016</p>	

PART 2 PERMITS AND AGREEMENTS

	Permits and Agreements (\$\$)
<input checked="" type="checkbox"/> Fish and Game 1602 Agreement	\$3,500.00
<input type="checkbox"/> Coastal Development Permit	0.00
<input type="checkbox"/> State Lands Agreement	0.00
<input checked="" type="checkbox"/> Section 401 Water Quality Certification	\$4,500.00
<input checked="" type="checkbox"/> Section 404 Permit – Nationwide (U.S. Army Corps)	\$5,500.00
<input type="checkbox"/> Section 404 Permit – Individual (U.S. Army Corps)	0.00
<input type="checkbox"/> Section 10 Navigable Waters Permit (U.S. Army Corps)	0.00
<input type="checkbox"/> Section 9 Permit (U.S. Coast Guard)	0.00
<input checked="" type="checkbox"/> Other: Section 7 Incidental Take Permit	\$7,000.00
Total (enter zeros if no cost)	\$20,500.00

PART 3. ENVIRONMENTAL COMMITMENTS FOR PERMANENT IMPACTS

To complete the following information:

- Report costs in \$1,000s.
- Include all costs to complete the commitment:
 - O.K. to break down by phase: Design, ROW, Construction, and/or provide Sub-Total.
 - Capital outlay and staff support. Refer to Estimated Resources by WBS Code. For example, if you estimated 80 hours for biological monitoring (WBS 235.35 Long Term Mitigation Monitoring), convert those hours to a dollar amount for this entry. For current conversion rates from PY to dollars, see the Project Manager.
 - Cost of right of way or easements.
 - If compensatory mitigation is anticipated (for wetlands, for example), insert a range for purchasing credits in a mitigation bank.
 - Long-term monitoring and reporting
 - Any follow-up maintenance
 - Use current costs; the Project Manager will add an appropriate escalation factor.
 - This is an estimating tool, so a range is not only acceptable, but advisable.

Environmental Commitments Package 3A					
	Estimated Cost in \$1,000's				Notes
	<u>Phases</u>				
	<u>Design</u>	<u>ROW</u>	<u>Construction</u>	<u>Sub-Total</u>	
Noise abatement or mitigation					
Special landscaping					
Archaeological resources			100	100	
Biological resources			30-40/acre	30-40/acre	Red-legged frog upland mitigation at bank
Historical resources					
Scenic resources					
Wetland/riparian resources	8.5			8.5	Wetland delineation
Res./bus. relocations					
Other: Paleontological resources			50	50	
Total (enter zeros if no cost)				188.5+	

Attachment D: PEAR Environmental Commitments Cost Estimate

Standard PSR Only

(Prepare a separate form for each viable alternative described in the Project Study Report)

PART 1 PROJECT INFORMATION

rev. 11/08

District-County-Route-Post Mile 04-CC-SR4- PM 14.3/19.6	EA: 1J030
Project Description: Package 3B would convert the existing eastbound inside shoulder to an HOV/general purpose travel lane with a 2-foot shoulder from the eastbound Willow Pass Road off-ramp (PM 16.6) to the eastbound Willow Pass Road on-ramp (PM 17.2). This package would achieve similar operational improvements as Package 1B of Alternative 1 by adding a new general purpose lane from Willow Pass Road off ramp to Willow Pass Road on-ramp. This improvement would be implemented by narrowing the existing lanes from 12-foot to 11-foot wide lanes via restriping and widening the bridge structure at the Willow Pass Road bridge structure by 12 feet. The existing mainline pavement would be resurfaced with a thin asphalt overlay.	
Form completed by (Name/District Office): Jennifer Gallerani, Project Manager, Circlepoint	
Project Manager: Laurie Lau	Phone Number: (510) 286-5568
Date: June 24, 2016	

PART 2 PERMITS AND AGREEMENTS

	Permits and Agreements (\$\$)
<input checked="" type="checkbox"/> Fish and Game 1602 Agreement	\$3,500.00
<input type="checkbox"/> Coastal Development Permit	0.00
<input type="checkbox"/> State Lands Agreement	0.00
<input checked="" type="checkbox"/> Section 401 Water Quality Certification	\$4,500.00
<input checked="" type="checkbox"/> Section 404 Permit – Nationwide (U.S. Army Corps)	\$5,500.00
<input type="checkbox"/> Section 404 Permit – Individual (U.S. Army Corps)	0.00
<input type="checkbox"/> Section 10 Navigable Waters Permit (U.S. Army Corps)	0.00
<input type="checkbox"/> Section 9 Permit (U.S. Coast Guard)	0.00
<input checked="" type="checkbox"/> Other: Section 7 Incidental Take Permit	\$7,000.00
Total (enter zeros if no cost)	\$20,500.00

PART 3. ENVIRONMENTAL COMMITMENTS FOR PERMANENT IMPACTS

To complete the following information:

- Report costs in \$1,000s.
- Include all costs to complete the commitment:
 - O.K. to break down by phase: Design, ROW, Construction, and/or provide Sub-Total.
 - Capital outlay and staff support. Refer to Estimated Resources by WBS Code. For example, if you estimated 80 hours for biological monitoring (WBS 235.35 Long Term Mitigation Monitoring), convert those hours to a dollar amount for this entry. For current conversion rates from PY to dollars, see the Project Manager.
 - Cost of right of way or easements.
 - If compensatory mitigation is anticipated (for wetlands, for example), insert a range for purchasing credits in a mitigation bank.
 - Long-term monitoring and reporting
 - Any follow-up maintenance
 - Use current costs; the Project Manager will add an appropriate escalation factor.
 - This is an estimating tool, so a range is not only acceptable, but advisable.

Environmental Commitments Package 3B					
	Estimated Cost in \$1,000's				Notes
	<u>Phases</u>				
	<u>Design</u>	<u>ROW</u>	<u>Construction</u>	<u>Sub-Total</u>	
Noise abatement or mitigation					
Special landscaping					
Archaeological resources			100	100	
Biological resources			30-40/acre	30-40/acre	Red-legged frog upland mitigation at bank
Historical resources					
Scenic resources					
Wetland/riparian resources	8.5			8.5	Wetland delineation
Res./bus. relocations					
Other: Paleontological resources			50	50	
Total (enter zeros if no cost)				188.5+	

Attachment D: PEAR Environmental Commitments Cost Estimate

Standard PSR Only

(Prepare a separate form for each viable alternative described in the Project Study Report)

PART 1 PROJECT INFORMATION

rev. 11/08

District-County-Route-Post Mile 04-CC-SR4- PM 14.3/19.6	EA: 1J030
<p>Project Description: Package 3C would convert the existing eastbound inside shoulder to an HOV/general purpose travel lane with a 2-foot shoulder from the San Marco Boulevard loop on-ramp (PM 18.5) to just west of Bailey Road off-ramp (PM 19.6). This package would achieve similar operational improvements as Package 1C of Alternative 1 by adding an auxiliary lane from the San Marco Boulevard loop on ramp to the existing deceleration lane to Bailey Road off-ramp by restriping the lanes from 12-foot to 11-foot wide lanes, reconstructing the inside shoulder pavement structural section to accommodate traffic, and widening the San Marco Boulevard bridge structure by 10 feet.</p>	
<p>Form completed by (Name/District Office): Jennifer Gallerani, Project Manager, Circlepoint</p>	
Project Manager: Laurie Lau	Phone Number: (510) 286-5568
Date: June 24, 2016	

PART 2 PERMITS AND AGREEMENTS

	Permits and Agreements (\$\$)
<input type="checkbox"/> Fish and Game 1602 Agreement	0.00
<input type="checkbox"/> Coastal Development Permit	0.00
<input type="checkbox"/> State Lands Agreement	0.00
<input checked="" type="checkbox"/> Section 401 Water Quality Certification	\$4,500.00
<input type="checkbox"/> Section 404 Permit – Nationwide (U.S. Army Corps)	0.00
<input type="checkbox"/> Section 404 Permit – Individual (U.S. Army Corps)	0.00
<input type="checkbox"/> Section 10 Navigable Waters Permit (U.S. Army Corps)	0.00
<input type="checkbox"/> Section 9 Permit (U.S. Coast Guard)	0.00
<input type="checkbox"/> Other: Section 7 Incidental Take Permit	0.00
Total (enter zeros if no cost)	\$4,500.00

PART 3. ENVIRONMENTAL COMMITMENTS FOR PERMANENT IMPACTS

To complete the following information:

- Report costs in \$1,000s.
- Include all costs to complete the commitment:
 - O.K. to break down by phase: Design, ROW, Construction, and/or provide Sub-Total.
 - Capital outlay and staff support. Refer to Estimated Resources by WBS Code. For example, if you estimated 80 hours for biological monitoring (WBS 235.35 Long Term Mitigation Monitoring), convert those hours to a dollar amount for this entry. For current conversion rates from PY to dollars, see the Project Manager.
 - Cost of right of way or easements.
 - If compensatory mitigation is anticipated (for wetlands, for example), insert a range for purchasing credits in a mitigation bank.
 - Long-term monitoring and reporting
 - Any follow-up maintenance
 - Use current costs; the Project Manager will add an appropriate escalation factor.
 - This is an estimating tool, so a range is not only acceptable, but advisable.

Environmental Commitments Package 3C					
	Estimated Cost in \$1,000's				Notes
	<u>Phases</u>				
	<u>Design</u>	<u>ROW</u>	<u>Construction</u>	<u>Sub-Total</u>	
Noise abatement or mitigation					
Special landscaping					
Archaeological resources			100	100	
Biological resources					
Historical resources					
Scenic resources					
Wetland/riparian resources					
Res./bus. relocations					
Other: Paleontological resources			50	50	
Total (enter zeros if no cost)				150	

Attachment D: PEAR Environmental Commitments Cost Estimate

Standard PSR Only

(Prepare a separate form for each viable alternative described in the Project Study Report)

PART 1 PROJECT INFORMATION

rev. 11/08

District-County-Route-Post Mile 04-CC-SR4- PM 14.3/19.6	EA: 1J030
<p>Project Description: Package 3D would convert the existing eastbound inside shoulder to an HOV/general purpose travel lane with a 2-foot shoulder, from the Willow Pass Road on-ramp (PM 17.2) to the San Marco Boulevard loop on-ramp (PM 18.5). This package would achieve similar operational improvements during the peak periods as Package 1D of Alternative 1, by adding an auxiliary lane from the Willow Pass Road on-ramp to the San Marco Boulevard off-ramp, a general purpose lane from the San Marco Boulevard off-ramp to the San Marco Boulevard loop on-ramp by restriping the lanes from 12-foot to 11-foot wide lanes and reconstructing the inside shoulder pavement structural section to accommodate traffic. The existing mainline pavement would require having a surface treatment, which the project assumes as a thin asphalt overlay section. Package 3D would also narrow the existing 10-foot outside and 10-foot inside shoulders to 4 feet and 4 feet, respectively, from the SR242 off-ramp (PM 14.4) to the Port Chicago Highway off-ramp (PM 14.5) to accommodate a new general purpose travel lane. This general purpose travel lane would extend the general purpose travel lane from the I-680 on-ramp to the Port Chicago Highway off ramp. In addition, Package 3D would add an auxiliary lane from the Port Chicago Highway on-ramp to the Willow Pass Road off-ramp by restripe the pavement constructed as part of Package 3A.</p>	
Form completed by (Name/District Office): Jennifer Gallerani, Project Manager, Circlepoint	
Project Manager: Laurie Lau	Phone Number: (510) 286-5568
Date: June 24, 2016	

PART 2 PERMITS AND AGREEMENTS

	Permits and Agreements (\$\$)
<input type="checkbox"/> Fish and Game 1602 Agreement	0.00
<input type="checkbox"/> Coastal Development Permit	0.00
<input type="checkbox"/> State Lands Agreement	0.00
<input checked="" type="checkbox"/> Section 401 Water Quality Certification	\$4,500.00
<input type="checkbox"/> Section 404 Permit – Nationwide (U.S. Army Corps)	0.00
<input type="checkbox"/> Section 404 Permit – Individual (U.S. Army Corps)	0.00
<input type="checkbox"/> Section 10 Navigable Waters Permit (U.S. Army Corps)	0.00
<input type="checkbox"/> Section 9 Permit (U.S. Coast Guard)	0.00

<input type="checkbox"/> Other: Section 7 Incidental Take Permit	0.00
Total (enter zeros if no cost)	\$4,500.00

PART 3. ENVIRONMENTAL COMMITMENTS FOR PERMANENT IMPACTS

To complete the following information:

- Report costs in \$1,000s.
- Include all costs to complete the commitment:
 - O.K. to break down by phase: Design, ROW, Construction, and/or provide Sub-Total.
 - Capital outlay and staff support. Refer to Estimated Resources by WBS Code. For example, if you estimated 80 hours for biological monitoring (WBS 235.35 Long Term Mitigation Monitoring), convert those hours to a dollar amount for this entry. For current conversion rates from PY to dollars, see the Project Manager.
 - Cost of right of way or easements.
 - If compensatory mitigation is anticipated (for wetlands, for example), insert a range for purchasing credits in a mitigation bank.
 - Long-term monitoring and reporting
 - Any follow-up maintenance
 - Use current costs; the Project Manager will add an appropriate escalation factor.
 - This is an estimating tool, so a range is not only acceptable, but advisable.

Environmental Commitments Package 3D					
	Estimated Cost in \$1,000's				Notes
	<u>Phases</u>				
	<u>Design</u>	<u>ROW</u>	<u>Construction</u>	<u>Sub-Total</u>	
Noise abatement or mitigation					
Special landscaping					
Archaeological resources			100	100	
Biological resources					
Historical resources					
Scenic resources					
Wetland/riparian resources					
Res./bus. relocations					
Other: Paleontological resources			50	50	
Total (enter zeros if no cost)				150	

Attachment D: PEAR Environmental Commitments Cost Estimate

Standard PSR Only

(Prepare a separate form for each viable alternative described in the Project Study Report)

PART 1 PROJECT INFORMATION

rev. 11/08

District-County-Route-Post Mile 04-CC-SR4- PM 14.3/19.6	EA: 1J030
<p>Project Description: Package 3E would construct the following improvements at three locations along westbound SR4:</p> <ul style="list-style-type: none"> • construct a general purpose lane from the Willow Pass Road on-ramp (PM 16.4) to the existing added mainline lane just east of the Port Chicago Highway off-ramp (PM 15.6) • construct a second exit lane to the Port Chicago Highway off-ramp, • modify one of the mandatory exit lanes to SR242 to an optional exit lane (PM 15.3) which would allow three freeway lanes to exit to SR242 and three lanes to continue on westbound SR4 	
Form completed by (Name/District Office): Jennifer Gallerani, Project Manager, Circlepoint	
Project Manager: Laurie Lau	Phone Number: (510) 286-5568
Date: June 24, 2016	

PART 2 PERMITS AND AGREEMENTS

	Permits and Agreements (\$\$)
<input checked="" type="checkbox"/> Fish and Game 1602 Agreement	\$3,500.00
<input type="checkbox"/> Coastal Development Permit	0.00
<input type="checkbox"/> State Lands Agreement	0.00
<input checked="" type="checkbox"/> Section 401 Water Quality Certification	\$4,500.00
<input checked="" type="checkbox"/> Section 404 Permit – Nationwide (U.S. Army Corps)	\$5,500.00
<input type="checkbox"/> Section 404 Permit – Individual (U.S. Army Corps)	0.00
<input type="checkbox"/> Section 10 Navigable Waters Permit (U.S. Army Corps)	0.00
<input type="checkbox"/> Section 9 Permit (U.S. Coast Guard)	0.00
<input checked="" type="checkbox"/> Other: Section 7 Incidental Take Permit	\$7,000.00
Total (enter zeros if no cost)	\$20,500.00

PART 3. ENVIRONMENTAL COMMITMENTS FOR PERMANENT IMPACTS

To complete the following information:

- Report costs in \$1,000s.
- Include all costs to complete the commitment:
 - O.K. to break down by phase: Design, ROW, Construction, and/or provide Sub-Total.
 - Capital outlay and staff support. Refer to Estimated Resources by WBS Code. For example, if you estimated 80 hours for biological monitoring (WBS 235.35 Long Term Mitigation Monitoring), convert those hours to a dollar amount for this entry. For current conversion rates from PY to dollars, see the Project Manager.
 - Cost of right of way or easements.
 - If compensatory mitigation is anticipated (for wetlands, for example), insert a range for purchasing credits in a mitigation bank.
 - Long-term monitoring and reporting
 - Any follow-up maintenance
 - Use current costs; the Project Manager will add an appropriate escalation factor.
 - This is an estimating tool, so a range is not only acceptable, but advisable.

Environmental Commitments Package 3E					
	Estimated Cost in \$1,000's				Notes
	<u>Phases</u>				
	<u>Design</u>	<u>ROW</u>	<u>Construction</u>	<u>Sub-Total</u>	
Noise abatement or mitigation					
Special landscaping					
Archaeological resources			100	100	
Biological resources			30-40/acre		Red-legged frog upland mitigation at bank
Historical resources					
Scenic resources					
Wetland/riparian resources	8.5			8.5	Wetland delineation
Res./bus. relocations					
Other: Paleontological resources			50	50	
Total (enter zeros if no cost)				158.5+	

Attachment D: PEAR Environmental Commitments Cost Estimate

Standard PSR Only

(Prepare a separate form for each viable alternative described in the Project Study Report)

PART 1 PROJECT INFORMATION

rev. 11/08

District-County-Route-Post Mile 04-CC-SR4- PM 14.3/19.6	EA: 1J030
<p>Project Description: Package 3F would convert the existing westbound inside shoulder to an HOV/general purpose travel lane from the Willow Pass Road off-ramp (PM 17.2) to just east of the Port Chicago Highway Interchange (PM 16.1), where the existing HOV ends. Package 3E would extend the second exit lane to the Port Chicago Highway off-ramp to provide an auxiliary lane from Willow Pass Road on-ramp to Port Chicago Highway off-ramp. This package would achieve similar operational improvements during the peak periods as Package 1F of Alternative 1 by restriping the lanes from 12-foot to 11-foot wide lanes, reconstructing the inside shoulder pavement structural section to accommodate traffic, and widening the structure at the Willow Pass Road bridge structure by 14 feet. The existing mainline pavement would require having a surface treatment, which the project assumes as a thin asphalt overlay section.</p>	
<p>Form completed by (Name/District Office): Jennifer Gallerani, Project Manager, Circlepoint</p>	
Project Manager: Laurie Lau	Phone Number: (510) 286-5568
Date: June 24, 2016	

PART 2 PERMITS AND AGREEMENTS

	Permits and Agreements (\$\$)
<input type="checkbox"/> Fish and Game 1602 Agreement	0.00
<input type="checkbox"/> Coastal Development Permit	0.00
<input type="checkbox"/> State Lands Agreement	0.00
<input checked="" type="checkbox"/> Section 401 Water Quality Certification	\$4,500.00
<input checked="" type="checkbox"/> Section 404 Permit – Nationwide (U.S. Army Corps)	\$5,500.00
<input type="checkbox"/> Section 404 Permit – Individual (U.S. Army Corps)	0.00
<input type="checkbox"/> Section 10 Navigable Waters Permit (U.S. Army Corps)	0.00
<input type="checkbox"/> Section 9 Permit (U.S. Coast Guard)	0.00
<input type="checkbox"/> Other: Section 7 Incidental Take Permit	0.00
Total (enter zeros if no cost)	\$10,000.00

PART 3. ENVIRONMENTAL COMMITMENTS FOR PERMANENT IMPACTS

To complete the following information:

- Report costs in \$1,000s.
- Include all costs to complete the commitment:
 - O.K. to break down by phase: Design, ROW, Construction, and/or provide Sub-Total.
 - Capital outlay and staff support. Refer to Estimated Resources by WBS Code. For example, if you estimated 80 hours for biological monitoring (WBS 235.35 Long Term Mitigation Monitoring), convert those hours to a dollar amount for this entry. For current conversion rates from PY to dollars, see the Project Manager.
 - Cost of right of way or easements.
 - If compensatory mitigation is anticipated (for wetlands, for example), insert a range for purchasing credits in a mitigation bank.
 - Long-term monitoring and reporting
 - Any follow-up maintenance
 - Use current costs; the Project Manager will add an appropriate escalation factor.
 - This is an estimating tool, so a range is not only acceptable, but advisable.

Environmental Commitments Package 3F					
	Estimated Cost in \$1,000's				Notes
	<u>Phases</u>				
	<u>Design</u>	<u>ROW</u>	<u>Construction</u>	<u>Sub-Total</u>	
Noise abatement or mitigation					
Special landscaping					
Archaeological resources			100	100	
Biological resources					
Historical resources					
Scenic resources					
Wetland/riparian resources	8.5			8.5	Wetland delineation
Res./bus. relocations					
Other: Paleontological resources			50	50	
Total (enter zeros if no cost)				158.5	

Attachment D: PEAR Environmental Commitments Cost Estimate

Standard PSR Only

(Prepare a separate form for each viable alternative described in the Project Study Report)

PART 1 PROJECT INFORMATION

rev. 11/08

District-County-Route-Post Mile 04-CC-SR4- PM 14.3/19.6	EA: 1J030
<p>Project Description: Package 3G would convert the existing westbound inside shoulder to an HOV lane with a 2 foot shoulder from just west of Bailey Road Interchange (PM 19.6) to the Willow Pass Road off-ramp (PM 17.2). This package would achieve similar operational improvements during the peak periods as Packages 1G of Alternative 1 by restriping the lanes from 12-foot to 11-foot wide lanes, reconstructing the inside shoulder pavement structural section to accommodate traffic. The existing mainline pavement would require having a surface treatment, which the project assumes as a thin asphalt overlay section.</p>	
<p>Form completed by (Name/District Office): Jennifer Gallerani, Project Manager, Circlepoint</p>	
Project Manager: Laurie Lau	Phone Number: (510) 286-5568
Date: June 24, 2016	

PART 2 PERMITS AND AGREEMENTS

	Permits and Agreements (\$\$)
<input type="checkbox"/> Fish and Game 1602 Agreement	0.00
<input type="checkbox"/> Coastal Development Permit	0.00
<input type="checkbox"/> State Lands Agreement	0.00
<input checked="" type="checkbox"/> Section 401 Water Quality Certification	\$4,500.00
<input type="checkbox"/> Section 404 Permit – Nationwide (U.S. Army Corps)	0.00
<input type="checkbox"/> Section 404 Permit – Individual (U.S. Army Corps)	0.00
<input type="checkbox"/> Section 10 Navigable Waters Permit (U.S. Army Corps)	0.00
<input type="checkbox"/> Section 9 Permit (U.S. Coast Guard)	0.00
<input type="checkbox"/> Other: Section 7 Incidental Take Permit	0.00
Total (enter zeros if no cost)	\$4,500.00

PART 3. ENVIRONMENTAL COMMITMENTS FOR PERMANENT IMPACTS

To complete the following information:

- Report costs in \$1,000s.
- Include all costs to complete the commitment:
 - O.K. to break down by phase: Design, ROW, Construction, and/or provide Sub-Total.
 - Capital outlay and staff support. Refer to Estimated Resources by WBS Code. For example, if you estimated 80 hours for biological monitoring (WBS 235.35 Long Term Mitigation Monitoring), convert those hours to a dollar amount for this entry. For current conversion rates from PY to dollars, see the Project Manager.
 - Cost of right of way or easements.
 - If compensatory mitigation is anticipated (for wetlands, for example), insert a range for purchasing credits in a mitigation bank.
 - Long-term monitoring and reporting
 - Any follow-up maintenance
 - Use current costs; the Project Manager will add an appropriate escalation factor.
 - This is an estimating tool, so a range is not only acceptable, but advisable.

Environmental Commitments Package 3G					
	Estimated Cost in \$1,000's				Notes
	<u>Phases</u>				
	<u>Design</u>	<u>ROW</u>	<u>Construction</u>	<u>Sub-Total</u>	
Noise abatement or mitigation					
Special landscaping					
Archaeological resources			100	100	
Biological resources					
Historical resources					
Scenic resources					
Wetland/riparian resources					
Res./bus. relocations					
Other: Paleontological resources			50	50	
Total (enter zeros if no cost)				150	