

Project Report

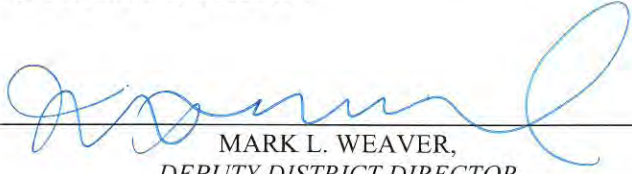
FOR PROJECT APPROVAL

On Route Interstate 80 at Gilman Street Undercrossing

Between 0.58 Mile North of University Avenue Overcrossing

And 0.27 Mile South of Buchanan Street Undercrossing

I have reviewed the right of way information contained in this report and the right of way data sheet attached hereto, and find the data to be complete, current and accurate:


MARK L. WEAVER,
DEPUTY DISTRICT DIRECTOR
RIGHT OF WAY AND LAND SURVEYS

APPROVAL RECOMMENDED:


RON KIAAINA,
CALTRANS PROJECT MANAGER

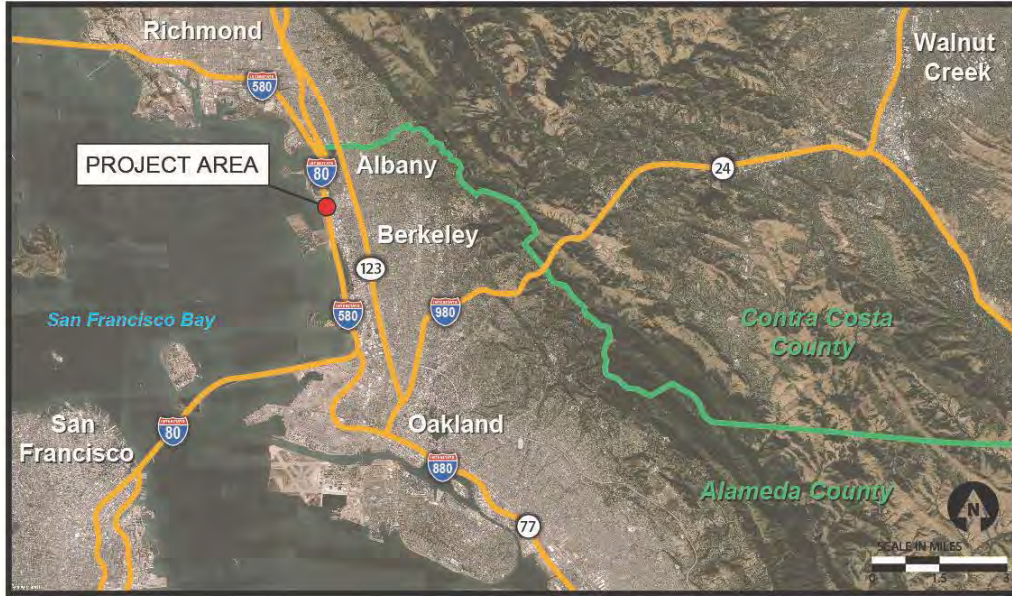

MORTEZA AZIMI,
DESIGN OFFICE CHIEF

APPROVED:


HELENA "LENKA" CULIK-CARO,
DEPUTY DISTRICT DIRECTOR, DESIGN

June 28, 2019
DATE

Vicinity Map



This Project Report has been prepared under the direction of the following registered civil engineer. The registered civil engineer attests to the technical information contained herein and the engineering data upon which recommendations, conclusions, and decisions are based.



6/26/19

RODNEY S. PIMENTEL, P.E.

DATE

PARSONS CORPORATION FOR ALAMEDA CTC
REGISTERED CIVIL ENGINEER

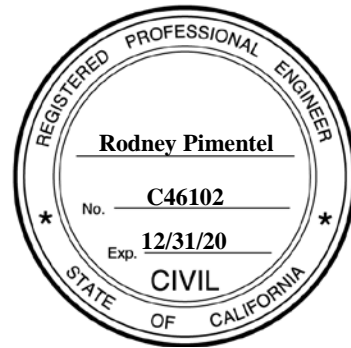


Table of Contents

1. INTRODUCTION	4
2. RECOMMENDATION	5
3. BACKGROUND.....	5
4. PURPOSE AND NEED.....	7
4A. Problem, Deficiencies, Justification	7
4B. Regional and System Planning	8
4C. Traffic	10
5. ALTERNATIVES.....	13
5A. Viable Alternatives	13
5B. Rejected Alternatives.....	20
6. CONSIDERATIONS REQUIRING DISCUSSION.....	22
6A. Hazardous Waste	22
6B. Value Analysis.....	24
6C. Resource Conservation	24
6D. Right of Way	24
6E. Environmental Compliance.....	26
6F. Air Quality Conformity.....	29
6G. Title VI Considerations	29
6H. Noise Abatement Decision Report	29
7. OTHER CONSIDERATIONS AS APPROPRIATE	31
8. FUNDING, PROGRAMMING AND ESTIMATE	35
9. DELIVERY SCHEDULE	36
10. RISKS.....	36
11. EXTERNAL AGENCY COORDINATION	36
12. PROJECT REVIEWS.....	37
13. PROJECT PERSONNEL	37
14. ATTACHMENTS (Number of Pages).....	38

1. INTRODUCTION

The I-80 Gilman Street Interchange Improvement Project (Project) is located in Alameda County at the Interstate 80 (I-80)/Gilman Street interchange in the cities of Berkeley and Albany (Post Miles [PM] 6.3 to 7.0). The scope and emphasis of the Project is to simplify and improve navigation, mobility, and traffic operations; reduce congestion, vehicle queues, and conflicts; improve local and regional bicycle connections and pedestrian facilities; and improve safety at the I-80/Gilman Street interchange. Current conditions, along with an overall increase in vehicle traffic, have created poor and confusing operations in the interchange area for vehicles, pedestrians, and bicyclists.

The Project's Preferred Alternative proposes to reconfigure the I-80 ramps and intersections at Gilman Street. The I-80 ramps and frontage road intersections at each ramp intersection would be combined to form a single roundabout intersection on each side of I-80. Gilman Street would be repaved from the parking lots at Tom Bates Regional Sports Complex (along the western portion of Gilman Street) to the eastern side of the 4th Street intersection. Work would also include reconstruction of West Frontage Road and Eastshore Highway within the Project limits. The Project would also include a new pedestrian and bicycle overcrossing (POC). The pedestrian and bicycle overcrossing structure would be located south of Gilman Street with two staircases incorporated into the overcrossing, one on each side of I-80. There would also be retaining walls on the east and west sides of the overcrossing and along the I-80 eastbound entrance and exit ramps.

The intersection of Gilman Street Extension with Golden Gate Fields Access Road would be improved and Gilman Street would be widened to the south to provide space for two – two lane roads separated by a median. Two Golden Gate Fields access road and parking lots would be improved.

The Preferred Alternative includes a two-way cycle track on the south side of Gilman Street between the eastern I-80/Gilman Street ramps and 4th Street. The addition of the two-way cycle track would require installation of a traffic signal at the intersection of 4th Street and Gilman Street. Improvements including striping, signage, and lighting would be made along 4th Street to Harrison Street to 5th Street to provide bicycle connectivity between the Codornices Creek Path and the two-way cycle track on Gilman Street. Additional pedestrian and bicycle improvements include upgrading the 3rd Street/Union Pacific Railroad (UPRR) crossing at Gilman Street to accommodate the cycle track.

West of the I-80/Gilman Street interchange, the existing Bay Trail would be extended approximately 660 feet west along the south side of Gilman Street from its current terminus at the intersection of West Frontage Road and Gilman Street to just beyond Berkeley's city limits. Minor drainage modifications would also be required to conform to the new roundabout alignment and drainage improvements associated with the two-way cycle track along Gilman Street would also be required. Additionally, a tidal flap gate would be installed at the existing headwall of the 60-inch reinforced concrete pipe at the western terminus of Gilman Street. Replacement of the existing headwall and rip rap would include in-water work. Dewatering or a coffer dam may also be required. The project would also include installation of new light poles and a metering light on the W Frontage Rd.

The proposed funding sources for this project are from the Alameda CTC Measure BB Expenditure Plan, as well as state and federal funds as available. The schedule for the Preferred Alternative anticipates the PS&E to be completed in early 2020, and completion of construction by early 2023. The project has been assigned Project Development Process Category 4A because the project requires new right of way acquisition but does not require a revised freeway agreement.

Project Limits	04-ALA-80 Post Mile 6.3/7.0	
	Current Cost Estimate:	Escalated Cost Estimate:
Capital Outlay Support	\$17,173,000	\$17,173,000
Capital Outlay Construction	\$37,294,300	\$39,565,600
Capital Outlay Right of Way	\$4,090,319	\$4,984,994
Funding Source	<i>Locally funded* / 20.20.400.100</i>	
Funding Year	2021	
Type of Facility	10-lane freeway and local street	
Number of Structures	One	
Environmental Determination or Document	Initial Study (IS)/Environmental Assessment (EA) with Finding of No Significant Impact	
Legal Description	In Alameda County in Berkeley from 0.58 mile North of University Ave Overcrossing to 0.27 mile South of Buchanan Street Undercrossing	
Project Development Category	Category 4A	

*Local funds with state/federal as available

2. RECOMMENDATION

It is recommended that the project be approved, and that authorization be granted for the project to proceed to final engineering and the preparation of plans, specifications, and estimates. It is also recommended that authorization be granted for the execution of a cooperative agreement or agreements with the appropriate funding agencies for the proposed project.

3. BACKGROUND

Project History

Over the years, the City of Berkeley has completed numerous studies to identify the improvement needs for Gilman Street near the I-80 interchange. A combination of freeway congestion, inefficient roadway geometries, increased rail traffic and changes in land use contribute to the heavy traffic congestion in the project area. The need for Gilman Street Interchange improvements was identified as early as 1998 by the City of Berkeley. The segment of I-80 from the San Francisco-Oakland Bay Bridge Toll Plaza to the Carquinez Bridge through the Gilman Street interchange is considered one of the most congested freeway segments in the San Francisco Bay Area. The UPRR tracks cross Gilman Street at 3rd Street, two blocks from the I-80/Gilman Street ramp intersection. Per the UPRR in December 2016, there are 44 commuter trains and 14 freight trains per day operating through the Gilman crossing on the Martinez subdivision. The rail traffic impedes local traffic circulation and causes delays at the Gilman Street and 3rd Street at-grade crossing. In recent years, the expansion of development to the north generates additional traffic accessing the I-80 freeway through Gilman Street. However, the existing multi-leg stop-controlled intersections at the interchange cannot efficiently clear the traffic movements resulting in substantial delay in the project area.

The West Berkeley Parking and Circulation Study (1998) focused on parking and circulation deficiencies in the area bounded by Cedar Street, 6th Street, University Avenue and Eastshore Highway (collectively known as the West Berkeley Redevelopment Area). One of the action items from the Circulation Study was to outline possible solutions to improve traffic flow at the Eastshore Highway and West Frontage Road interchange areas, which are the parallel roads east and west of I-80, respectively, and are included in the I-80/Gilman Street interchange configuration.

To address the safety and operational issues, the Gilman Street Interchange Improvement Study (2005) further analyzed the roadway circulation and provided recommendations for interchange reconfiguration. Results of the study indicated a dual roundabout design with a connecting segment between the I-80/Gilman Street intersections would

provide the most benefit. It was considered the most viable alternative to improve traffic flow while meeting safety, accessibility and mobility needs.

A draft Project Study Report (PSR) was prepared and submitted to Caltrans in November 2005. The draft PSR suggested that the dual roundabout design was the most viable solution to achieve acceptable levels of service without any modifications to freeway structures. Caltrans' review called for additional analyses to address the operational issues. In 2006, the I-80/Gilman Street Interchange project was listed in the Alameda Countywide Transportation Plan and Metropolitan Transportation Commission's 2030 Regional Transportation Plan for \$1.5 million funding.

In 2009, the City of Berkeley issued the West Berkeley Circulation Master Plan Report (Master Plan) that covered the transportation network and operating conditions in the west Berkeley area including the I-80/Gilman Street interchange. The Master Plan highlighted the Gilman Street interchange as an area of concern. The Gilman Street interchange and adjacent frontage roads experienced congestion and delay during all periods of the day and all days of the week. The at-grade rail crossing near the interchange also added to vehicle queuing when rail activity blocked the roadway. The Master Plan also reviewed bicycle and pedestrian elements including the provision of a grade-separated bicycle and pedestrian path.

On September 2, 2014, Caltrans approved a PSR-PDS sponsored by Alameda CTC. It had three roundabout alternatives, a signalized alternative, and the no-build option. Construction costs ranged from \$1.45 to \$8.896 million.

Pedestrian and bicycle elements, such as an at-grade multi-use path and crossings were incorporated into the roundabout design. To address the safety of bicyclists and pedestrians across the roundabout, several bike and pedestrian undercrossing concepts and alignments were developed. In May 2013, Berkeley Transportation Commission reviewed the grade separation concepts for bicycle and pedestrian crossing the Gilman interchange and had serious reservations about perceived comfort and safety below grade. Because of safety concerns and the presence of underground utility conflicts, the undercrossing concepts were eliminated from further study. A pedestrian and bicycle overcrossing was later considered and incorporated into the project at the request of City of Berkeley and the Berkeley Transportation Commission.

The Draft Project Report (PR) was prepared, reviewed, and revised from October 2018 to December 2018 and was approved by Caltrans on December 21, 2018. In the Draft PR, a No Build Alternative and a Build Alternative were considered. The Build Alternative was selected as the Preferred Alternative at the Project Development Team meeting on April 15, 2019.

Community Interaction

Given the increasing level of congestion at the interchange, there is consensus for the project. A public open house was held on April 27, 2016. A brief presentation on the plans for the interchange improvement and details about the project's background and purpose were discussed. Attendees of the open house were encouraged to provide their written comments on comment cards provided. An additional public meeting and open house was held on February 7, 2018 to update business owners and the public on changes that had been made to the project design since the 2016 public meeting.

During the scoping process, concerns were raised regarding the planned location of the pedestrian and bicycle overcrossing and the safety for bicyclists and pedestrians at various street crossings on the east side of Gilman Street. As a result of feedback from community stakeholders, the project team conducted 18 pedestrian and bicycle overcrossing workshops and with community members, community groups, Alameda CTC, the Bay Trail, East Bay Regional Park District, AC Transit, and various representatives from the cities of Berkeley and Albany, the Berkeley Transportation Commission, and Caltrans to fully vet alternative alignments for the pedestrian and bicycle overcrossing.

Many additional design workshops have been conducted with a similar set of community and agency representatives to develop context-sensitive solutions and to work out design refinements covering aesthetics, safety and access

concerns for pedestrians and nonmotorized vehicles traveling in the project limits. Each intersection within the project limits was evaluated and refinements added to increase safety elements.

As part of the public review process, the Caltrans Pedestrian Advisory Committee (PAC) and Alameda CTC Bicycle and Pedestrian Advisory Committee (BPAC) provided input during the PA/ED process, as did many other county/city agencies and/or the public. Because the project will be constructed adjacent to an active railway, frequent coordination meetings with UPRR have been held in order to reach concurrence on UPRR crossing modifications.

A public hearing was held on January 15, 2019 after circulation of the Draft Initial Study (IS) with Negative Declaration/Environmental Assessment (EA) with Finding of No Significant Impact on December 21, 2018. Approximately 30 members of the public attended the meeting. The Draft IS/EA was available for public and agency review and comment from December 21, 2018 through February 5, 2019. During circulation, 23 total comments were received from the public. The majority of the public expressed general support for the project, with questions and concerns regarding issues covering traffic, patterns, aesthetics, homeless concerns, noise, utilities, and recreation facility impacts. Responses to all comments are included in the Final IS/EA.

Existing Facility

Within the limits of the proposed project, I-80 is a 10-lane freeway with 12-foot lanes and 11-foot shoulders. Gilman Street is a four-lane major arterial with 11-foot lanes and six-foot shoulders that passes underneath I-80. The I-80/Gilman Street interchange is a four-lane arterial roadway with two lanes in the east/west direction that are intersected with four ramps that connect to and from I-80, West Frontage Road, and Eastshore Highway. The existing driveway entrance to the Golden Gate Fields is located immediately adjacent to the westbound I-80 off-ramp at the end of the curb return. Some of the crosswalks within the interchange are unmarked and there are currently no dedicated bike lanes or low-stress bicycle routes within the vicinity of the interchange. The nearest dedicated bike lanes start at the intersection of Gilman Street and 2nd Street and continue east towards 3rd Street.

4. PURPOSE AND NEED

4A. Problem, Deficiencies, Justification

Purpose

The purpose of this project is to:

- Simplify and improve navigation, mobility, and traffic operations on Gilman Street between the West Frontage Road and 2nd Street through the I-80 interchange
- Reduce congestion, vehicle queues, and traffic, bicycle, and pedestrian conflicts
- Improve local and regional bicycle and pedestrian facilities through the I-80/Gilman Street interchange
- Improve safety at I-80/Gilman Street interchange

Need

Gilman Street is classified as a major arterial with a posted speed limit of 25 miles per hour (mph) and is designated as a truck route. Vehicular traffic on Gilman Street is comprised of commuter, local, and commercial truck traffic. Traffic controls along Gilman Street include pavement markings, with channelization at the 6th, 8th, and 9th Street intersections only. Traffic controls on all approaches to Gilman Street consist of stop signs and pavement markings. These conditions, along with an overall increase in vehicle traffic, have created poor and confusing operations in the interchange area.

This interchange has become increasingly deficient due to the high peak hour delay due to high traffic volume and turning movements. Nonstandard spacing between I-80 ramp intersections and frontage roads combined with free-flow traffic on Gilman Street without turn channelization creates poor intersection operations due to short weaving lengths, left-turn storage in through lanes, and complex vehicle navigation through multiple points of conflict. The existing Level of Service (LOS) at the I-80 ramp intersections and Eastshore Highway intersections with Gilman Street during

weekday and weekend peak hours is capped at a dissatisfactory level due to stop-controlled intersections. Existing vehicle queue spillback from the I-80/Gilman Street ramp intersections onto the freeway off-ramps, especially in the westbound I-80 direction, contributes to this mediocre LOS at this interchange.

In addition, other needs related to modal interrelationships and social considerations have been identified, including completing a link in the local (Gilman Street) and regional (Bay Trail) bikeway system in the area, and providing safe pedestrian access to and from the project study area.

For a detailed analysis of the project need, see Section 1.2.2.1, Capacity, Transportation Demand, and Safety and Section 1.2.2.2, Roadway Deficiencies of the Final IS/EA (Attachment E).

4B. Regional and System Planning

I-80 is a major east-west transcontinental freeway connecting the San Francisco and Sacramento regions and points beyond. The route is a critical goods movement route and links directly with the Port of Oakland, the nation's 5th largest container port. Within District 4, the route passes through Alameda, Contra Costa, Napa and Solano counties. The I-80 Corridor continuously ranks as one of the most congested corridors in the entire San Francisco Bay Area with traffic volumes in some locations reaching nearly 300,000 vehicles per day resulting in over 7,000 vehicle hours of delay. In the Bay Area, I-80 is the first route to experience congested conditions throughout the day, extending from morning commute hours to evening commute hours.

The portion of I-80 within the project limits in Alameda County is a freeway with three-to-six-lanes in each direction; a High Occupancy Vehicle (3+ HOV) lane is found in each direction.

Rail service along the corridor is provided by Bay Area Rapid Transit (BART), and Amtrak's Capitol Corridor. The main bus system along the corridor is AC Transit services.

Federal and State Planning	
I-80	
Functional Classification	Interstate
California Freight Mobility Plan (CFMP)	Tier 1
Trucking Designations	STAA
National Highway System (NHS)	Eisenhower Interstate
Scenic Highway	No
Interregional Road System (IRRS)	Part of IRRS, Priority Interregional Highway

State Planning

The 2010 Corridor System Management Plan (CSMP) recommends a managed I-80 West corridor including an 8-12 lane freeway with bi-directional High Occupancy Vehicle (HOV)/High Occupancy Toll (HOT) lanes that will be integrated with Transit, Arterial, Incident and Traveler information components supported by a Traffic Surveillance and Monitoring system.

Caltrans Deputy Directive 64-Revision (DD-64-R2), A.K.A. "Complete Streets – Integrating the Transportation System," provides for the needs of travelers of all ages and abilities in all planning, programming, design, construction, operations, and maintenance activities on the State Highway System. The Department views all transportation improvements (new and retrofit) as opportunities to improve safety, access, and mobility for all travelers and recognizes bicycle, pedestrian, and transit modes as integral elements of the transportation system.

Senate Bill 391 (SB 391) requires Caltrans to update its statewide California Transportation Plan (CTP) by December 31, 2015 and every five years thereafter. In addition, it (SB 391) requires various transportation planning activities be taken by State and regional agencies, including preparation of sustainable community strategies (SCS)

by Metropolitan Planning Organizations (MPOs). Also, SB 391 establishes an on-going statewide transportation planning process within Caltrans that describes the multimodal system necessary to meet mobility and congestion management objectives that are consistent with the State’s Greenhouse gas (GHG) emission limits and air pollution standards.

Senate Bill 375 requires the Metropolitan Transportation Commission (MTC) region to meet State GHG emission targets for automobiles and light trucks for 2020 and 2035. MPO’s must accurately account for the environmental benefits of more compact development and reduced vehicle miles traveled. If regions develop integrated land use, housing and transportation plans that meet the SB 375 targets, new projects in these regions can be relieved of certain review requirements of the California Environmental Quality Act (CEQA). The targets apply to the regions in the State covered by the 18 Metropolitan Planning Organizations.

The July 2017 update of Plan Bay Area 2040, by MTC and the Association of Bay Area Governments (ABAG) is the Regional Transportation Plan, which also includes a Sustainable Community Strategy (SCS) as required by Senate Bill 375. The bill synchronizes the regional housing needs assessment (RHNA) process with the RTP process, requires local governments to rezone their general plans (consistent with the updated housing element within three years of adoption), and provides that RHNA allocations must be consistent with the development pattern in the SCS. The SCS lays out how GHG emissions reduction targets will be met for cars and light trucks. This will impact land use and travel patterns in the long-range planning horizon.

The Caltrans District 4 Bike Plan, adopted in 2018, identifies infrastructure improvements that can enhance bicycle safety and mobility throughout District 4. The Plan proposes a new separated Class I crossing at the Gilman St/I-80 interchange, which is in conformance with this project.

Regional Planning

The Metropolitan Transportation Commission (MTC) functions as both the State-designated Regional Transportation Planning Agency (RTPA) and federally-designated Metropolitan Planning Organization (MPO). As such, it is responsible for the update of the Regional Transportation Plan (RTP), a financially constrained long range programming report for the region. Under Senate Bill (SB) 375, along with an updated RTP, each region in California must develop a Sustainable Communities Strategy (SCS) that promotes walk and bike-friendly mixed-use commercial and residential development that is found close to mass transit, jobs, schools, shopping, parks, recreation, and other amenities. MTC’s Plan Bay Area (PBA), adopted in July 2013 and updated in July 2017, serves as the San Francisco Bay Area’s RTP and SCS. MTC is currently undertaking the Horizon Initiative, a scenario planning exercise that will shape Plan Bay Area 2050, the next RTP/SCS update.

The MTC and ABAG’s Plan Bay Area 2040: Online Project Database RTP lists programmed and planned projects (including ALA I-80 Corridor) within a 25-year planning horizon. Programmed projects in the project area include:

<u>RTP ID</u>	<u>County</u>	<u>Project Description</u>
17-01-0040	ALA	I-80 Gilman Street Interchange Improvements
17-01-0037	ALA	Ashby I-80 Interchange Improvements
17-02-0011	ALA	I-80 Integrated Corridor Management (ICM) project operations and management.
17-02-0026	CC	I-80/Central Ave – Local Portion – Phases 1& 2, includes connecting Pierce Street to San Mateo Street and relocating traffic signal to San Mateo/ Central Avenue intersection.
17-02-0021	CC	Reconstruct I-80/San Pablo Dam Road Interchange – includes relocating of westbound El Portal on-ramp to the full interchange northwards, providing access to McBryde Avenue through a new connector road from San Pablo Dam Road interchange and replacing Riverside Avenue pedestrian overcrossing.

Local Planning

The Alameda County Transportation Commission (ACTC) is the designated Congestion Management Agency for Alameda County. ACTC coordinates countywide transportation planning efforts; programs local, regional, state and federal funding; and delivers projects and programs including those approved by voters in Alameda County transportation expenditure plans for Measure B, Measure BB, and the Vehicle Registration Fee.

The Alameda Countywide Transportation Plan (CWTP) is a long-range policy document that guides future transportation investments, programs, policies and advocacy for all of Alameda County through 2040. The CWTP identifies a number of future trends, issues and challenges for the County including safety and more specifically an increase in the number of collisions on roadways.

Table 1: Local Projects

Project Name	Project Description	Implementing Agency	Location	Cost Estimate
Local Section 130/Grade Crossings (CT ID 751199P)	Eliminate hazards at railroad grade crossing at intersection of Gilman Street and UPRR in City of Berkeley	Caltrans; Division of Rail (City of Berkeley)	In City of Berkeley at the intersection of Gilman Street and UPRR tracks	\$623,000

SHOPP

The listed projects below are located in the project’s vicinity and included in the State Highway Operation and Protection Program (SHOPP), the state’s “fix-it-first” program that funds the repair, safety improvements, some highway operational improvements, and preservation of the State Highway System (SHS).

EA#	Program	Cost	Description	Fiscal Year
2K830	SHOPP 2018	\$3.4M*	At University Overcrossing No. 33-0023 Establish Standard Vertical Clearance	To be determined
4K810	SHOPP 2018	\$6.6m*	At MacArthur Maze Bridge No. 33-0061R, 33-0061L, and 33-0611 Establish Vertical Clearance	To be determined
3J700	SHOPP 2018	\$22.8M	Install median safety lighting and replace median concrete barrier	2019/2020

*PA&ED Programming only

4C. Traffic

Current and Forecasted Traffic

Existing and design year annual average daily traffic (AADT) and peak hour traffic for several key areas of the interchange were calculated and are shown in Table 2 and Table 3.

Table 2: AADT

Location	2015	2040 (Design Year)
	AADT	AADT
Gilman St (between I-80 ramps)	15,981	21,434
Gilman St (between 2 nd and 4 th St)	19,064	27,312
Gilman St (between 7 th and 8 th St)	15,178	18,972
I-80 Mainline	274,000	290,430
I-80 EB Off-ramp at Gilman	5,900	12,094
I-80 EB On-ramp at Gilman	9,000	15,300
I-80 WB Off-ramp at Gilman	10,600	21,160
I-80 WB On-ramp at Gilman	6,300	13,300

*AADT values are 2-way volumes.

Source: *Gilman Exist Counts*, TJKM (Feb 2016)

Table 3: Existing Peak Hour Traffic Volumes

Location		2016				
		Peak Hour		AADT	Truck %	Truck AADTT
		AM	PM			
W. Frontage Rd./ Gilman St	WB	134	160	8950	5%	--
	EB	96	644	7030	8%	--
I-80 WB Off-Ramp/ Gilman St.	WB	981	479	10600	4%	424
	EB	629	949			
I-80 EB Off-Ramp/ Gilman St.	WB	763	362	5900	4%	236
	EB	920	691			
Eastshore Hwy./ Gilman St.	WB	1084	1197	8950	--	--
	EB	693	600	7030		
2 nd St./ Gilman St.	WB	745	1057	8502	5%	425
	EB	643	571	10562	8%	680
4 th St./ Gilman St.	WB	775	1055	8502	5%	1469
	EB	566	562	10562	8%	779
6 th St./ Gilman St.	WB	747	1093	7416	5%	371
	EB	489	573	7763	8%	593
8 th St./ Gilman St.	WB	652	659	7416	5	371
	EB	410	544	7763	8	593
9 th St./ Gilman St.	WB	400	540	7416	5	371
	EB	625	646	7763	8	593
10 th St./ Gilman St.	WB	668	615	7416	5	371
	EB	323	585	7763	8	593
San Pablo Ave./ Gilman St.	WB	679	589	7416	5	371
	EB	273	481	7763	8	593
Eastshore Hwy./ Harrison St.	WB	0	0	--	--	--
	EB	14	4	--	--	--
2 nd St./ Harrison St.	WB	46	49	--	--	--
	EB	1	0	--	--	--

Source: *Gilman Exist Counts*, TJKM (Feb 2016)

The 2040 demands were generated by applying the NCHRP 255 delta method. The growth between 2015 and 2040 was estimated by taking the delta or difference between 2015 and 2040 model forecasts. In cases where the growth was negative, growth was assumed to be zero (e.g., the existing volumes will be used in the comparison).

The Alameda CTC Model used for traffic forecasting was also used for AADT and PM peak hour bicycle trips. The study area was the intersection of Eastshore Highway (I-80 EB on-ramp) and Gilman Street. All bike trips were projected to only use this Gilman Street segment between the I-80 ramps, therefore predicting that all trips shared the same destination on the west side of the Model.

Bike trip annual growth factor was calculated because there were no AM peak hour bike assignment results from the model. The annual daily growth factor was applied to both the AM and PM peak hour bike counts to generate the number of future bike trips. The estimated AADT bike growth rate at this intersection from 2015 to Design Year 2040 is 2.36. This growth rate was then applied to the pedestrian volumes collected (by approach) to generate pedestrian volumes for the Design Year.

Traffic Operations

A Traffic Operations Analysis Report was prepared for the project and approved in June 2017. The report analyzed existing conditions and forecast operations for the opening year (2020) and future (2040) years under the No-Build condition. This data is summarized in Table 4.

Table 4: Existing and No Build Conditions – Intersection Level of Service

Intersection	Control Type	Existing Conditions				2020 No Build Condition				2040 No Build Conditions			
		AM Peak		PM Peak		AM Peak		PM Peak		AM Peak		PM Peak	
		Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS
Gilman St. at W. Frontage Rd.	TWSC	>50	F	>50	F	>50	F	>50	F	>50	F	>50	F
Gilman St. at WB I-80 Ramps	TWSC	>50	F	>50	F	>50	F	>50	F	>50	F	>50	F
Gilman St. at EB I-80 Ramps	TWSC	18.9	C	>50	F	27.3	D	>50	F	24.7	C	>50	F
Gilman St. at Eastshore Hwy	TWSC	>50	F	>50	F	>50	F	>50	F	>50	F	>50	F
Gilman St. at 2 nd St.	TWSC	26.8	D	41.1	E	32.2	D	>50	F	38	E	>50	F
Gilman St. at 4 th St.	TWSC	74.2	F	>50	F	7.8	A	9.7	A	7.9	A	8.3	A
Gilman St. at 6 th St.	TWSC	23.9	C	33.4	C	15.6	B	25.5	C	14.5	B	32.5	C
Gilman St. at 8 th St.	TWSC	20.5	C	26.4	C	9.1	A	8.2	A	28.1	C	14.3	B
Gilman St. at 9 th St.	TWSC	19.8	B	25.6	C	9	A	10.5	B	9.9	A	13	B
Gilman St. at 10 th St.	TWSC	27.7	D	49.8	E	27.7	D	>50	F	>50	F	>50	F
Gilman St. at San Pablo Ave.	Signal	46.6	D	48.6	D	41.2	D	42.6	D	>50	F	>50	F
Eastshore Hwy. at Harrison St.	AWSC	12.3	B	8.5	A	12.2	B	8.4	A	12.3	B	9.7	A
2 nd St. at Harrison St.	AWSC	7.4	A	7.3	A	6.9	A	7	A	7	A	6.9	A

Traffic Accident Surveillance and Analysis System (TASAS) data were obtained for a three-year period from January 2011 to December 2013 for the I-80 mainline, I-80 WB on-ramp from Gilman Street, I-80 WB off-ramp to Gilman Street, I-80 EB on-ramp from Gilman Street, and I-80 EB off-ramp to Gilman Street. The following table, Table 5, is a summary of the TASAS data. The next table, Table 6, summarizes the breakdown of the various types of collision that had happened on each segment pertinent to the project.

Table 5: Summary of Traffic Accident Data

Location	Description	Number of Accidents							Accident Rates (Accidents per Million Vehicles)					
									Actual			Average		
		<i>T</i>	<i>F</i>	<i>I</i>	<i>F+I</i>	<i>MV</i>	<i>Wet</i>	<i>Dark</i>	<i>F</i>	<i>F+I</i>	<i>T</i>	<i>F</i>	<i>F+I</i>	<i>T</i>
PM 6.408 to 6.823	I-80 Mainline	234	0	64	64	221	40	75	0	0.51	1.86	0.003	0.34	1.12
PM 6.408	I-80 WB On-ramp from Gilman St.	10	0	5	5	9	2	2	0	0.72	1.45	0.002	0.21	0.60
PM 6.479	I-80 EB Off-ramp to Gilman St.	2	0	0	0	2	0	0	0.000	0.0	0.31	0.004	0.32	0.92
PM 6.790	I-80 EB On-ramp from Gilman St.	14	0	7	7	11	2	3	0.000	0.71	1.42	0.002	0.21	0.60
PM 6.822	I-80 WB Off-ramp to Gilman St.	18	0	6	6	18	2	2	0.000	0.52	1.55	0.004	0.32	0.92

Abbreviations: T = Total Reported Accidents, F = Fatalities; I = Injuries; F+I = Fatalities plus Injuries; MV = Multiple Vehicle

Source: California Department of Transportation TASAS

Notes: Accident rates that are higher than the statewide average were indicated in **bold**.

Table 6: Types of Collision

Location Postmile	Head On	Side-swipe	Rear End	Broad-side	Hit Object	Over-turn	Auto/Ped	Other	Not Stated
I-80 Mainline at Gilman St <i>Ala 80 PM 06.408/006.822</i>	0%	26.1%	63.2%	3.0%	6.4%	1.3%	0%	0%	0%
I-80 WB Entrance Ramp from Gilman St <i>Ala 80 PM 06.408/006.409</i>	10.0%	0%	70.0%	20.0%	0%	0%	0%	0%	0%
I-80 EB Exit Ramp to Gilman St <i>Ala 80 PM 06.479/006.480</i>	0%	0%	50.0%	50.0%	0%	0%	0%	0%	0%
I-80 EB Entrance Ramp from Gilman St <i>Ala 80 PM 06.790/006.791</i>	7.1%	21.4%	7.1%	42.9%	7.1%	0%	14.3%	0%	0%
I-80 WB Exit Ramp to Gilman St <i>Ala 80 PM 06.822/006.823</i>	0%	27.8%	55.6%	16.7%	0%	0%	0%	0%	0%

Source: California Department of Transportation TASAS

5. ALTERNATIVES

5A. Viable Alternatives

A total of two alternatives were identified for the project—the Build Alternative (Roundabout Alternative) and the No Build Alternative. Following circulation of the Draft Environmental Document and careful evaluation of all comments submitted by the public, the Build Alternative was selected as the Preferred Alternative at the April 15, 2019 Project Development Team (PDT) meeting because it more fully addressed the purpose and need compared to the No Build Alternative.

Preferred Alternative

The Preferred Alternative includes the reconfiguration of I-80 ramps and intersections at Gilman Street. The existing non-signalized intersection configuration with stop-controlled ramp termini would be replaced with two hybrid single-lane roundabouts with multilane portions on Gilman Street at the I-80 ramp terminals. The I-80 ramps and frontage road intersections at each ramp intersection would be combined to form a single roundabout intersection on each side of I-80. Gilman Street would be re-paved from the parking lots at Tom Bates Regional Sports Complex to the eastern side of the 4th Street intersection. Work would also include rehabilitation of West Frontage Road and Eastshore Highway within the project limits. In addition, the northern and southern legs of the eastern roundabout will be reduced from two lanes to one lane entering the roundabout. The southbound and northbound movements onto Eastshore Highway would instead be made via 2nd Street to Page Street or 2nd Street to Harrison Street.

Proposed Engineering Features

Improvements associated with installation of the roundabouts would extend approximately 280 feet south on West Frontage Road from the Gilman Street interchange and approximately 250 feet north and 1,010 feet south on Eastshore Highway from the Gilman Street interchange. Work associated with reconfiguration of the eastbound I-80 off-ramp and on-ramp would extend approximately 820 feet south and 280 feet north of the interchange. Work associated with reconfiguration of the westbound I-80 off-ramp and on-ramp would extend approximately 230 feet south and 370 feet north of the interchange. There are no proposed improvements to the freeway mainline.

The western roundabout intersection would consist of four approaching legs: eastbound and westbound Gilman Street, West Frontage Road, and I-80 westbound off-ramp. There would be four exiting legs on the western roundabout: westbound Gilman Street, southbound West Frontage Road, westbound I-80 Gilman on-ramp, and eastbound Gilman Street. The eastern roundabout intersection would include five approaching legs: I-80 eastbound off-ramp, northbound and southbound Eastshore Highway, and eastbound and westbound Gilman Street. There would be three exiting legs on the eastern roundabout: eastbound on-ramp, and westbound and eastbound exits on Gilman Street. A left-turn pocket would be provided on Gilman Street for vehicles turning onto northbound 2nd Street. Left turns will be restricted from westbound Gilman Street turning onto southbound 2nd Street.

Gilman Street on the west side of I-80 will have 12-foot lanes, except when approaching the roundabout where lane widths will vary. In the westbound direction, there will be 8-foot shoulders and in the eastbound direction, there will be 8 feet available for street parking. Within the circulatory roadway of both hybrid roundabouts, lane widths vary from approximately 10 to 25 feet. The inner lane widths vary from approximately 10 to 15 feet, and the widths of the outer lanes and single-lane portions vary from approximately 15 to 25 feet. The road segment that connects the two roundabouts will be 20 feet wide in both eastbound and westbound directions and must be reconfigured to accommodate the design standards of the roundabouts. The design vehicle used for the roundabouts is a STAA-56 vehicle. The central islands of the roundabouts will be crowned. The Typical Section sheets of the interchange can be found in Attachment B.

Improvements on 2nd Street north of Gilman Street include reduced crossing distances, new striping, signing, new pavement, additional landscaping, and new light poles. South of Gilman Street, improvements on 2nd Street include a bulb-out on the southeast corner of the intersection and converting the road to one-lane southbound, while the space would be used as a designated parking/loading zone for businesses.

All modified roadways including ramps, frontage roads, and arterials would be improved. Improvements would include mill and overlay of pavement, striping, relocation of drainage inlets, lighting, and signage. Minor drainage modifications would also be required to conform to the new roundabout alignment and drainage improvements associated with the two-way cycle track along Gilman Street would also be required.

Additionally, A tidal flap gate would be installed at the existing headwall of the 60” reinforced concrete pipe at the west end terminus of Gilman Street to prevent tidal backflow. Replacement of the existing headwall and associated riprap would include in-water work. Work below the ordinary mean high water mark would be required. Dewatering or a cofferdam would also be required.

Several operational improvements would be incorporated in to the project. A metering signal would be installed on the northbound leg of West Frontage Road just south of the western roundabout to limit the volume of traffic that is bypassing the freeway using West Frontage Road. A ramp meter, ramp signal, or metering light is a device, usually a basic traffic light or a two-section signal light (red and green only, no yellow) together with a signal controller, that regulates the flow of traffic entering freeways according to current traffic conditions. A queue cutting signal would be placed on the eastbound leg of the UPRR crossing at 3rd Street to prevent traffic from extending across the UPRR tracks. A queue cutting signal is a traffic control signal that prevents waiting lines of vehicles from backing up across tracks at a road or highway-rail grade crossing and is activated for one direction of travel, either an approaching train, queue detection, or coordination with adjacent traffic signals.

The existing driveway entrance to Golden Gate Fields is located immediately adjacent to the westbound I-80 off-ramp at the end of the curb return on Gilman Street. Construction of the roundabout would expand the ramp intersection to the north and would require relocation of the Golden Gate Fields entrance and exit gate to their stables.

The Preferred Alternative would also include a new pedestrian and bicycle overcrossing. The pedestrian and bicycle overcrossing structure would be located south of Gilman Street with two staircases incorporated into the overcrossing, one on each side of I-80. There would also be retaining walls on the east and west side of the overcrossing. The Preferred Alternative includes a two-way cycle track on the south side of Gilman Street between the eastern I-80/Gilman Street ramps and 4th Street. The addition of the two-way cycle track would require installation of a traffic signal at the intersection of 4th Street and Gilman Street. Improvements would be made along 4th Street to Harrison Street to 5th Street to provide bicycle connectivity between the Codornices Creek Path and the two-way cycle track on Gilman Street. Additional pedestrian and bicycle improvements would include upgrading the 3rd Street/UPRR crossing at Gilman Street to accommodate the cycle track.

Approved Nonstandard Boldface and Underline Design Features

M1: HDM Index 504.3(3) states that the minimum distance (curb return to curb return) between ramp intersections and local road connections shall be 400ft. The existing intersections of Eastshore Highway West Frontage Road are within their respective inscribed circle diameters, and the existing intersection of 2nd Street is approximately 185 feet from the nearest inscribed circle diameter. The proposed design would maintain the existing distances and would not provide the required 400 feet between a ramp and a local road. Access between Gilman and 2nd streets would be modified to improve traffic circulation, reduce conflicts, and increase safety at the ramp intersection.

M2: HDM Index 504.8 states that for major reconstruction access rights shall be required on the opposite side of the local road from the ramp terminals to preclude driveways or local roads within the ramp intersection. The intersection of Eastshore Highway is a local road within the vicinity of the of the I-80 eastbound ramp termini. Similarly, the intersection of West Frontage Road is within the vicinity of the I-80 westbound entrance ramp. The proposed location of the ramp intersections would be similar to existing conditions and the local roads would remain within the ramp intersections. The proposed design would optimize capacity and operation of the ramp by reconfiguring the intersections of the ramps and local roads into roundabouts. Additional measures to further improve traffic circulation would be implemented, including the elimination of access from Gilman St. to Eastshore highway and the installation of a metering light on the northbound leg of West Frontage Rd. in order to achieve the goals of HDM index 504.8

M3: HDM Index 504.8 states that access rights shall be required along interchange ramps to their junction with the nearest public road and that access control shall extend at least 50 feet beyond the end of the curb return, ramp radius, or taper. The intersection of Eastshore Highway is a local road within the vicinity of the I-80 eastbound ramp termini. Right of way would be acquired 44 feet past the inscribed circle diameter of the eastern roundabout on Gilman.

A1: HDM Index 310.2 states that in urban areas the width of the outer separation should be a minimum of 26 feet from edge of traveled way to edge of traveled way. The outer separation between Eastshore Highway and the I-80 eastbound entrance ramp would be less than 26 feet from edge of traveled way to edge of traveled way from Station “C5” 179+39 to 180+53 with the proposed design. The minimum outer separation of the existing condition is 18.5 feet and would be maintained after reconstruction. The existing Eastshore Highway is separated from the I-80 eastbound entrance ramp at Gilman Street by a 4-foot to 5-foot wide median and concrete barrier which would be maintained to prevent head-on collisions.

The aforementioned nonstandard design features are listed and discussed in the Design Standard Decision Document (DSDD) and were reviewed by Rob Effinger and the DSDD was approved on June 5, 2019. The approved design exceptions will maintain safety while allowing for the design-flexibility required by the constrained project location.

Highway Planting and Aesthetic Treatments

Existing vegetation is sparse in the project footprint and consists of ornamental plantings or ruderal vegetation. The Preferred Alternative would remove existing landscaping and trees on the sidewalk along Eastshore Highway from Page Street to Gilman Street. In addition, trees and/or shrubs would be removed at the I-80 off-ramps, westbound I-80 on-ramp, and along the Bay Trail. Replacement plantings would occur near the areas of impact where feasible, as well as within the project limits. Final determination for tree removals would occur during the design phase of the project. No plantings would occur within the roundabouts though there will be opportunities for new hardscape.

Mature trees, shrubs and vines exist within the project limits. Between Post Miles 6.53 and 8.04 I-80 is a Classified Landscaped Freeway. Classification aids in the regulation of outdoor advertising. Plantings should be protected from damage to the maximum extent possible to maintain Landscaped Freeway status. Impacts to the existing planting may occur in areas of Contractor staging/storage areas. Replacement of the impacted native trees would be required at a minimal 1:1 replacement ratio. All other removed trees will be replaced in kind or with native trees to the extent possible. Types of replacement planting within State right of way include shrub, trees, and ground cover. Replacement planting covers approximately 1.4 acres in State right of way and 1.2 acres in local right of way. See Planting Plans in Attachment C for more detail. The resulting landscape work with three-year plant establishment period would be funded by the roadway contract and be implemented with two years after completion of the roadway contract.

Existing irrigation exists in most areas of planting, except along the Gilman Street Extension. The irrigation water source is EBMUD and the water is potable. Irrigation impacted by the project would require repair/replacement to maintain plantings. Any irrigation disrupted by construction operations will require interim watering by truck and repairs of the damaged irrigation facilities. Root zones of existing planting would require protection from construction and soil compaction. See Irrigation Plans in Attachment C for more detail.

The center of the roundabouts would be hardscaped for ease of maintenance. The perimeter of the center would be lined with concrete walls with a natina reactive color finish. An c-shaped inner wall would add an additional aesthetic dimension. The hardscaping would include fractured rock boulders of various sizes arranged within the walls to allow the mounding and sloping necessary for proper drainage flow.

At the undercrossing, different treatments are being considered to improve the aesthetic experience, to reduce maintenance operations under the structure, and to restrict access of unauthorized people to the dedicated pedestrian and bicycle facilities. One option being considered is a wrought iron fence placed along the sides of the structure and the shared-use path under the structure on the south side of Gilman street, and along the sides of the structure and roadway under the structure on the north side of Gilman Street. The other option is the placement of a curtain wall with architectural treatment in the same locations mentioned. The final determination will be made during PS&E.

Erosion Control

Disturbed areas would be stabilized by applying permanent erosion control measures as detailed in the Storm Water Data Report (SWDR). Temporary stormwater best management practices (BMPs) would be implemented in order to avoid or reduce potential stormwater impacts. Temporary stormwater BMPS are discussed in section 3 of the SWDR.

Noise Barriers

Traffic on I-80, Gilman Street, West Frontage Road, and Eastshore Highway are the dominant sources of noise in the area. Because of the constrained configuration of this project, abatement in the form of noise barriers is the only measure considered to be practical. Noise barrier analysis was conducted by modeling the presence of soundwalls at the shoulder of I-80.

The Noise Study Report (NSR) analyzed noise barriers with heights from 8 to 16 feet to determine feasible noise abatement for the Preferred Alternative. Soundwalls are considered feasible when they provide at least 5 dB of noise reduction. The Noise Reduction Design Goal is achieved when a barrier is predicted to provide a noise reduction of at

least 7 dB at one of more areas of study. There was only one area that was projected to have feasible noise abatement soundwalls based off existing and predicted future traffic noise levels and the results can be found in Table 7. The current estimated construction cost of the recommended 12-foot-high soundwalls is \$3,683,000. Because the current estimated cost of the soundwalls far exceeds the reasonable allowance, as discussed in the NSR and the Noise Abatement Decision Report (NADR), these noise barriers are not recommended for construction.

Table 7: Noise Abatement Summary

	Existing Traffic Noise Level Range	Future Traffic Noise Level Range	Number of Impacts	Number of Proposed Soundwalls	Number of Benefitted Land Uses
Area A: West of I-80 and South of Gilman Street	59 to 69 dBA	59 to 69 dBA	3	2	3

Source: *Noise Study Report*, July 2018

Pedestrian/Bicycle Improvements

The Preferred Alternative would include a shared-use Class I path consisting of 10-foot-wide travel way with a 2-foot-wide shoulder for pedestrians and bicyclists on the south side of Gilman Street from 2nd Street to the eastern roundabout. The shared-use path would extend south along Eastshore Highway, where it would then connect to a proposed pedestrian and bicycle overcrossing with separated pedestrian and bicycle lanes. The overcrossing would be constructed over I-80, merging into the existing Bay Trail that runs parallel to West Frontage Road. The at-grade shared-use path would continue on the south side of Gilman Street under I-80 and terminate at the Bay Trail on the west side of the interchange. Guidance by the National Association of City Transportation Officials (NACTO) was consulted for the design of the bicycle improvements and implemented where applicable.

The pedestrian and bicycle overcrossing would be similar to the existing pedestrian and bicycle overcrossing over I-80 at University Avenue. The structure would be located south of Gilman Street and have a minimum of nine spans with four spans for each approach and a maximum span length of approximately 230 feet over I-80. The structure would be compliant with the Americans with Disabilities Act (ADA) regulations. Additionally, there would be two staircases incorporated into the overcrossing, one on each side of I-80. They would be approximately 45 feet long with a height of 25 feet to provide additional access points to the overcrossing. There would also be retaining walls on the east and west approaches of the overcrossing.

The Preferred Alternative includes a two-way cycle track on the south side of Gilman Street between the eastern I-80/Gilman Street ramps and 4th Street. The two-way cycle track is separated from vehicle traffic with a minimum 3-foot-wide striped buffer and a 2-foot wide, 6-inch raised median and a parking lane in some locations. The addition of the two-way cycle track would require installation of a traffic signal at the intersection of 4th Street and Gilman Street. The northern curb line on Gilman Street would also be shifted 2 to 5 feet north. Along Eastshore Highway, the sidewalk, curb, and gutter would be replaced between Page Street and Gilman Street.

Improvements would be made along 4th Street to Harrison Street to 5th Street to provide bicycle connectivity between the Codornices Creek Path and the two-way cycle track on Gilman Street. These improvements would consist of painted shared-lane markings, also known as sharrows, on the pavement throughout this corridor. Bicycle signage and pedestrian scale lighting would be constructed as part of the improvements.

Approximately 125 feet of new curb, gutter, and sidewalk beginning at the corner of Harrison Street and 4th Street and ending half-way down the block towards 5th Street would be constructed. Parallel parking would be added along this new section of curb and sidewalk. The bus stop located at the corner of 4th Street and Gilman Street would be removed.

West of the I-80/Gilman Street interchange, the existing Bay Trail would be extended approximately 660 feet west along the south side of Gilman Street from its current terminus at the intersection of West Frontage Road and Gilman Street to just beyond Berkeley city limits. The proposed Bay Trail extension would be 12 feet wide. On-street informal parking would be reduced by approximately 18 spaces at the west end of Gilman Street as a result of the new trail extension.

Additional pedestrian and bicycle improvements include upgrading the 3rd Street/UPRR crossing at Gilman Street to accommodate the cycle track. Improvements would include shortening existing railroad gates, addition of new railroad gates and flashing beacons on the cycletrack, installation of medians, and improvement of striping and signage. All improvements would be approved by the UPRR and the California Public Utilities Commission (CPUC).

Needed Roadway Rehabilitation and Upgrading

A geotechnical field investigation was conducted and seventeen exploratory boreholes and five Cone Penetration Test (CPT) soundings were completed at various locations along the alignment of the proposed roadways. Samples of subsurface soils were collected and to log subsurface conditions where improvements are proposed. Additionally, a pavement condition survey was conducted and field testing including Ground Penetration Radar (GPR) and in-place strength testing using Falling Weight Deflectometer (FWD) tests. The results of these tests produced the pavement rehabilitation, overlay and structural section alternatives. See the Materials Report for further detail on the limits of rehabilitation and replacement of Pavement.

Table 8 shows the 20-yr flexible pavement sections for the proposed improvements in the project area, as recommended in the Life-Cycle Cost Analysis (Attachment L).

Table 8: 20-year Flexible Pavement Structural Sections

Alignment	Design TI	Assumed Design R-value	Existing AC (in)	Existing AB (in)	Mill and Overlay			Reconstruction			
					RHMA Thickness (ft)	Level Course HMA (ft)	Mill Depth (ft)	RHMA-G Thickness (ft)	HMA (Type A) Thickness (ft)	Class 2 AB Thickness (ft)	Other
I-80 Westbound Exit Ramp	11.0	40	8-11*	3*	0.2	0.15	0.35	0.2	0.50	0.75	N/A
West Roundabout		30	N/A	N/A	N/A	N/A	N/A	0.2	0.50	1.20	N/A
West Roundabout Truck Apron			N/A	N/A	N/A	N/A	N/A	N/A	0.70	1.20	Textured HMA with color coating
West Frontage Road	10.5	30	4-7	0-10	N/A	0.35	0.00	N/A	0.55	1.30	N/A
Gilman Street from W. Frontage Rd to N terminus			3	5							
Gilman Street from Eastshore Hwy to W. Frontage Rd			3	5	N/A	N/A	N/A	0.2	0.35	1.30	
Gilman Street from 4 th St to Eastshore Hwy		3	5	0.2	0.15	0.15					
I-80 Eastbound Entrance Ramp		40	10*	5*	0.2	0.15	0.35	0.2	0.50	0.60	N/A
I-80 Westbound Entrance Ramp			8*	3*							
East Roundabout		30	N/A	N/A	N/A	N/A	N/A	0.2	0.50	1.05	N/A
East Roundabout Truck Apron	N/A		N/A	N/A	N/A	N/A	N/A	N/A	0.70	1.05	Textured HMA with color coating
I-80 Eastbound Exit Ramp	10.0	40	5*	6*	0.2	0.15	0.35	0.2	0.50	0.50	N/A
2 nd Street north of Gilman	9.5	30	6	0	N/A	0.35	0.15	N/A	0.5	1.15	N/A
Eastshore Highway south of Gilman			2	7							
Eastshore Highway north of Gilman			6	0							
Page Street			6	8							
Harrison Street			3	6							
Gilman Extension	9.5	20	3	6-8	N/A	0.35	0.00	N/A	N/A	N/A	N/A
2 nd Street south of Gilman			6	0	N/A	N/A	N/A	N/A	N/A	0.5	1.35
Golden Gate Fields Parking Lot Entry	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.5	1.15	Textured HMA with color coating
Gravel Access Road	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.6	Geotextile CI2
Bay Trail	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.35	0.5	0.7' CI 3 AB

Notes: * = From As-builts; TI = Traffic Index; AC = Asphalt Concrete; AB = Aggregate Base; HMA = Hot Mix Asphalt; RHMA = Rubberized Hot Mix Asphalt.

Cost Estimates

Construction and right of way costs have been estimated for the project are summarized in Table 9. The preliminary cost estimates are included as Attachment C.

Table 9: Cost Estimate Summary (Year 2021 \$)

Roadway Items	\$25,404,700
Structure Items	\$14,160,900
<i>Subtotal Construction</i>	<i>\$39,565,600</i>
Right of Way	\$4,984,994
TOTAL PROJECT CAPITAL OUTLAY COST	\$44,551,000

Right of Way Data

Right of way is further discussed in section 6D and on the Right of Way Data Sheet in Attachment D.

5B. Rejected Alternatives

No Build Alternative

The No Build Alternative consists of the future conditions with transportation improvements only as currently planned and programmed for funding. The No Build Alternative provides a basis for comparing the build alternatives, but it did not meet the purpose and need of the project and was therefore rejected. Under the National Environmental Policy Act (NEPA), the No Build Alternative can be used as the baseline for comparing environmental impacts; under CEQA, the baseline for environmental impact analysis consists of the existing conditions (2015) at the time the environmental studies began.

Signalized Intersection Alternative

The Signalized Intersection Alternative was eliminated from further discussion because of engineering, right of way, and cost constraints. Under the signalized intersection alternative, there would not have been sufficient space for left-turn pockets under the I-80 undercrossing, and it would have required removal and replacement of the structure. This would have caused significant traffic impacts and inconvenience for motorists. In addition, the cost of this alternative renders it infeasible.

Roundabout Alternative with Bypass Lanes

An additional roundabout alternative with bypass lanes was also eliminated from further discussion. This alternative would have been similar to the Preferred Alternative, except for the addition of two bypass ramps under the Gilman Undercrossing. The bypass ramps would have been constructed underneath the I-80 freeway structure between the abutment and columns to provide direct connection between the roundabouts and the I-80 eastbound and westbound on-ramps. This alternative was eliminated because of the constraints regarding sight distance, and lateral clearance to the abutments, limitations on turning radius and shoulder widths, restrictions for high-occupancy vehicle (HOV) placement on on-ramps, and increased confusion for drivers entering and exiting the roundabout.

Roundabout Alternatives with Two-way Access

Three roundabout alternatives allowing two-way access on the north leg of Eastshore Highway were studied were also studied in the PA/ED phase and ultimately eliminated from further discussion. The first alternative allowed an exit to northbound Eastshore Highway from the eastern roundabout and from Gilman Street with the two exists merging into one lane. This alternative was eliminated due to unacceptable LOS and issues with adequate directional signage on

Gilman Street. The following alternative separated the right-turn lane on westbound Gilman from the roundabout. This alternative was eliminated due to unacceptable LOS as well as right of way (R/W) constraints. The third alternative allowed access to northbound Eastshore highway from only westbound Gilman Street and was eliminated due to R/W constraints.

Golden Gate Fields Alternatives

Four alternate access options to Golden Gate Fields' stables were evaluated and discussed with the owner, Golden Gate Fields. The three eliminated options are discussed in this section. The eliminated alternatives included relocating the entrance 250 feet to the west along Gilman Street Extension (and demolishing barns and constructing new barns elsewhere to make room for the entrance), redesigning the intersection of Gilman Street and Gilman Street Extension to allow for truck U-turn movements, or creating an access directly into the roundabout. The first alternate access configuration was removed from additional consideration based upon the owner's request. The second alternative was removed from consideration due to right of way impacts to the Tom Bates Regional Sports Complex. The last alternative, which allowed access directly between the roundabout and Golden Gate Fields via a driveway into the roundabout, was ultimately eliminated from further consideration by Caltrans as it was not in accordance with Caltrans Highway Design Manual (HDM) Indexes 405.10(14) and 504.8, National Cooperative Highway Research Program Report 672, or Traffic Operation Directive Number 13-02.

Pedestrian and Bicycle Overcrossing Alternatives

During the scoping process, concerns were raised regarding the planned location of the pedestrian and bicycle overcrossing and the safety for bicyclists and pedestrians at various street crossings on the east side of Gilman Street. Several community groups requested that alternate pedestrian and bicycle overcrossings be studied north of the I-80/Gilman Street interchange instead of the proposed location south of Gilman Street. The northern overcrossing was requested to serve people living north of Gilman Street that want to gain access to Tom Bates Regional Sports Complex and the Bay Trail west of I-80. As a result of feedback from community stakeholders, the project team conducted 18 pedestrian and bicycle overcrossing workshops with community members, community groups, Alameda CTC, and various representatives from the cities of Berkeley and Albany, the Berkeley Transportation Commission, and Caltrans to fully vet alternative alignments for the bicycle and pedestrian crossing.

Thirteen conceptual options were studied for the location of the overcrossing and connections to the bicycle and pedestrian network. The options considered were evaluated for the following criteria: maximum distance to exit the overcrossing, path length, roadway conflicts, environmental impacts, new right of way required, right of way cost, construction cost, and schedule. Additional studies used to evaluate options included an origin destination study, a review of existing bicycle and pedestrian counts from the University Avenue pedestrian and bicycle overcrossing and the Buchanan Street overcrossing, and a projection estimate of usage at the proposed Gilman Street pedestrian and bicycle overcrossing. Northern pedestrian and bicycle overcrossing options considered included variants of a northern horseshoe shape (a mirror image to the southern option), as well as extensions east along Codornices Creek to Harrison Park.

Golden Gate Fields was opposed to a northern POC for several reasons. Several of the northern POC options required significant right of way acquisition from the Golden Gate Fields property. Additionally, there was concern that POC-users would be able to look down into Golden Gate Fields property from a northern POC and view the horses and trainers, which would jeopardize the privacy of the operations.

Although a northern overcrossing addressed the need for a safe passage for bicyclists and pedestrians to access Tom Bates Regional Sports Complex via an overcrossing over I-80, the environmental impacts, additional right of way, and increased construction costs would be greater than the southern overcrossing. Participants in the overcrossing workshops determined that the southern overcrossing location, along with improvements to local streets to improve bicycle and pedestrian safety, addressed most of their needs and concerns.

6. CONSIDERATIONS REQUIRING DISCUSSION

6A. Hazardous Waste

A Phase I Initial Site Assessment (ISA) was conducted to assess the potential presence of contaminated soils and/or groundwater in the project study area. Per the ISA, twelve potentially hazardous waste sites were identified and are detailed in the ISA and the Final IS/EA. Impacts from historical releases of chemicals from underground storage tanks (USTs) or other sources to soil or groundwater could occur if contaminated media are encountered during construction. Known contaminants in the study area include petroleum hydrocarbons, volatile organic compounds (VOCs), hydrocarbon solvents, hexavalent chromium, and heavy metals. A plume of hexavalent chromium has been documented within the study area originating from WTE/Colortek (Table 10). The plume reportedly intersects the northeast portion of the study area between the UPRR and 5th Street and lies under Harrison Street and Gilman Street. The twelve potentially hazardous waste sites are detailed in Table 10. A detailed phase 2 site investigation will be conducted during the design phase of the project to evaluate the actual contamination in soil and water.

Table 10: Potential Hazardous Waste in the Project Area

Facility Name	Location	Known Contaminant	Status of Site	Likelihood of Encountering Contaminant	Proposed Work in Potentially Affected Area
Former Chevron gas station	1285 Eastshore Highway	Petroleum Hydrocarbons (Gasoline)	Closed	Moderate	Roundabout construction, sidewalk construction, and utility relocations
Budget Rent a Car	600 Gilman Street	Petroleum Hydrocarbons (Gasoline/Diesel)	Closed	Moderate	Roundabout construction, sidewalk construction, lighting, and utility relocations
		VOCs (Toluene)			
Pacific Steel Casting Company	1320, 1328, 1333, 1401, 1415, and 1420 2 nd Street and 1425 Eastshore Highway	Petroleum Hydrocarbons (Diesel)	Closed	High	Pedestrian crossing, roadway widening, storm drain installation, sidewalk construction, and utility relocations
		Cobalt			
Terminal Manufacturing Company	707 Gilman Street	Petroleum Hydrocarbons (Diesel)	Open	Low	Mill/overlay and sidewalk construction
		VOCs (Tetrachloroethylene)			
Dover Sales	707 Park Way	Hydrocarbon solvents (Toluene, Vinyl Chloride, 1-Butanol, Benzene)	Open	Moderate	Mill/overlay, sidewalk construction, storm drain installation, and utility relocations
Tuttle Galvanizing	725 Gilman Street	Hexavalent Chromium	No Information	High	Mill/overlay, storm drain installation, utility relocations, and traffic signals
Berkeley Yamaha	735 Gilman Street	Petroleum Hydrocarbons	No Information	Moderate	Mill/overlay, storm drain installation, utility relocations, and traffic signals
Flint Ink Corporation	750 Gilman Street and 1350 4 th Street	Petroleum Hydrocarbons	750 Gilman – Open; 1350 4 th Street - Closed	Moderate	Mill/overlay, storm drain installation, utility relocations, traffic signals, and pavement striping
R. Strong Hand Blown Glass	1235 4 th Street	Petroleum Hydrocarbons (Gasoline)	Closed	None	Pavement striping
Manasse-Block Tanning Company	1300 4 th Street	Petroleum Hydrocarbons (Fuel Oils)	No Information	Moderate	Mill/overlay, storm drain installation, utility relocations, and traffic signals
WRE/Colortek	1225 6 th Street	VOCs (Xylenes)	Open	None	Pavement striping
		Total Chromium			
N/A	Gilman Street Outfall	Heavy Metals, Pesticides, PCBs	N/A	Low	Sediment excavation within the Bay, installation of the new outfall flap gate, and installation of rock slope protection

Aerially deposited lead (ADL) from vehicle emissions and lead-based paint weathered from older painted structure are potential sources of lead contamination along roadways. Lead levels may be particularly elevated near the intersection of I-80 and Gilman Street where vehicles stop, idle, and accelerate.

Hazardous contamination may be found within the UPRR mainline right of way or the abandoned segment of railroad track that runs down 2nd Street. The Kinder-Morgan pipeline runs parallel to the rail line through the project area. Historical leaks from this pipeline are also a potential source of contamination.

Additionally, the pavement markings consist of yellow paint and possibly thermoplastic stripes that contain lead. Removal of yellow thermoplastic and yellow paint during construction should comply with Caltrans Section 14-11.07 (Remove Yellow Traffic Stripe and Pavement Marking with Hazardous Waste Residue).

The construction contractor should be prepared for the possibility of encountering contaminated soils and be prepared to detect, excavate, document, and dispose of impacted materials in compliance with applicable environmental laws and regulations.

6B. Value Analysis

A Value Analysis was conducted from June 18-20, 2019. A summary of findings will be considered by the project development team.

6C. Resource Conservation

The energy impacts of transportation projects are typically divided into two areas: (1) the direct energy required for ongoing operations, in this case, the use of petroleum-based fuels and alternative fuels for motor vehicle travel within the project area, and (2) the indirect energy required to produce the materials for and to carry out construction of the project. In the long run, the direct, or operating, energy requirements are usually greater and of primary importance. The Preferred Alternative would improve traffic operations and facilitate traffic movements through the project area. The lessening of congestion and related traffic delay is associated with faster average travel speeds and more efficient vehicle operation compared to no-build conditions.

Such improvements in traffic operations under the Preferred Alternative would reduce direct (operating) energy use, whether in the form of petroleum fuels or alternative sources of energy, compared to higher fuel consumption under the No Build Alternative. For these reasons, the Preferred Alternative would be anticipated to have a beneficial or, at worst case, neutral effect on direct energy use, compared to the No Build Alternative.

Soil borings and/or non-destructive deflectometer testing should be performed to evaluate the existing pavement section for either recycle in place or structural overlay.

6D. Right of Way

Parcel Acquisitions

Construction of the roundabout would require partial acquisition of some of the adjacent properties for the project right-of-way. These would be required between the San Francisco Bay Trail and the West Frontage Road for the western approach of the pedestrian and bicycle overcrossing. This land is currently owned by EBRPD and will be acquired in fee. Additionally, a partial acquisition of City of Berkeley owned land between Eastshore Highway and the I-80 eastbound exit ramp may be required for construction of the eastern approach of the pedestrian and bicycle overcrossing. Property from City of Berkeley for construction of the roundabouts would also be required on Gilman Street at the westbound exit ramp terminus and the eastbound exit ramp terminus. These lands will also be acquired by Caltrans through Section 83.

Acquisition of property would also be required between the San Francisco Bay Trail and the Tom Bates Sports Complex (APN: 60-2529-1-3). This land is currently owned by EBRPD. EBRPD has agreed to transfer fee title part of this land and, in exchange, Alameda CTC will build an extension of the Bay Trail, beginning at the existing end of the Bay Trail (at West Frontage Road and Gilman Street) and terminating at the end of the new Bay Trail that EBRPD plans to build as part of their Albany Beach Project. The Bay Trail extension would remove approximately 18 parking spaces. Additional EBRPD land along Gilman Street, north of Tom Bates Regional Sports Complex, would be transferred to Caltrans for the extension of the Bay Trail and a BCDC easement. Temporary construction easements (TCEs) would also be required from the Tom Bates Sports Complex for construction equipment storage and lay-down. A maintenance easement would also be provided by EBRPD to Caltrans between the POC and the existing eastern fence along the Tom Bates Regional Sports Complex.

For construction of the interchange, a partial acquisition would be required from Golden Gate Fields (APN: 60-2535-1) in the southeast corner of the property for the western roundabout. Additionally, a permit to enter would be required on the western edge of the property to modify access. Additional TCE's may also be required from other parcels to construct the project. No businesses or residences would be displaced. All of Golden Gate Field's features will be maintained adjacent to the western roundabout, and the security shed will be reconstructed along western edge of GGF access road. See Attachment D for parcel acquisition costs.

Access control rights would be purchased from the parcel on the southeast corner of Gilman Street and Eastshore Hwy (APN: 59-2344-1-2) and the northeast corner (APN: 60-2363-3-7) for the operation of the eastern roundabout.

Finally, the new POC and the portion of West Frontage Road adjacent the POC is proposed to be owned by Caltrans.

Relocation Impact Studies

This project does not require relocation of any households or business, nor does it require the acquisition of entire properties. Residential properties within the study area are not affected. Only partial acquisitions along commercial, industrial, and recreational property frontages in study area are required. The operations and use of the properties would not be permanently affected by the property acquisitions.

Utility Involvement

In review of available as-built plans provided by various utility owners, an inventory of existing utilities located within the vicinity of the project is shown in Table 11.

Table 11: Inventory of Existing Utilities

Description	Utility Owner	Size	Location
Overhead Power Lines	PG&E	12 KV	West Frontage Road, Eastshore Highway, Gilman Street, 2 nd Street, 4 th Street
Gas Pipe	PG&E	4"	Gilman Street, 2 nd Street, 3 rd Street, 4 th Street, Harrison Street
Water	East Bay Municipal Utility District	6", 8", 10"	Gilman Street, 2 nd Street
Recycled Water	East Bay Municipal Utility District	10"	2 nd Street, Eastshore Highway
Sanitary Sewer	City of Berkeley	6", 8", 10", 12", 15", 18", 22"	Gilman Street, 2 nd Street, 3 rd Street, 4 th Street, Camelia Street, Page Street
Underground Telecommunications Lines	Verizon	N/A	Gilman Street
Petroleum	Kinder Morgan	8" and 12"	3 rd Street parallel to the UPPR tracks

Existing PG&E overhead distribution electric lines along Gilman Street, West Frontage Road, and Eastshore Highway would be relocated as part of the Preferred Alternative. Some of these overhead lines would be placed underground. See Attachment D, the Right of Way Data Sheet, for the project cost and owner obligation of relocating existing PG&E lines. Utility relocations may require trenching to a depth of approximately 6 feet. Utility verification is required. Positive location (potholing) as prescribed by Caltrans Project Development Procedure Manual Chapter 17 (PDPM Ch. 17) has been performed as required.

An existing EBMUD recycled water transmission line, which is not in conflict with the project, will be relocated and extended as part of the project at the owner's expense. Approximately 1,100 feet of a new 12-inch recycled water transmission pipeline within Eastshore Highway from Page Street to Gilman Street and approximately 1,050 feet of pipeline within Gilman Street from 2nd Street to the Gilman Street Extension are part of the Preferred Alternative. The maximum excavations for the pipe trench would be approximately 24 inches wide by 60 inches deep. Approximately 1,100 feet of an existing 10-inch EBMUD recycled water pipeline located within Caltrans R/W along the eastbound Gilman Street off-ramp shoulder would be abandoned in place or removed. The installation of a new City of Berkeley sewer line at the city's expense underneath Gilman Street beginning at a point east of the Interchange and ending on the west side I-80 at the approximate entrance to the Tom Bates Sports Complex parking lots would be included at the request of the City.

The project cost and owner obligation for facilities that would be constructed are detailed in the Right of Way Data Sheet (Attachment D).

Railroad Involvement

There is on-going coordination with UPRR to determine the improvements needed at the 3rd Street/Gilman Street grade crossing. A GO88-B has been prepared and a C&M agreement will be prepared once the improvements are finalized. See the RWDS for the railroad construction costs and construction contract work costs.

6E. Environmental Compliance

The environmental document for this project is an IS/EA, with a proposed Negative Declaration (ND)/Finding of No Significant Impact (FONSI). The Draft IS/EA was signed on December 14, 2018. This document level has been selected based on the minimal environmental constraints present in the project study area and the low potential for the project to cause significant environmental impacts. Caltrans is the lead CEQA agency for the project. Caltrans is also the NEPA lead agency under its assumption of responsibility pursuant to 23 U.S. Code 327.

The proposed project would have no effect on existing and future land use; consistency with state, regional, and local plans and programs; community impacts; traffic and transportation/pedestrian and bicycle facilities; tribal resources; wild and scenic rivers; growth; farmlands/timberlands; mineral resources; paleontology; wetlands; plant species; animal species; threatened and endangered species; natural communities; and cumulative impacts. In addition, the project would have less than significant effects to the resources discussed below.

Utilities and Emergency Services

Existing PG&E overhead electric lines would be relocated under the Preferred Alternative. Some may be placed underground. An existing EBMUD recycled water transmission line would be relocated and extended. A new sewer line may be installed along Gilman Street. There would be sufficient space for an emergency vehicle to pass other vehicles in the roundabout.

San Francisco Bay and Shoreline

The Preferred Alternative includes improvements within the Bay Conservation and Development Commission (BCDC) jurisdiction including modifications to the Bay shoreline, reinforced concrete pipe outfall, replacement rock slope protection, removal of parking spaces, and an extension of the Bay Trail. The proximity of the study area to the San Francisco Bay and the elevation of the project site would make the area susceptible to inundation from future sea level rise.

Parks and Recreational Facilities

The Preferred Alternative would require acquisition of 0.45 acre from Tom Bates Regional Sports Complex and would extend the Bay Trail approximately 660 feet to the west along the south side of Gilman Street, from its current terminus at the intersection of West Frontage Road and Gilman Street to just beyond the Berkeley city limits. On-street parking would be reduced by approximately 18 informal spaces at the end of Gilman Street as a result of the new trail extension. The Preferred Alternative would require acquisition of 1.27 acres from Tom Bates Regional Sports Complex for temporary construction easements. This would temporarily reduce the amount of parking available for users of the sports complex by approximately 125 spaces. Construction of the pedestrian and bicycle overcrossing would result in closures of 800 feet of the Bay Trail for limited periods of time, 370 feet for the construction of the overcrossing retaining wall, and 430 feet for the construction of the overcrossing columns.

Relocations and Acquisitions

The Preferred Alternative would require partial acquisitions along property frontages in study area. Temporary construction easements from some of the adjacent parcels would be required for construction.

Cultural Resources

Two new archaeological sites – a historic-period archaeological deposit (CA-ALA-691/H) and a prehistoric archaeological site (CA-ALA-690) – were identified within the area of potential effect (APE). The historic-period archaeological deposit (CA-ALA-691H) qualifies for exemption for evaluation under the Caltrans Programmatic Agreement (PA) with the California Office of Historic Preservation, FHWA, and the ACHP. For the purposes of this project, the prehistoric archaeological site (CA-ALA-690) is considered eligible for listing in the National Register of Historic Places (NRHP) and the CRHR per the Caltrans PA in accordance with Stipulation VIII.C.4.

Out of the twelve built environment resources identified within the APE, three were previously evaluated and found ineligible for the NRHP and the CRHR – Bridge #33 0127, the horse racing facility (Golden Gate Fields), and segments of the UPRR located within the APE including the main line along former 3rd Street, Harrison to Page street, and Spur lines along 2nd Street. Seven built environment resources were evaluated as part of this project for the CRHR and the NRHP and found ineligible. One resource was evaluated and determined eligible for both the NRHP and the CRHR – the Manasse Block Tannery Complex. The Manasse Block Tannery Complex consists of eight buildings located on the northern half of the block between 3rd Street and 4th Street south of Gilman Street. One property (735 Gilman Street) qualifies for exemption for evaluation under the Caltrans PA, Attachment 4 Property Type 3 and is not considered a significant resource under CEQA.

Under the Preferred Alternative, proposed work in proximity to CA-ALA-690 includes the installation of a recycled water line to the west of the archaeological site and restriping and curb work on the roadway above the archaeological site. The known site boundaries for CA-ALA-690 would be protected from project impacts by the establishment of a vertical ESA. In order to avoid an adverse effect to the site, non-standard conditions in the form of archaeological monitoring would be imposed. A Post-Review Discovery Plan, Environmentally Sensitive Area Action Plan, and Monitoring Plan was prepared outlining how the site will be avoided, and impacts minimized should they occur. The use of these non-standard conditions would result in a finding of No Adverse Effect without Standard Conditions (FNAE-No SC) for CA-ALA-690. The Manasse Block Tannery Complex would not be impacted by the Build Alternative, resulting in a finding of No Adverse Effect. The project (undertaking) as a whole has a finding of No Adverse Effect without Standard Conditions on historic properties.

Hydrology and Floodplain

The Preferred Alternative would add just under one acre of impervious surface area, which would have a negligible

impact on flooding in the study area. The project would balance cut and fill within the Federal Emergency Management Agency (FEMA) Zone AE. Cut and fill quantities would be further determined for Zone VE in the design phase. No cut or fill would be proposed within Zone AO. The project would not result in a significant encroachment in the floodplain.

Water Quality and Stormwater Runoff

Stormwater impacts would be minimized through proper implementation of permanent stormwater treatment measures. There would be minimal to no impacts on water quality associated with the local water supply, recreational fishing, or other recreational aquatic features. Temporary construction site Best Management Practices (BMPs) will be implemented for all areas directly related to work activities, including staging areas, material borrow areas, storage areas, access roads, roadway construction, outfall construction, stock-piles, construction waste, etc. Design features to address water quality impacts are a condition of the Caltrans Municipal Separate Storm Sewer Systems (MS4) Permit, Municipal Regional Permit (MRP), Construction General Permit (CGP), and other regulatory agency requirements.

Geology, Soils, and Seismicity

The primary seismic hazards in the project area are strong shaking and liquefaction. The subsurface information, based on available as-built borings consists of approximately 10 to 15 feet of unconsolidated granular fill materials (sands and gravels) with varying amounts of construction debris (wood, brick, rubber, etc.). Below this fill there is approximately 10 to 15 feet of soft gray-black clay (Bay Mud). Underlying the Bay Mud were alternating layers of stiff to hard brown silty-sandy clays and dense to very dense silty-clayey sands to the base of all the borings. Groundwater was encountered 7 to 8 feet below current grade in the as-built borings.

Foundations for the pedestrian and bicycle overcrossing would be located on cast-in-drilled-hole piles 120 feet below the existing ground surface. Retaining walls for the pedestrian bridge will be excavated 5 feet below the ground surface. Foundations would be extended below the potentially liquefiable soils or ground improvements installed to provide lateral resistance for the foundation elements. Caltrans seismic design procedures would ensure structural integrity. All project components would be designed in accordance with standard engineering practices and Caltrans standard specifications.

Hazardous Waste and Materials

Contamination by petroleum hydrocarbons is widely reported in the project area, and many facilities formerly operated aboveground and underground storage tanks for fuel or solvent storage. Impacts from historical releases of chemicals could occur if contaminated media is encountered during excavations associated with light pole foundations, utility relocations, drainage systems, and piles for the pedestrian bridge overcrossing over I-80.

Air Quality

When compared to the No Build Alternative, the Preferred Alternative would result in slight reductions in daily criteria pollutant emissions due to improved traffic flow. The Contractor would comply with Caltrans Standard Specifications and require compliance with all applicable laws and regulations related to air quality.

Noise

Noise modeling results indicated predicted noise levels would not increase between existing conditions and the design year. The predicted noise levels in the design year are predicted to approach or exceed the Noise Abatement Criteria (NAC) at three receptors. Noise abatement was considered; however, the estimated cost to construct noise abatement for these receptors far exceeds the reasonable allowance, and the noise barriers are not recommended for construction.

Visual/Aesthetics

The Preferred Alternative would alter the existing visual character and quality to a less than substantial degree with the addition of the pedestrian and bicycle overcrossing, improvements to the path under the I-80 undercrossing, roundabouts, and potential undergrounding of overhead utilities. The project will also include new lighting which will be above the line of sight for pedestrians and motorists. Nighttime glare is likely. This would not be a significant impact based on the existing lighting already located within the project footprint.

Waters

The Preferred Alternative would result in permanent and temporary impacts to the San Francisco Bay associated with installation of the tidal flap gate, headwall, rock slope projection, and sediment excavation. No stream or wetland impacts are proposed. Due to the proposed work within the San Francisco Bay, this project is required to obtain the following permits and approvals from the regulatory agencies listed below:

- Clean Water Act (CWA) Section 404 permit from the United States Army Corps of Engineers (USACE), including areas regulated under Section 10 of the Rivers and Harbor Act (RHA)
- CWA Section 401 Water Quality Certification from the San Francisco Bay Regional Water Quality Control Board (RWQCB)
- BCDC permit from the San Francisco Bay Conservation and Development Commission (BCDC)

For more information, refer to the Final IS/EA in Attachment E.

This project will not have a significant effect on the environment. The Negative Declaration has been prepared in accordance with Caltrans' environmental procedures, as well as State and federal environmental regulations. The attached Negative Declaration is the appropriate document for the proposal.

6F. Air Quality Conformity

The proposed project comes from a conforming Regional Transportation Plan (RTP) and Transportation Improvement Program (TIP). The Transportation Improvement Program (TIP) identifies the Project as exempt from regional conformity requirements per 40 Code of Federal Regulations (CFR) 93.127. Project-level conformity analysis shows that the project will conform to the State Implementation Plan (SIP). An interagency consultation for particulate matter (PM_{2.5}) required by 40 Code of Federal Regulations (CFR) 93.116 and 93.123, concluded on October 11, 2017. The Interagency Consultation partners concurred that the project is not exempt from conformity analysis requirements, but that it is not a Project of Air Quality Concern (POAQC) for PM 2.5. FHWA issued a project level conformity determination on March 15, 2019.

Please reference the Air Quality Study Report for more detailed discussion.

6G. Title VI Considerations

The purpose of the project is to improve the navigation, mobility, and traffic operations at the I-80/Gilman Street interchange, which will reduce congestion, vehicle queues, and conflicts. Local and regional bicycle connections and pedestrian facilities throughout the interchange will be improved, which will make the interchange more accessible to users. Safety for all modes of transportation will be improved because of the changes.

Additionally, public transportation routes will continue to serve local transit stops, except for the bus stop on the southwest corner of 4th Street and Gilman Street. Key PDT members met with AC Transit in March 2018 and concluded that eliminating this bus stop would not result in an adverse impact to the community because ridership is very low at the stop. Some existing pedestrian and bicycle facilities could be disrupted by construction equipment and vehicles. Access to recreation areas, shopping, and other community facilities will not be disrupted.

The proposed project has no potential to cause disproportionately high and adverse effects on any minority or low-income populations. Transportation benefits of the proposed project would accrue to all area residents. Since the interchange does not currently have sufficient pedestrian and bicycle facilities to accommodate users, the proposed project would also provide a benefit for these users as well.

6H. Noise Abatement Decision Report

A Noise Abatement Decision Report (NADR) was prepared for this project. The NADR::

- Is an evaluation of the reasonableness and feasibility of incorporating noise abatement measures into this project;

- Constitutes the preliminary decision on noise abatement measures to be incorporated into the IS/EA (if applicable); and
- Is required for Type I or Type II projects with federal funding to meet the conditions of Title 23 Code of Federal Regulations, Part 772, in accordance with the Federal Highway Administration noise standards.

The NADR does not present the final decision regarding noise abatement; rather, it presents key information on abatement to be considered throughout the environmental review process, based on the best available information at the time the draft environmental document is published. If a project is subject to federal review, but does not have a circulated environmental document, the noise abatement decision report section documents the final noise abatement decision.

The NADR does not address noise barriers or other noise-reducing treatments required as mitigation for significant adverse environmental effects identified under CEQA.

The NSR for this project was prepared by Parsons in July 2018 and approved by Allen Baradar on July 11, 2018. There is no anticipated change in noise levels between the Build and No Build conditions. The results also indicate there is no noise increase between existing conditions and the design year; therefore, the predicted noise levels in the design year are not predicted to result in a substantial increase in noise. However, because the predicted noise levels in the design year are predicted to approach or exceed the noise abatement criteria (NAC) 67 dBA for exterior recreation area uses at two areas of the sports complex and one location along the Bay Trail, traffic noise impacts are predicted to occur, and noise abatement was considered for this area.

The proposed noise abatement is two soundwalls located on the westbound I-80 shoulder and westbound I-80 on-ramp, which would work together as a system. Table 12 summarizes the acoustical feasibility, number of benefitted receivers, and reasonable allowances for the two soundwalls, as well as the estimated construction cost. The two soundwalls are both 12-foot barriers, with one being 1,200 feet in length, and the second being 660 feet in length. The 12-foot barrier height was selected because it achieves the design goal (7-dB reduction). The two soundwalls would provide feasible noise abatement for the two areas of the sports complex noted above, along with a third location in the sports complex, which was also evaluated. Feasible noise abatement is an achievable noise reduction of 5 decibels or more. The proposed noise abatement would not provide feasible noise abatement for the one location along the SF Bay Trail that was evaluated. The reasonable total cost allowance calculated based on the published Caltrans annual Construction Price Index for the two soundwalls would be \$285,000. The current estimated construction cost of the two recommended 12-foot-high soundwalls is \$3,683,000. According to the NADR, the current estimated cost of the soundwalls far exceeds the reasonable allowance of \$285,000, and therefore, these noise barriers are not recommended for construction.

Table 12: Summary of Barrier Evaluation & Abatement Key Information

Soundwall Barrier I.D.s: S169 - Station 163+00 to 175+00 S175 - Station 170+00 to 178+60	8-Foot Barrier	10-Foot Barrier	12-Foot Barrier	14-Foot Barrier	16-Foot Barrier
Acoustically Feasible (5-dB)?	Yes	Yes	Yes	Yes	Yes
Number of Benefitted Receptors	1	1	3	3	5 ^a
Design Goal Achieved (7-dB)?	No	No	Yes	Yes	Yes
Reasonable Allowance per Benefitted Receptor	\$95,000	\$95,000	\$95,000	\$95,000	\$95,000
Total Reasonable Allowance	\$95,000	\$95,000	\$285,000	\$285,000	\$475,000 ^a
Estimated Construction Cost	\$2,555,000	\$3,158,000	\$3,683,000	\$4,207,000	\$4,811,000
Cost Less than Allowance?	No	No	No	No	No

^a Per the Highway Design Manual, the maximum height of a noise barrier should not exceed 14 feet when located 15 feet or less from edge of traveled way and the data for total reasonable allowance is provided for informational

The NADR included preliminary information on secondary effects of abatement. The noise abatement in the preliminary noise abatement decision would not result in impacts to cultural resources, biological resources, hydrology/water quality, hazardous materials, or other environmental resources. However, noise abatement in the preliminary noise abatement decision would result in secondary effects on visual resources/aesthetics if the soundwalls were constructed.

If constructed, the noise abatement evaluated (Soundwalls S169 and S175) would result in secondary effects on visual resources within the study area. The addition of soundwalls along I-80, on the westbound on-ramp and mainline shoulder, would be a new element in the visual environment. The soundwalls would disrupt the existing visual character of the study area due to their length and height. While soundwalls would not dominate the visual environment, they would block views, most critically views to San Francisco Bay, and would appear to transform the study area into a more urban, highway-dominated area. Blocking views from I-80 of the San Francisco Bay, Golden Gate Bridge, and San Francisco, may be contrary to the goals of the BCDC's San Francisco Bay Plan for this stretch of I-80, which is identified as a Scenic Drive. The overall visual impact of these soundwalls would be moderate, resulting in a moderate impact. The resulting view, while maintaining the overall visual quality, would be of different visual character with a more urban visual character than the current view, if the considered soundwalls are implemented.

The preliminary noise abatement decision was included in the draft environmental document, which was circulated for public review. A public open house meeting was held on January 15, 2019 and the public comment period ended on February 5, 2019. The public had multiple methods to provide comments: letter, comment card, court reporter at the public meeting, or email. Only one noise-related comment was received. This comment pertained to construction noise, which would be controlled by project features and avoidance/minimization measures incorporated into the project. Based on this, the noise abatement decision remains the same after the completion of the public involvement process and is presented as such in the final environmental document.

7. OTHER CONSIDERATIONS AS APPROPRIATE

Public Hearing Process

A public hearing was held on January 15, 2019 during the public review period for the draft environmental document. The majority of comments were in support of the project. All comments received were addressed in the final environmental document.

Route Matters

Freeway Agreements and New Connections:

A resolution of change will be prepared to document the construction of the POC over I-80. A revised freeway agreement will be prepared with the City of Berkeley for the I-80 corridor.

Route Adoptions:

There are no route adoption requirements within the project limits.

Relinquishments:

There are no relinquishments required.

Permits

An encroachment permit will be required by the City of Berkeley for work in City right of way. For any conflicting utilities requiring relocation, utility companies must secure separate Utility Relocation permits.

Environmental permits that may be required are shown in Table 13.

Table 13: Regulatory Permits and Approvals

Agency	Permit or Approval	Status
U. S. Army Corps of Engineers (USACE), San Francisco District	Verification of wetland/waters of the U.S. within the project footprint	Wetland Delineation Report submitted on April 6, 2017. Revised report submitted on August 31, 2017. Approved Jurisdictional Determination was issued March 16, 2018. Addendum Wetland Delineation Report submitted to USACE July 16, 2018. Field visit with USACE staff held on October 12, 2018. The USACE requested revisions and a revised Addendum was submitted on November 13, 2018. The revised Approved Jurisdictional Determination was issued November 19, 2018.
USACE, San Francisco District	404 Clean Water Act (CWA) Nationwide Permit /Rivers and Harbors Act (RHA) Permit	These permits would be obtained during design phase.
National Oceanic and Atmospheric Administration (NOAA) Fisheries	Technical Assistance/Letter of Concurrence for a Not Likely to Adversely Affect Determination	The Biological Assessment in support of a Letter of Concurrence for a Not Likely to Adversely Affect Determination for four fish species: Green Sturgeon (<i>Acipenser medirostris</i>), Steelhead – Central California Coast DPS (<i>Oncorhynchus mykiss irideus</i>), Steelhead – Central Valley DPS (<i>Oncorhynchus mykiss irideus</i>), and Chinook Salmon – Sacramento River Winter Run ESU (<i>Oncorhynchus tshawytscha</i>) was submitted February 22, 2019. A field review was held on March 7, 2019. NOAA requested additional information on March 8, April 21, and May 3, 2019. Responses were provided on April 4, April 21, and May 6, 2019. A conference call with NOAA and the project development team was held on May 17, 2019. NOAA issued a concurrence letter on May 23, 2019. Two errata, dated June 7 and June 10, 2019, were subsequently issued by NOAA as a result of additional coordination with Caltrans.
San Francisco Bay Conservation and Development Commission (BCDC)	BCDC Permit	Permit application will be submitted during the design phase. Early consultation meeting was held on January 9, 2019. Permit type to be determined in design phase.
State Water Resources Control Board (SWRCB)	Construction General Permit (CGP) for stormwater discharges – Caltrans; Section 402 Caltrans National Pollutant Discharge Elimination System (NPDES) Permit for greater than 1 acre (Order No.2012-0011-DWQ)	Obtain coverage under the General Permit by preparation and submittal of a Notice of Intent before start of construction.
Regional Water Quality Control Board (RWQCB)	401 Water Quality Certification	This permit will be obtained during the design phase.
Federal Highway Administration (FHWA)	Air Quality Conformity Determination	This project is not considered a Project of Air Quality Concern regarding particulate matter (PM2.5) as defined in 40 CFR 93.123(b)(1). Interagency consultation was completed on September 17, 2018. Project revisions since the consultation do not trigger the need for additional consultation. Air quality project level conformity concurrence was approved by FHWA on March 15, 2019..

Agency	Permit or Approval	Status
State Historic Preservation Officer (SHPO)	Concurrence with the project's historic property National Register eligibility determinations and Finding of Effect	A Historic Property Survey Report (HPSR) was submitted to the SHPO on September 6, 2018. A revised HPSR was submitted on September 11, 2018. SHPO issued concurrence on all eligibility determinations on November 6, 2018. CSO approved the assumption of eligibility of the prehistoric archaeology site pursuant to the PA Stipulation VIII.C.4. A Finding of Effect, A Post-Review Discovery Plan, ESA Action Plan, and Monitoring Plan was submitted for CSO review and were subsequently approved on May 17, 2019. A Supplemental HPSR and Finding of No Adverse Effect (FNAE) was submitted to the SHPO on May 30, 2019. SHPO concurred with the supplemental HPSR and FNAE on May 30, 2019.

Encroachment Policy Exceptions

PDPM Ch. 17 states that a break in State right of way access control fence to connect pedestrian facilities from adjacent properties requires and encroachment policy exception. The POC requires a break in access control fencing at the terminus of the eastern approach near the mixing area in order to connect the POC with Eastshore Hwy. Similarly, access control would need to be modified along Eastshore Hwy at the staircase leading from the POC to the sidewalk on Eastshore Hwy. A break in access control fencing can be avoided at this location if the fence is modified to run along the west side of the staircase and underneath the staircase at the connection of the stairs to the POC, then continue along the POC approach. An encroachment policy exception will be obtained for these pedestrian access openings.

Cooperative Agreements

Cooperative Agreement No. 04-2529, executed on January 29, 2016, covers the PA&ED phase of the project. Alameda CTC is the implementing agency for the PA&ED phase. Caltrans is the lead agency for CEQA/NEPA. A separate Cooperative Agreement No. 04-2719 has been prepared for the Design and Right of Way Phases and was executed on September 28, 2018 (Attachment J). A Construction Cooperative Agreement will be prepared between Caltrans and Alameda CTC at a later date.

Maintenance Agreement

The original freeway maintenance agreement between Caltrans and City of Berkeley was executed on October 23, 1956. A revised Maintenance Agreement is being negotiated between Caltrans and City of Berkeley.

Transportation Management Plan for Use During Construction

Temporary lane with ramp closures and detours would occur. It is anticipated that temporary closure of existing bicycle or pedestrian facilities would occur at times and may require temporary rerouting of transit service due to intersection work. A Transportation Management Plan would be developed and implemented as part of the project construction planning phase. The Transportation Management Plan would address potential impacts to circulation of all modes (transit, bicycles, pedestrians, and private vehicles). Roadway and/or pedestrian access to all occupied businesses and respective parking lots would be maintained during project construction. The Transportation Management Plan would include an evaluation of potential impacts because of diverting traffic to alternate routes, and it would also include measures to minimize, avoid and/or mitigate impacts to alternate routes, such as agreements with local agencies to provide enhanced infrastructure on arterial roads or intersections to deal with detoured traffic. The Transportation Management Plan may provide for contracting with local agencies for traffic personnel, especially for special event traffic through or near the construction zone.

The Transportation Management Plan Data Sheet is included in Attachment H.

Stage Construction

It is anticipated that the construction of this project would take approximately 24 months. Construction work for the Preferred Alternative would be done primarily during daylight hours from 7:00 a.m. to 6:00 p.m.; however, there may be some work during night-time hours to avoid temporary roadway closures for tasks that could interfere with traffic or create safety hazards. Examples of these tasks include striping operations, traffic control setup, installation of storm drain crossings, asphalt pavement mill and overlay, and erection of falsework.

It is anticipated that construction would occur in stages to minimize disruption to the traveling public. A preliminary staging plan has been developed with seven stages. Stage 1 would include construction of the eastbound entrance ramp and retaining wall, eastern roundabout, POC substructure, improvements on 2nd Street and Eastshore Highway, Bay Trail Extension, and Golden Gate Fields improvements. Stage 2 would include construction of the eastbound exit ramp and retaining wall, POC retaining walls and superstructure, westbound exit ramp, and western roundabout. Stage 3 would include full depth replacement and construction of curb and gutter at the Gilman Street Undercrossing. Stage 4 would include construction of the median separating Gilman Street and Golden Gate Fields Access Road west of the western roundabout. Stage 5 would include construction of the shared use path at the Gilman Street Undercrossing, and construction of the median and northern sidewalk on Gilman street between Eastshore Highway and 2nd Street. Stage 6 would include placement of hot mix asphalt (HMA) overlay and hardscaping throughout the project. Stage 7 would include installation of permanent pavement delineation throughout the project.

Specific construction staging requirements would be defined during the final design process and a finalized construction staging plan would be developed by the contractor.

The anticipated construction staging areas available include areas within the existing roadway right of way construction limits. An additional staging area may be required west of the project on Gilman Street in one or two parking lots owned by East Bay Regional Parks.

Accommodation of Oversize Loads

Caltrans issues transportation permits to grant operating authority to vehicles exceeding the statutory limits for size and weight on the State Highway System. Permits are issued after the adequacy of vertical and horizontal clearance along the requested route is verified. Changes to clearance caused by the project (either temporarily or permanently), will affect restriction of oversize and overweight vehicles. The project needs to satisfy the reporting requirements related to the changes on State Highway System per Caltrans' Deputy Directive DD-57, "Route Information for Oversize and Overweight Vehicles" and the related Construction Bulletins.

Graffiti Control

The retaining walls will have fractured texturing, which deter taggers by creating a surface to which paint cannot easily stick. The walls will also be treated with an anti-graffiti coating.

Life-Cycle Cost Analysis (LCCA)

An LCCA was prepared for the Preferred Alternative based on the pavement alternatives provided in the Materials Report. The results of the Materials Report determined that the proposed reconfiguration of the interchange will result in approximately 14-35 percent realignment and reconstruction of the ramps. The remaining portion of the ramps will require rehabilitation. The roundabouts and portion of Gilman Street within State right of way will be reconstructed to meet the new geometrics. Therefore, four LCCA's were conducted for ramp reconstruction, ramp rehabilitation, Gilman Street Undercrossing reconstruction, and roundabout reconstruction.

Three different pavement alternatives were compared, a 20-year HMA with RHMA, a 40-year HMA with RHMA, and a 40-year jointed plain concrete pavement (JPCP). After factoring in the initial construction, future maintenance and

rehab, total agency, user, and total life cycle costs for each alternative, the 20-year HMA was chosen as the recommended alternative.

The total 20-year 1-way Equivalent Single Axle Load (ESAL), Traffic Index (TI), Average Annual Daily Traffic (AADT), and 1-way Average Annual Daily Truck Traffic (AADTT) were calculated for the Gilman Street ramps and Gilman Street between the ramps. The I-80 Westbound exit ramp traffic has the highest TI of 11.5 and was used to conduct the ramp and roundabout LCCAs. Gilman Street has a TI of 10.5. See Table 8 for the TIs and recommended pavement structural sections for the whole project. Additionally, the LCCA is included in Attachment L.

ADA Compliance

All curb ramps and sidewalks for the Preferred Alternative comply with ADA regulations and with DIB 82-06. The Preferred Alternative also allows for vehicles, bikes, and pedestrians to use the intersections safely.

8. FUNDING, PROGRAMMING AND ESTIMATE

Funding

It has been determined that this project is eligible for Federal-aid funding. The project is also eligible for local funding. See Table 14 for funding breakdown.

Programming

It is anticipated that costs for programming including PA&ED, PS&E (plans, specifications and estimate), and Right of Way will be the responsibility of Alameda CTC and City of Berkeley. Construction costs will be budgeted through federal, state, and local funds. Caltrans will be responsible for advertisement, award, and administration (AAA) of the Construction Contract.

Table 14: Funding Breakdown

Fund Source	Source	Fiscal Year Estimate					
		16/17	17/18	18/19	19/20	Future	Total
20.20.400.100							
Component		In thousands of dollars (\$1,000)					
Scoping/Planning	Measure BB	\$794					\$794
PA&ED Support	Measure BB		\$1,672	\$1,671	\$238		\$3,581
	Other Federal	\$1,080					\$1,080
	Other State, Local, and EBMUD	\$354					\$354
	Subtotal PA&ED Support	\$1,434	\$1,672	\$1,671	\$238		\$5,015
PS&E Support	Measure BB			\$2,522	\$2,221	\$300	\$5,043
Right of Way Support	Measure BB				\$306	\$200	\$506
Construction Support	STIP (RIP)					\$5,815	\$5,815
Right of Way	Measure BB				\$4,985		\$4,985
Construction	Measure BB and/or 2019 BUILD Grant					\$15,445	\$15,445
	ATP					\$4,152	\$4,152
	STIP (RIP)					\$19,969	\$19,969
	Subtotal Construction					\$39,566	\$39,566
TOTAL		\$2,228	\$1,672	\$4,193	\$7,750	\$45,881	\$61,724

Estimate

See Attachment C for the full preliminary cost estimate.

9. DELIVERY SCHEDULE**Table 15: Project Schedule for Programming PA/ED**

Project Milestone	Scheduled Milestone Date (Month/Year)	Target/Actual
Circulate DED Externally	12/25/2018	Actual
PA/ED	06/28/2019	Target
Begin Right of Way	05/21/2019	Actual
Final PS&E	05/2020	Target
Right of Way Certification	05/2020	Target
RTL	07/2020	Target
Advertise Project	10/2020	Target
Award Construction Contract	02/2021	Target
Begin Construction	03/2021	Target
End Construction	04/2023	Target
Contract Acceptance	04/2023	Target
End Project	06/2025	Target

In order to maintain consistency in the acquisition of real property, it is Caltrans' position that all agencies comply with Titles 23 and 49 of Code of Federal Regulations that mandate responsibility for compliance with the provisions of the Uniform Relocation Assistance and Real Property Acquisition Policies Act, as amended, and the regulations for federally-assisted programs.

To assure proper recognition of, and adherence to those regulations, Caltrans has developed, with the approval of FHWA, Right of Way procedural manuals covering all aspects of appraisal and acquisition of real property for public right of way purposes. Failure to comply with all policies and procedures could jeopardize the funding and/or the Right of Way certification on this project.

It is acknowledged that the proposed right of way schedule is compressed. Project sponsors will make their best efforts to negotiate a settlement with the property owners and give the property owners a reasonable period of time to consider the offers.

10. RISKS

A Level 2 Risk Register and risk analysis were completed for the project. The potential project risks were identified through various discussions at the PDT meetings and Stakeholder's input. This can be found in Attachment I.

11. EXTERNAL AGENCY COORDINATION

The project is considered a delegated project under the current Stewardship and Oversight Agreement signed between FHWA and Caltrans on May 28th, 2015. New or revised access to existing Interstate facilities require FHWA approval, which is expected to be obtained by May of 2020.

The project requires the following coordination:

- US Army Corps of Engineers – CWA Section 404 Nationwide Permit and Rivers and Harbors Act Section 10 Permit. These permits would be obtained during the plans, specifications, and estimate (PS&E) phase.

- National Oceanic and Atmospheric Administration (NOAA) Fisheries - Technical Assistance/Letter of Concurrence for a Not Likely to Adversely Affect Determination. The Biological Assessment in support of a Letter of Concurrence for a Not Likely to Adversely Affect Determination for five fish species was submitted February 22, 2019. A field review was held on March 7, 2019. NOAA requested additional information on March 8 and April 21, 2019. Responses were provided on April 1 and 21, 2019. NOAA is currently drafting the concurrence letter.
- San Francisco Bay Conservation and Development Commission (BCDC) – BCDC Permit to be determined during design phase.
- State Water Resources Control Board (SWRCB) - Construction General Permit (CGP) for stormwater discharges – Caltrans; Section 402 Caltrans National Pollutant Discharge Elimination System (NPDES) Permit for greater than 1 acre (Order No.2012-0011-DWQ).
- Regional Water Quality Control Board (RWQCB) – 401 Water Quality Certification. Permit to be acquired during design phase.
- State Historic Preservation Officer (SHPO) - Concurrence with the project’s historic property National Register eligibility determinations and Finding of Effect. A Historic Property Survey Report (HPSR) was submitted to the SHPO on September 6, 2018. A revised HPSR was submitted on September 11, 2018. SHPO issued concurrence on all eligibility determinations on November 6, 2018. CSO approved the assumption of eligibility of the prehistoric archaeology site pursuant to the PA Stipulation VIII.C.4. A Finding of Effect, A Post-Review Discovery Plan, ESA Action Plan, and Monitoring Plan was submitted for CSO review and approved on May 17, 2019. A Supplemental HPSR and Finding of No Adverse Effect (FNAE) was submitted to and concurred by the SHPO on May 30, 2019.

12. PROJECT REVIEWS

District Maintenance	Stephen Khun	Date	5/20/19
District Traffic Safety Engineer	Paul M. Leung	Date	5/20/19
Project Delivery Coordinator	Rob Effinger	Date	11/13/18
Project Manager	Ron Kiaaina	Date	6/17/19
FHWA	Lanh Phan	Date	11/20/18
District Safety Review	Haixiong Xu	Date	6/10/19
Constructability Review	Jeffrey Hupe	Date	6/24/19

13. PROJECT PERSONNEL

Susan Chang	Program/Project Manager, Alameda CTC	(510) 208-7441
Ron Kiaaina	Program/Project Management East, Caltrans D4	(510) 286-4193
Hamid Mostowfi	Supervising Traffic Engineer, City of Berkeley	(510) 981-6403
Rodney Pimentel	Project Manager, Parsons	(510) 907-2172
Carie Montero	Environmental Manager, Parsons	(510) 907-2163
Tim Hyles	Environmental Analysis, Caltrans	(510) 286-5701

14. ATTACHMENTS (Number of Pages)

- A. Project Location Map (1 page)
- B. Preliminary Engineering Studies (40 pages)
- C. Preliminary Cost Estimate Summary (9 pages)
- D. Right of Way Data Sheet (8 pages)
- E. Initial Study/Environmental Assessment with Proposed Negative Declaration (18 pages)
- F. Storm Water Data Report – Signed Cover Sheet (1 pages)
- G. Pavement Strategy Checklist (5 pages)
- H. Transportation Management Plan Data Sheet (4 pages)
- I. Risk Register (1 page)
- J. Executed Cooperative Agreement (35 pages)
- K. Intentionally Left Blank
- L. Life-Cycle Cost Analysis (82 pages)

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ATTACHMENT A

PROJECT LOCATION MAP

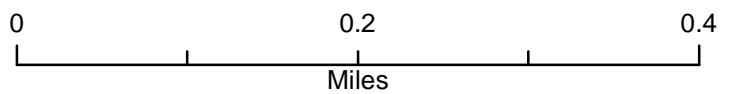
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 Project Limits

 City Limits

 Rail



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ATTACHMENT B

PRELIMINARY ENGINEERING STUDIES

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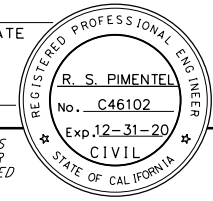
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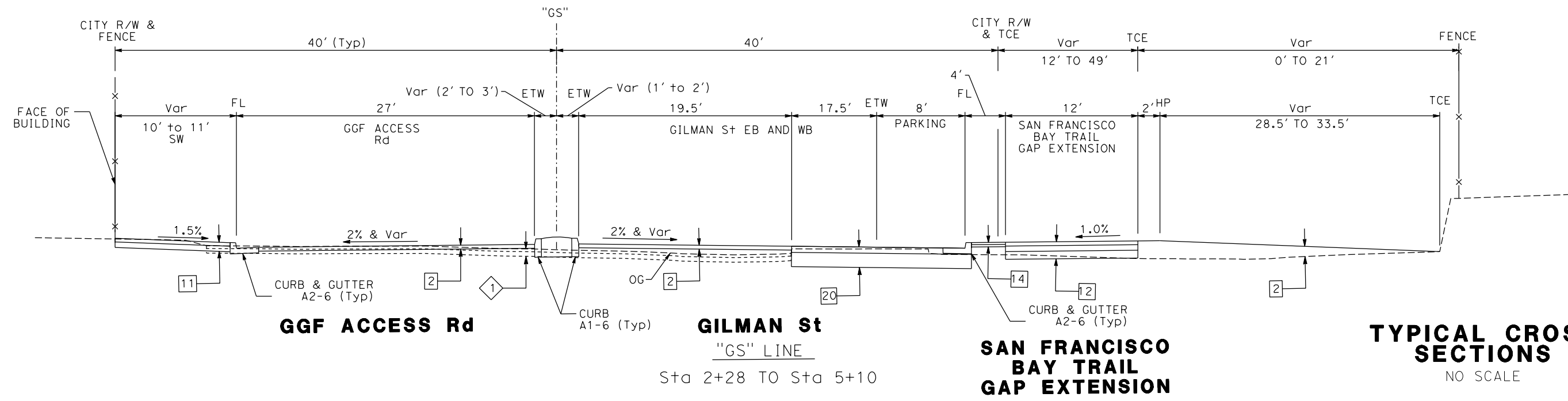
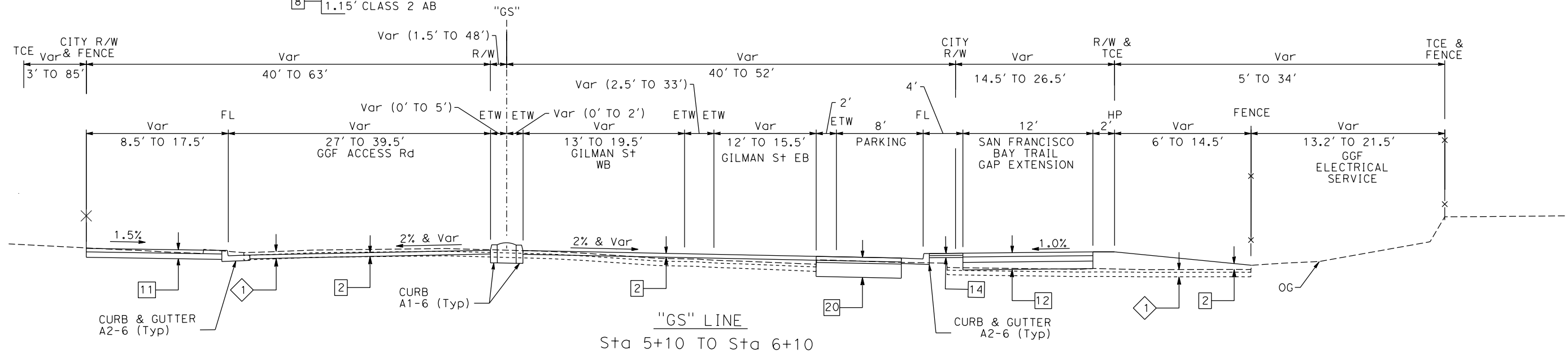
- | | | | | | | | | | |
|---|---|----|-------------------------------------|---|---|----|---|----|--|
| 1 | Exist
0.25' AC
0.42' AB | 6 | Exist
0.42' AC
0.50' AB | 1 | 0.20' RHMA (TYPE G)
0.50' HMA (TYPE A)
0.75' CLASS 2 AB | 9 | 0.20' RHMA (TYPE A)
0.50' HMA (TYPE A)
0.50' CLASS 2 AB | 16 | 0.60' CLASS 2 AB
CLASS 2 GEOTEXTILE FABRIC
(IF DIRECTED BY THE ENGINEER) |
| 2 | Exist
0.25' AC
0.50' -0.67' AB | 7 | Exist
0.17' AC
0.58' AB | 2 | 0.35 HMA (TYPE A) | 10 | 0.50' HMA (TYPE A)
1.35' CLASS 2 AB | 17 | TEXTURED HMA WITH COLOR COATING
0.70' HMA (TYPE A)
1.20' CLASS 2 AB |
| 3 | Exist
0.50' AC | 8 | Exist
0.67' AC
0.25' AB | 3 | 0.20' RHMA (TYPE G)
0.50' HMA (TYPE A)
0.60' CLASS 2 AB | 11 | 0.33' PCC
0.50' CLASS 2 AB | 18 | TEXTURED HMA WITH COLOR COATING
0.50' HMA (TYPE A)
1.15' CLASS 2 AB |
| 4 | Exist
0.33'-0.58' AC
0'-0.83' AB | 9 | Exist
0.67'-0.92' AC
0.25' AB | 4 | 0.15' MILL
0.35' HMA (TYPE A) | 12 | 0.35' HMA (TYPE A)
0.50' CLASS 2 AB
0.70' CLASS 3 AB | 19 | TEXTURED HMA WITH COLOR COATING
0.70' HMA (TYPE A)
1.05' CLASS 2 AB |
| 5 | Exist
0.80' PCC
0.50' RECYCLED AC | 10 | Exist
0.83' AC
0.42' AB | 5 | 0.35' MILL
0.20' RHMA (TYPE G)
0.15' HMA (TYPE A) | 13 | 0.20' HMA (TYPE A)
0.20' CLASS 2 AB | 20 | 0.55' HMA (TYPE A)
1.30' CLASS 2 AB |
| | | | | 6 | 0.2' RHMA (TYPE G)
0.5' HMA (TYPE A)
1.05' CLASS 2 AB | 14 | 0.20' DG
0.20' CLASS 2 AB | 21 | 0.15' MILL
0.20' RHMA (TYPE G)
0.15' HMA (TYPE A) |
| | | | | 7 | 0.2' RHMA (TYPE G)
0.35' HMA (TYPE A)
1.20' CLASS 2 AB | 15 | 0.20' RHMA (TYPE G)
0.35' HMA (TYPE A)
1.30' CLASS 2 AB | | |
| | | | | 8 | 0.50' HMA (TYPE A)
1.15' CLASS 2 AB | | | | |

NOTES:

- DIMENSIONS OF THE PAVEMENT STRUCTURES (STRUCTURAL SECTIONS) ARE SUBJECT TO TOLERANCES SPECIFIED IN THE STANDARD SPECIFICATIONS
- EXACT LOCATIONS AND TYPES OF DIKE AND CURB ARE SHOWN ON THE LAYOUTS AND IN THE SUMMARY OF QUANTITIES SHEETS.
- REFER TO PLANS FOR LIMITS OF SAN FRANCISCO BAY TRAIL GAP EXTENSION

95% PRELIMINARY PLANS

**SUBJECT TO CHANGE
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TYPICAL CROSS SECTIONS
NO SCALE

X-1

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Rodney Pimentel
CONSULTANT FUNCTIONAL SUPERVISOR
REVISOR
DATE REVISOR

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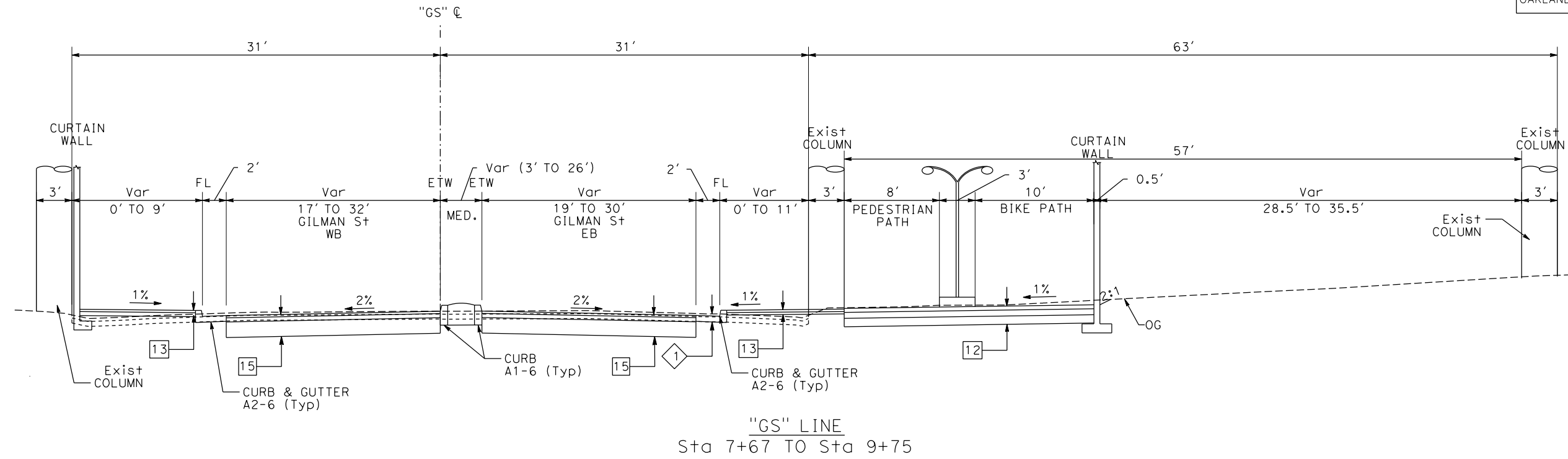
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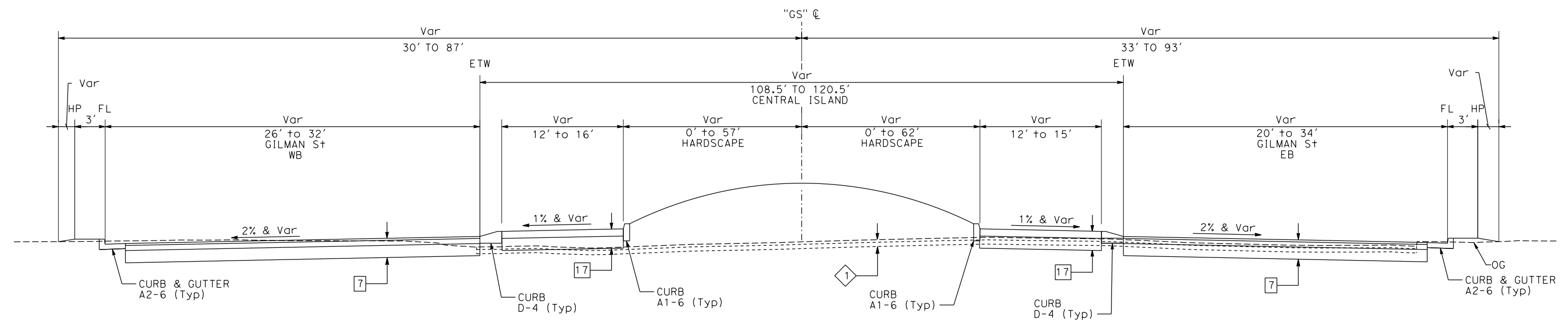
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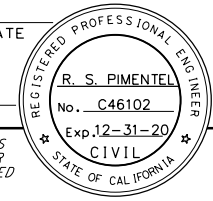
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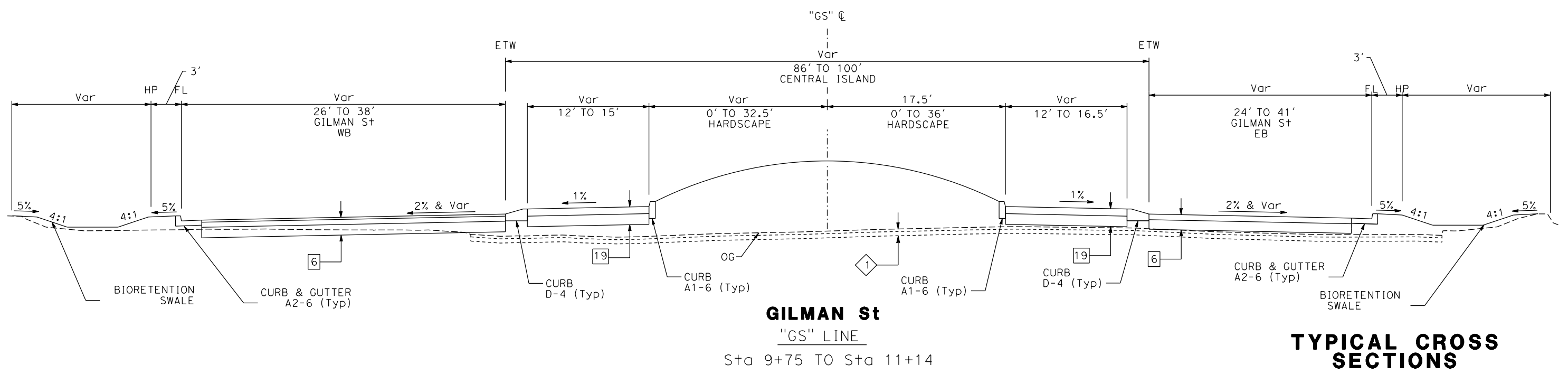
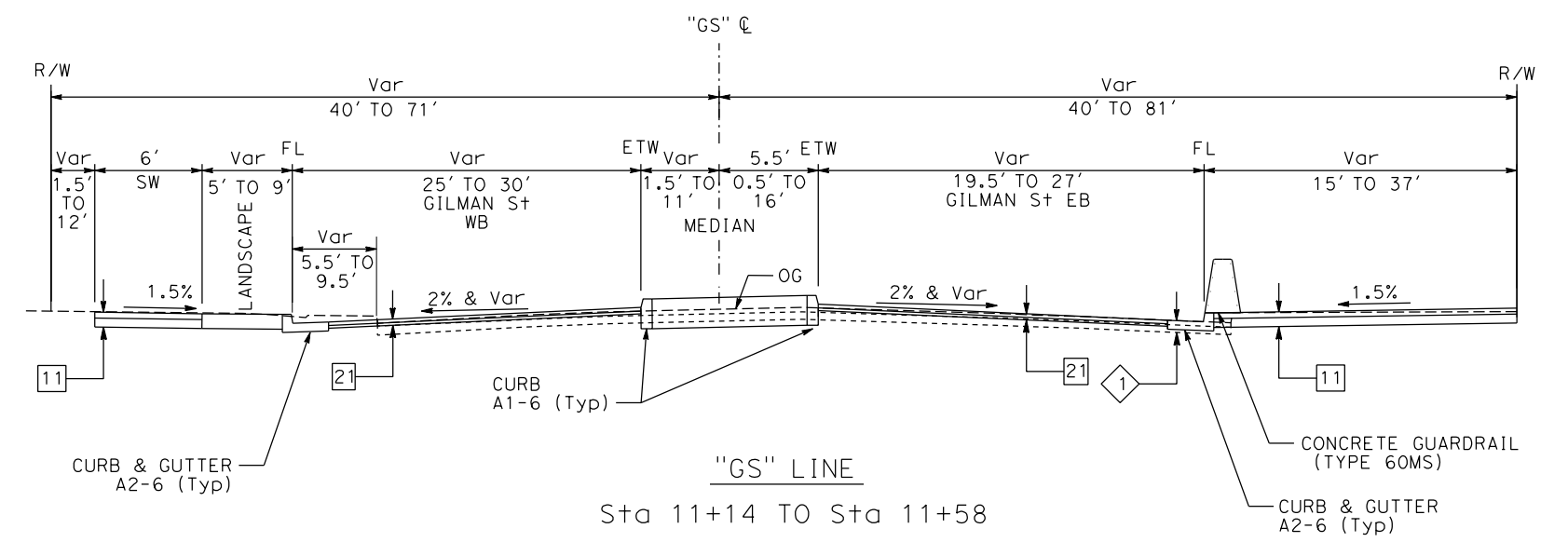
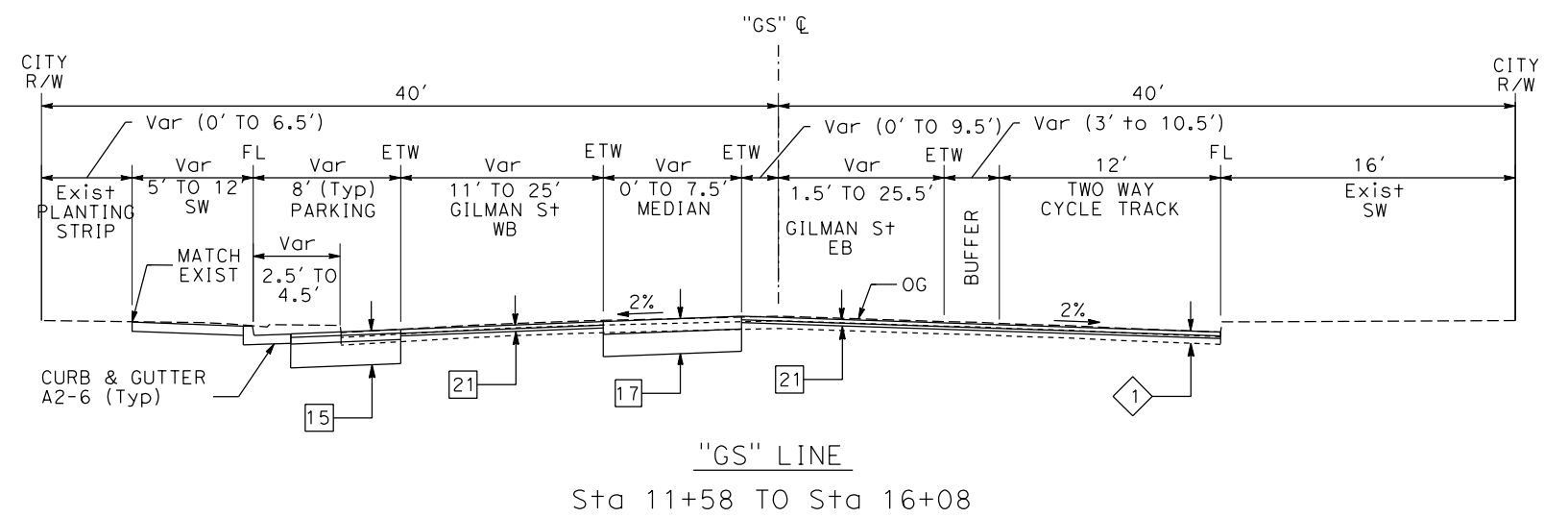
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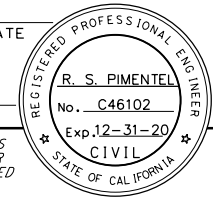
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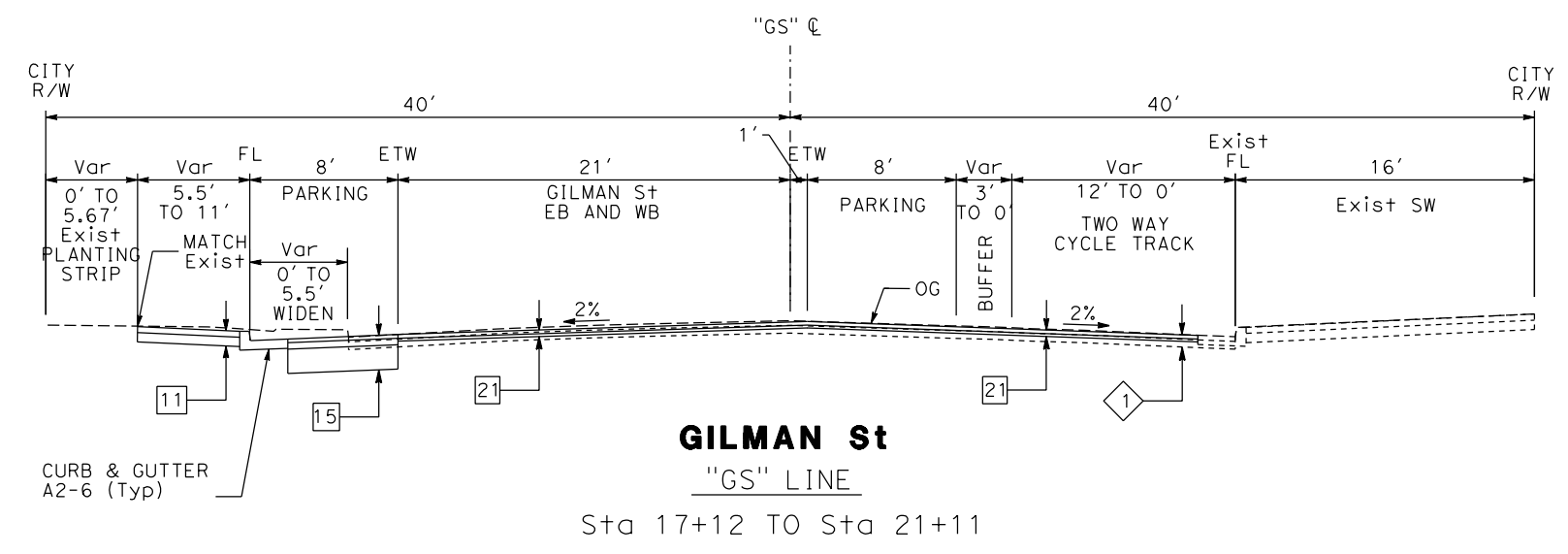
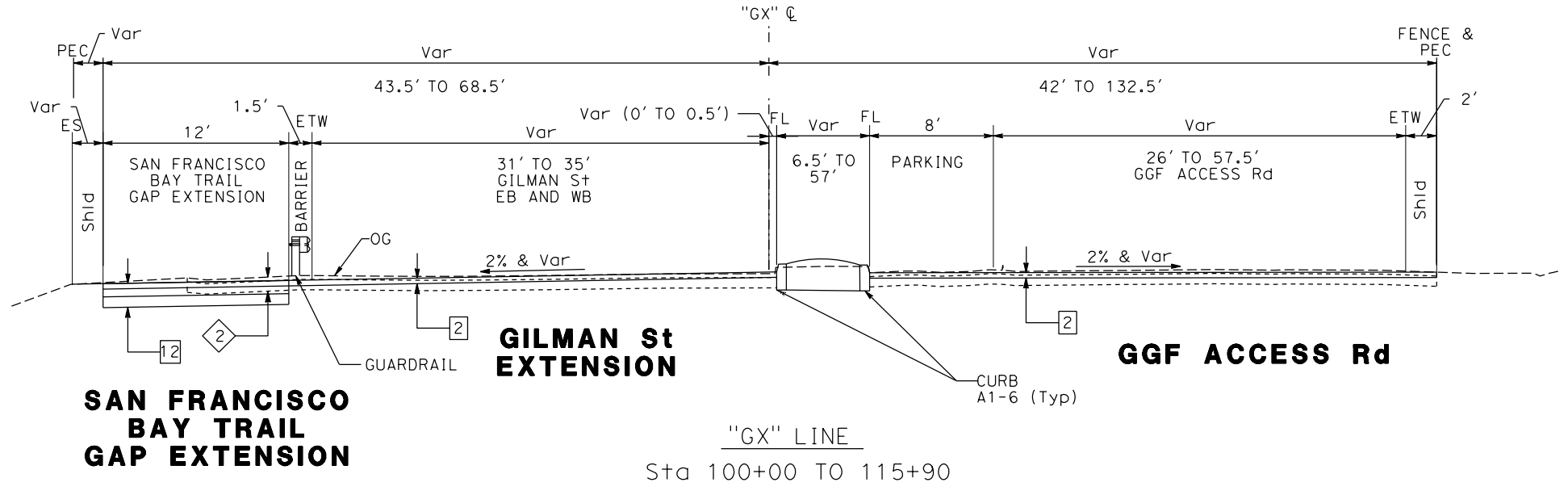
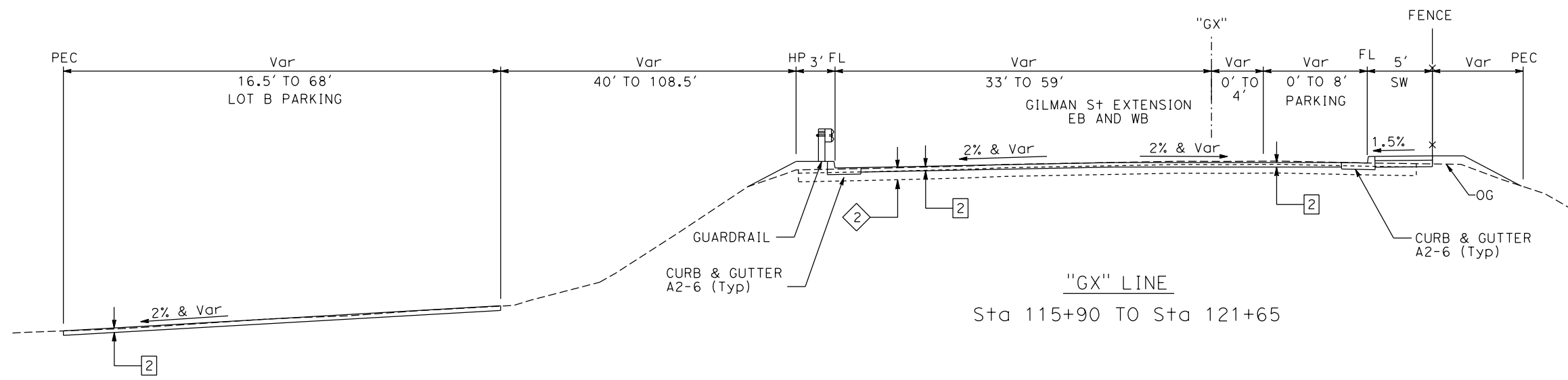
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Et-**Caltrans**

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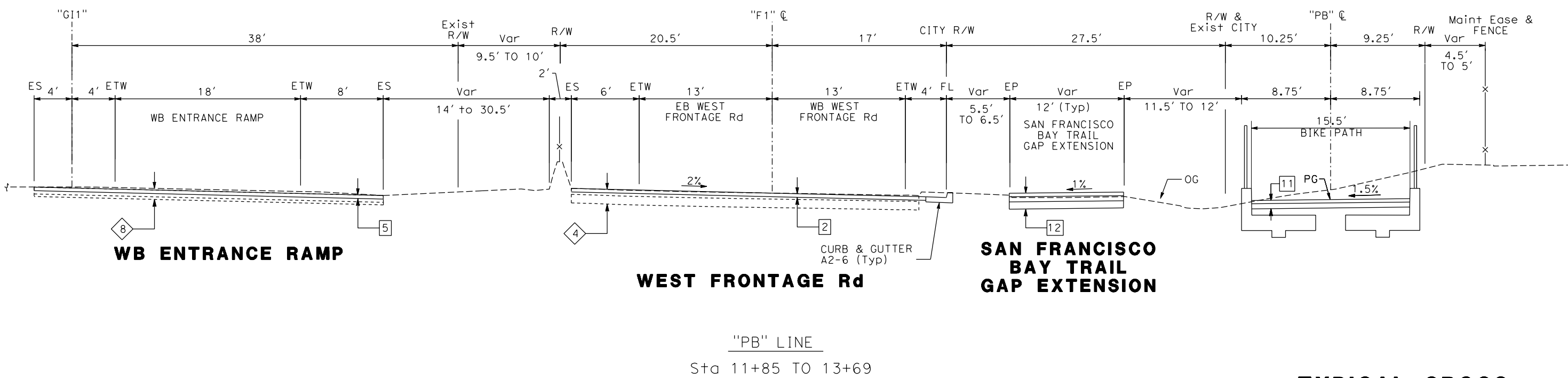
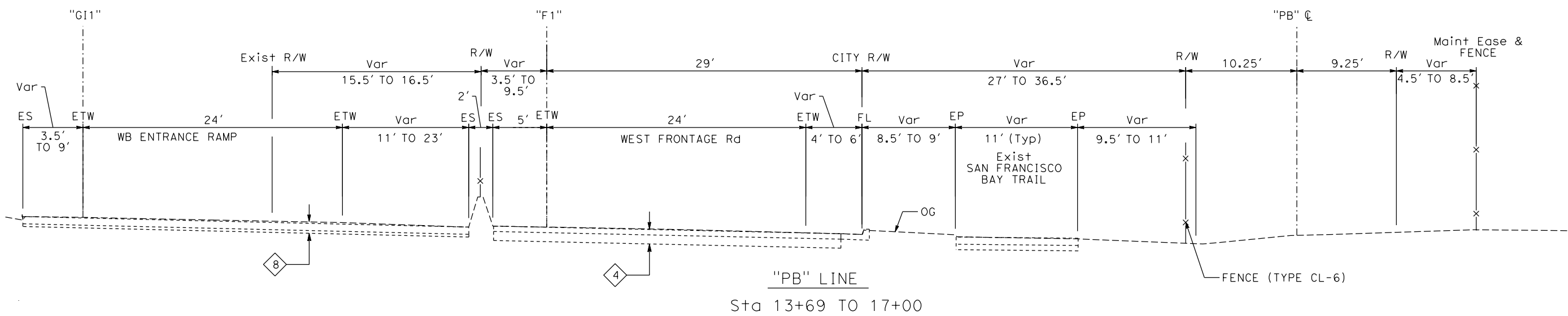
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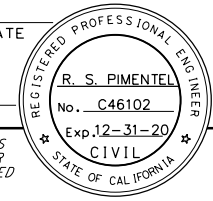


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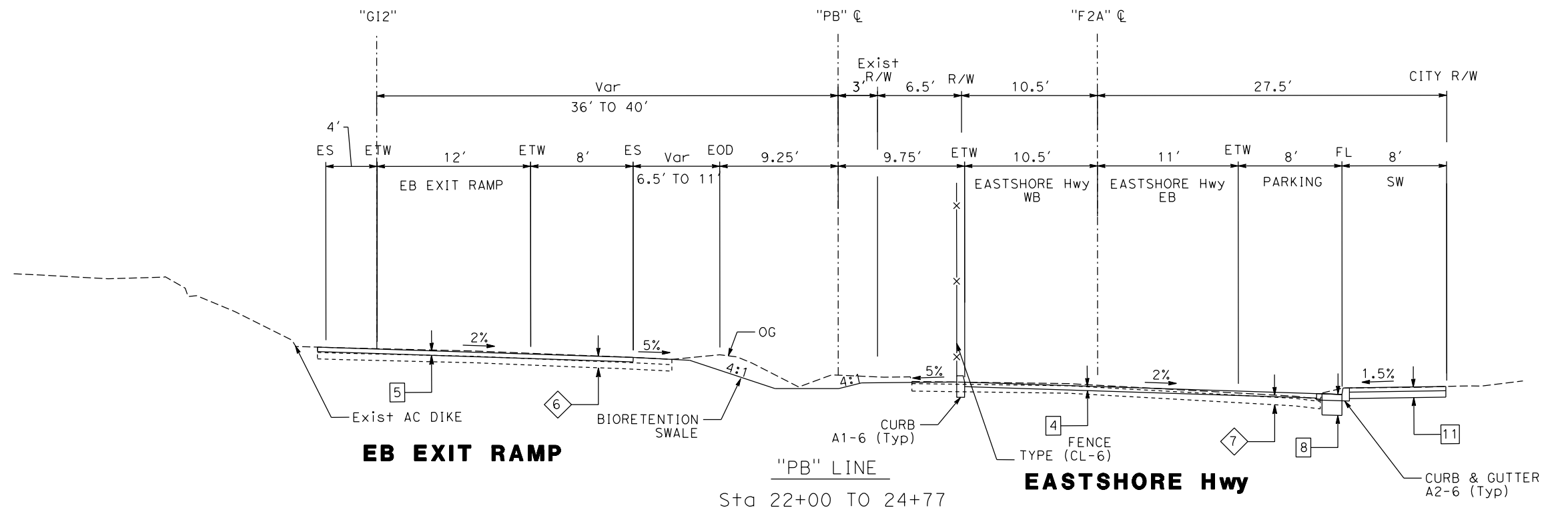
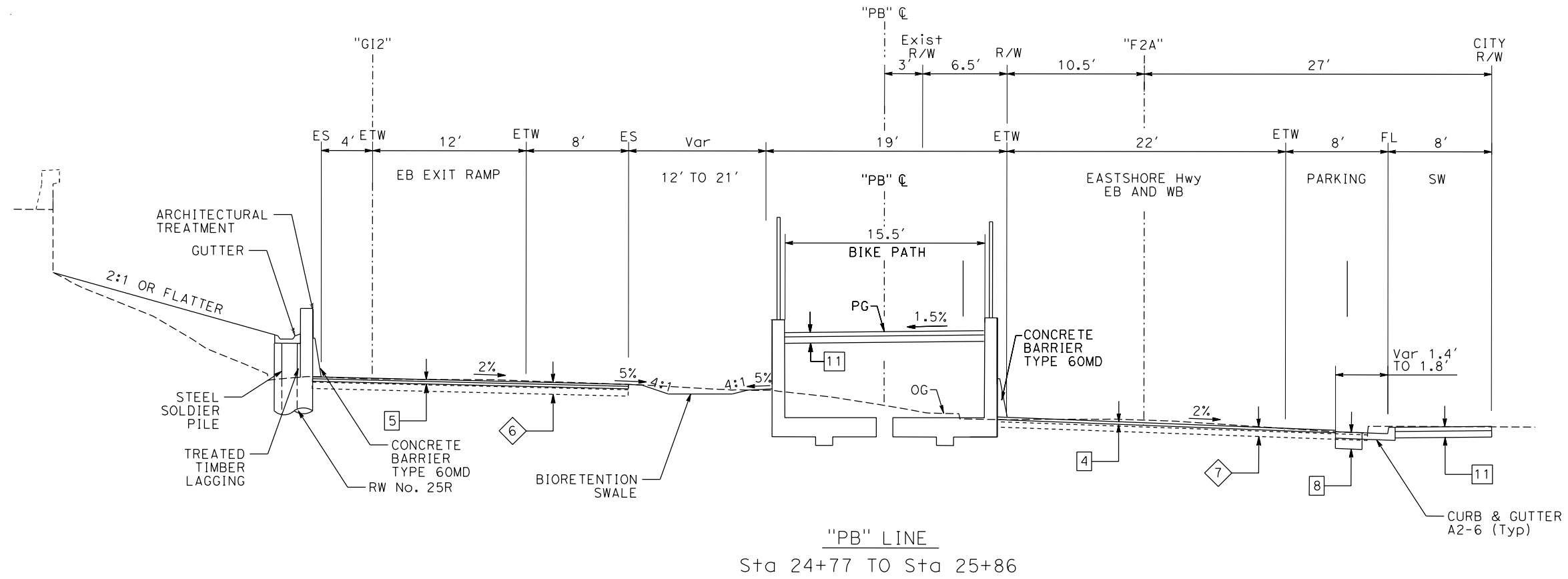


PARSONS
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ALAMEDA CTC
 1111 BROADWAY #800
 OAKLAND, CA 94607

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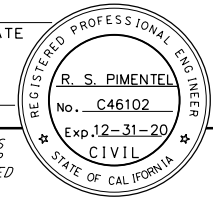
STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
 Ettrans®
 CONSULTANT FUNCTIONAL SUPERVISOR RODNEY PIMENTEL
 CALCULATED/DESIGNED BY CHECKED BY
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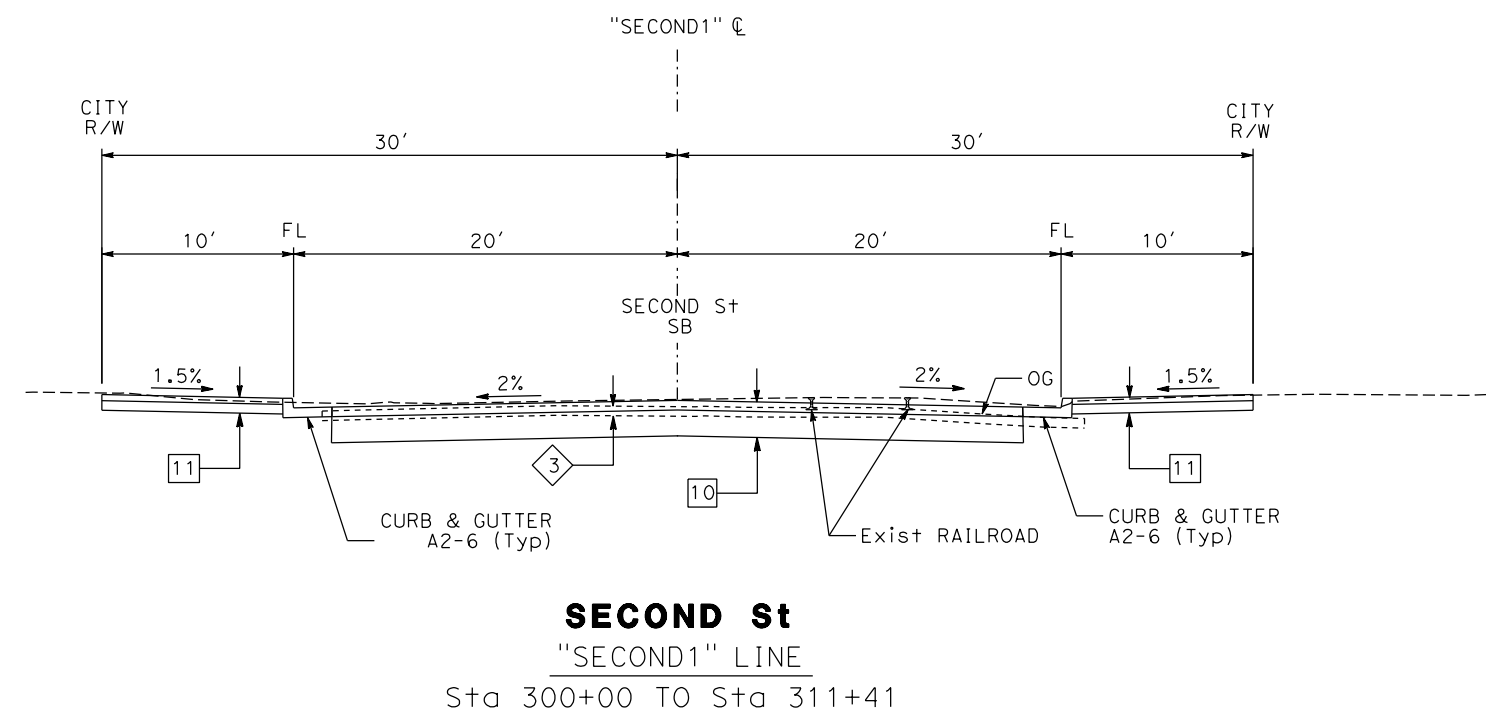
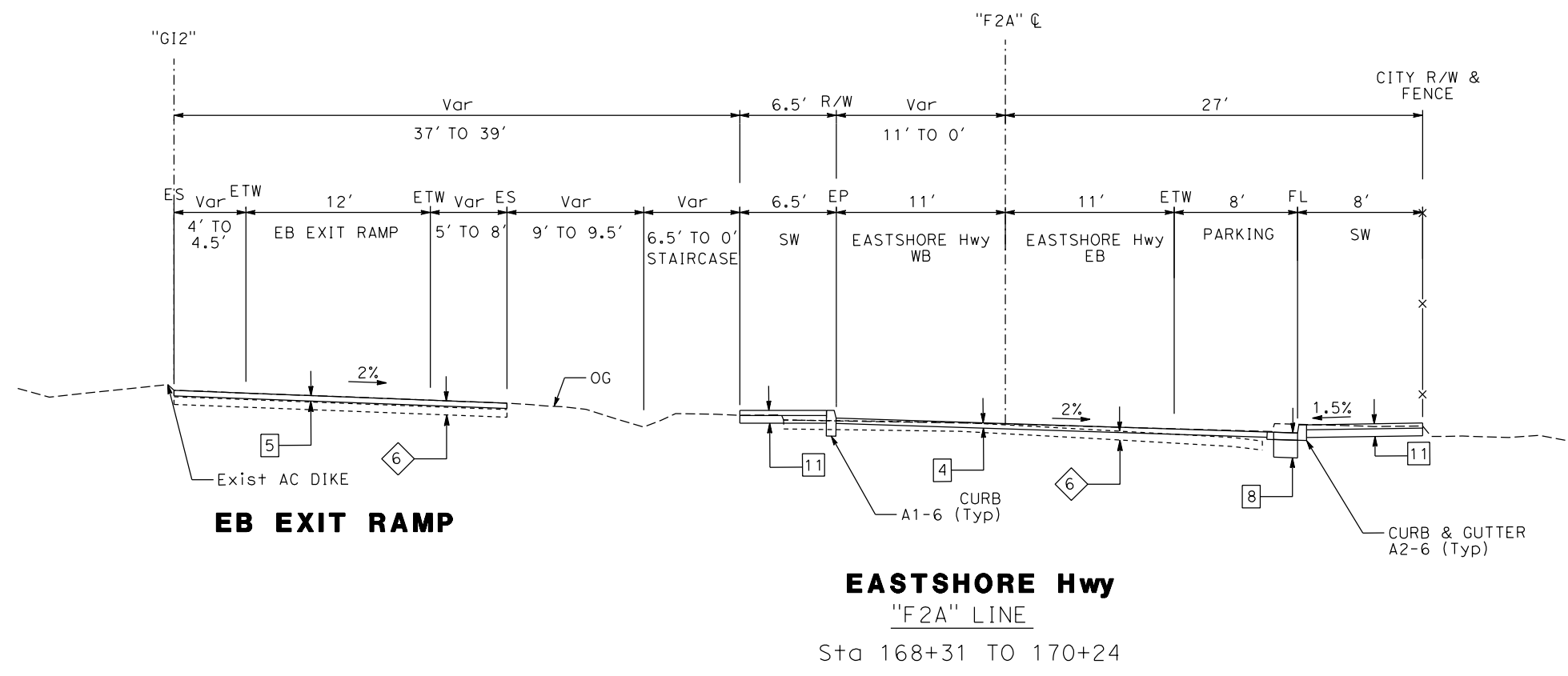


TYPICAL CROSS SECTIONS
 NO SCALE

X-6

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	Ala	80	6.3/7.0	7	--


REGISTERED CIVIL ENGINEER	DATE
	
PLANS APPROVAL DATE	
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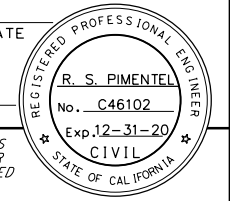
TYPICAL CROSS SECTIONS
NO SCALE

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION	CONSULTANT FUNCTIONAL SUPERVISOR	REVISOR	DATE
	RODNEY PIMENTEL		
CALCULATED/DESIGNED BY	CHECKED BY	REVISOR	DATE

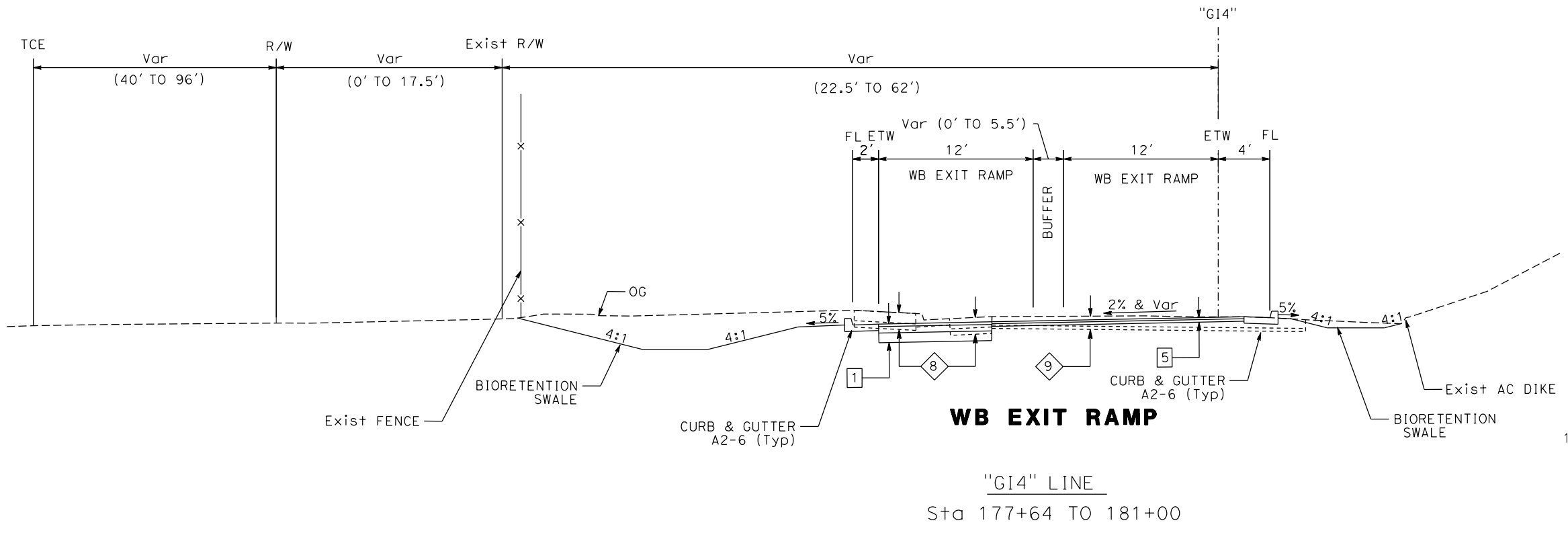
STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans
 CONSULTANT FUNCTIONAL SUPERVISOR: RODNEY PIMENTEL
 REVISIONS: REVISED BY, DATE REVISED, CALCULATED/DESIGNED BY, CHECKED BY

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	Ala	80	6.3/7.0	7	--

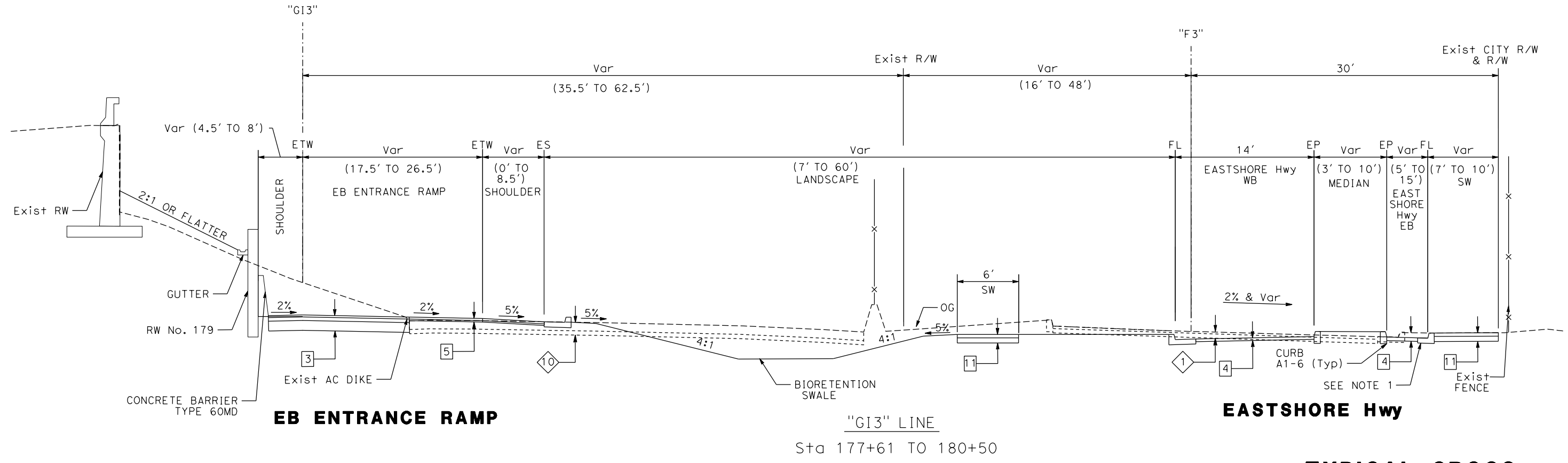
REGISTERED CIVIL ENGINEER DATE _____
 PLANS APPROVAL DATE _____
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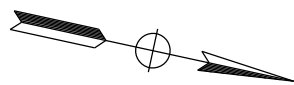
NOTES:
 1. REFER TO THE CITY OF BERKELEY STANDARD PLANS FOR CURB AND 1' GUTTER



TYPICAL CROSS SECTIONS
 NO SCALE

CURVE DATA

No. (X)	R	Δ	T	L
1	2000.00'	4°16'00"	74.50'	148.93'
2	65.00'	98°50'11"	75.89'	112.13'
3	65.00'	79°46'57"	54.33'	90.51'
4	2250.00'	5°42'25"	112.15'	224.11'
5	5200.00'	2°38'08"	113.94'	227.85'
6	2100.00'	4°52'33"	89.41'	178.71'



Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	Ala	80	6.3/7.0	8	--

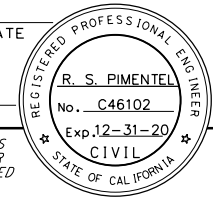
REGISTERED CIVIL ENGINEER DATE _____

PLANS APPROVAL DATE _____

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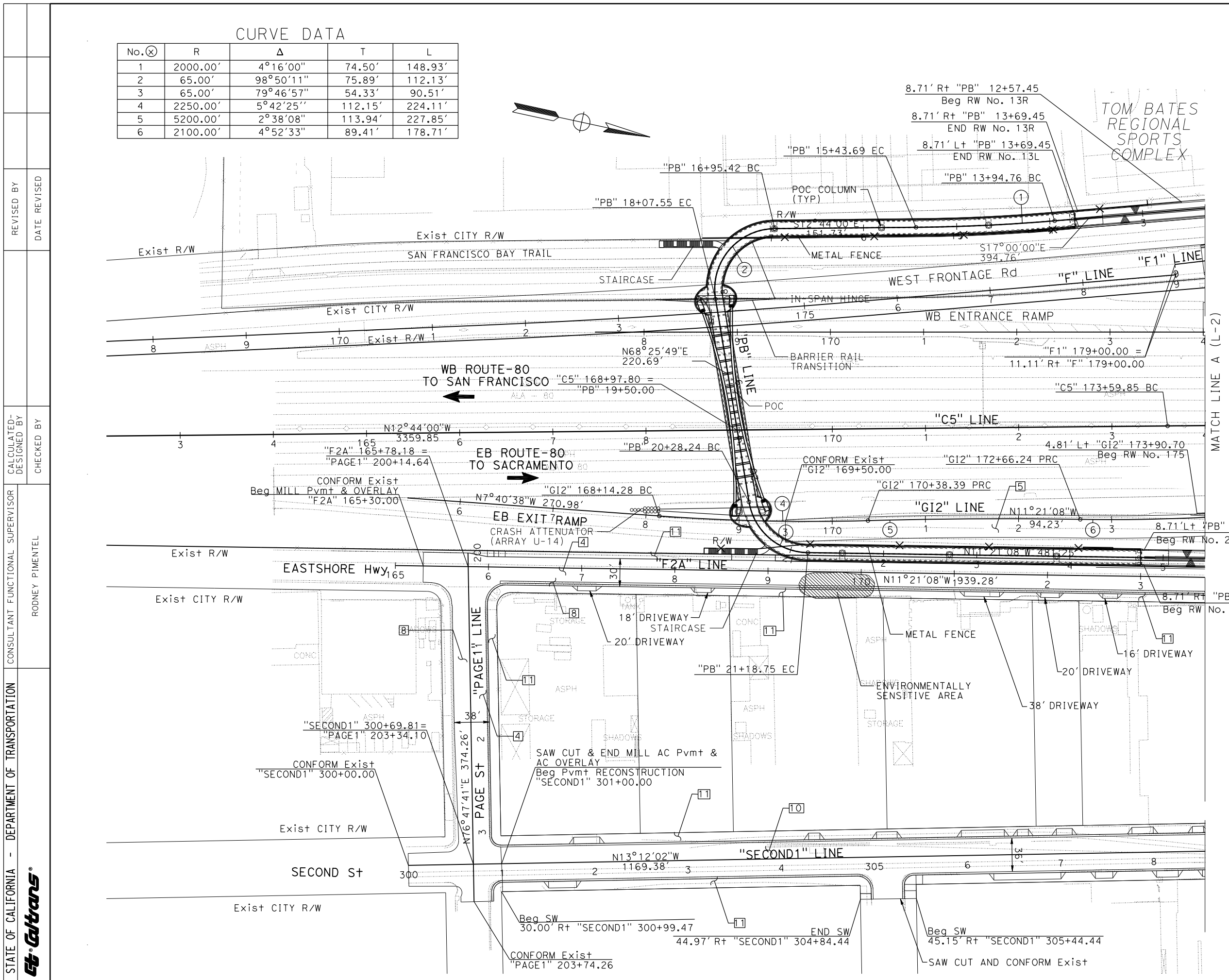
NOTE:
FOR ACCURATE RIGHT OF WAY DATA, CONTACT RIGHT OF WAY ENGINEERING AT THE DISTRICT OFFICE.

ABBREVIATIONS:
UPRR UNION PACIFIC RAILROAD
GGF GOLDEN GATE FIELDS
ASPH ASPHALT

LEGEND:
—X— FENCE
—○— ALIGNMENT DIMENSION POINT

LAYOUT
SCALE: 1" = 50'

L-1



REVISOR: _____ DATE: _____

CALCULATED/DESIGNED BY: _____ CHECKED BY: _____

CONSULTANT FUNCTIONAL SUPERVISOR: RODNEY PIMENTEL

DEPARTMENT OF TRANSPORTATION

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

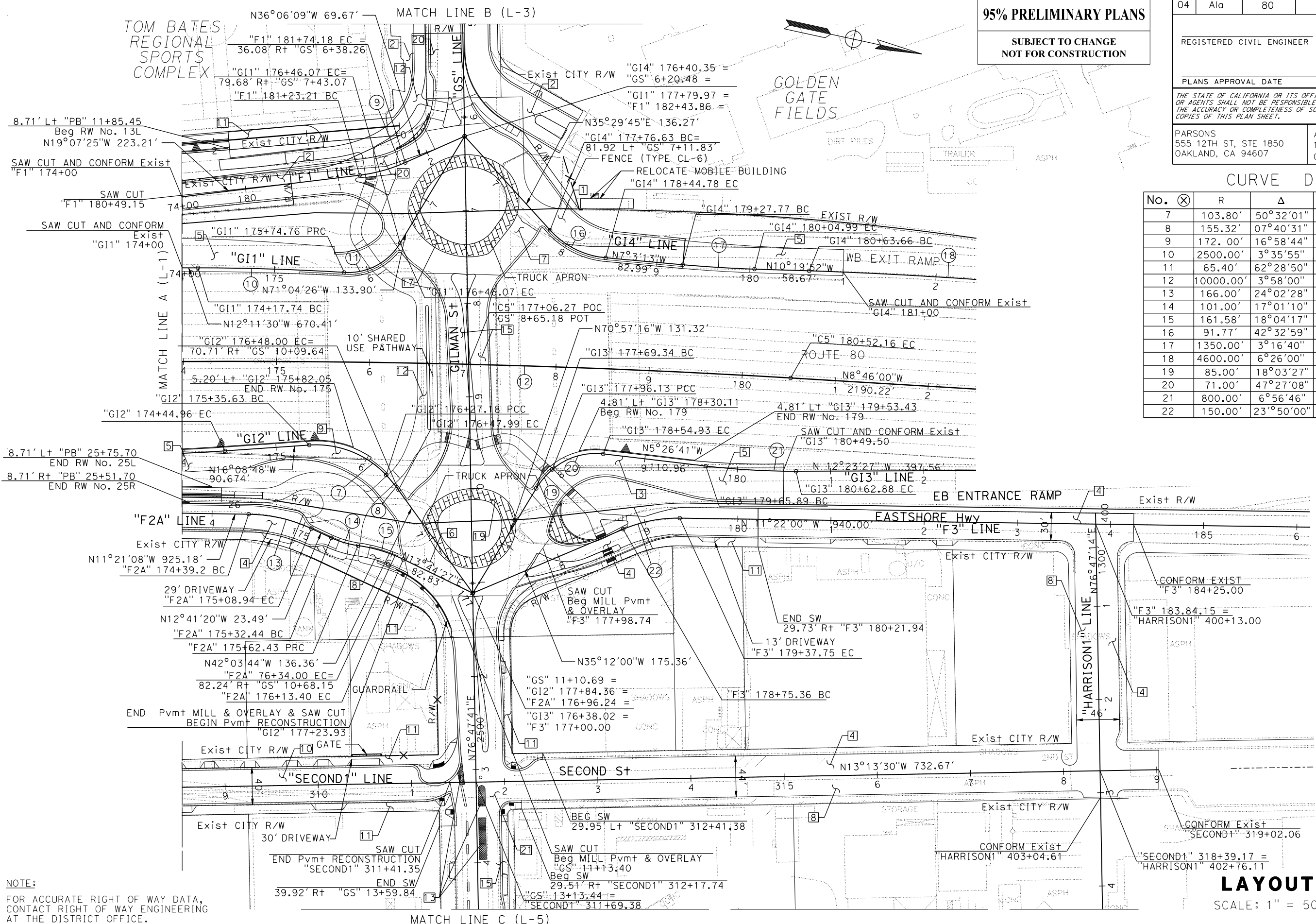
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 CALCULATED/DESIGNED BY
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 CHECKED BY

DATE REVISED



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Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	Ala	80	6.3/7.0		--

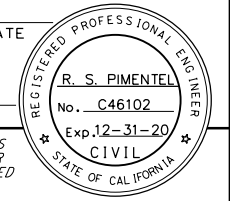
REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

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ALAMEDA CTC
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 OAKLAND, CA 94607



CURVE DATA

No. (X)	R	Δ	T	L
7	103.80'	50°32'01"	48.99'	91.55'
8	155.32'	07°40'31"	10.42'	20.80'
9	172.00'	16°58'44"	25.67'	50.97'
10	2500.00'	3°35'55"	78.53'	157.02'
11	65.40'	62°28'50"	39.67'	71.32'
12	10000.00'	3°58'00"	346.30'	692.31'
13	166.00'	24°02'28"	35.34'	62.94'
14	101.00'	17°01'10"	15.11'	29.89'
15	161.58'	18°04'17"	25.69'	50.96'
16	91.77'	42°32'59"	35.73'	68.15'
17	1350.00'	3°16'40"	38.62'	77.23'
18	4600.00'	6°26'00"	258.53'	516.51'
19	85.00'	18°03'27"	13.51'	26.79'
20	71.00'	47°27'08"	31.21'	58.80'
21	800.00'	6°56'46"	48.56'	96.99'
22	150.00'	23°50'00"	31.65'	62.69'

NOTE:
 FOR ACCURATE RIGHT OF WAY DATA,
 CONTACT RIGHT OF WAY ENGINEERING
 AT THE DISTRICT OFFICE.

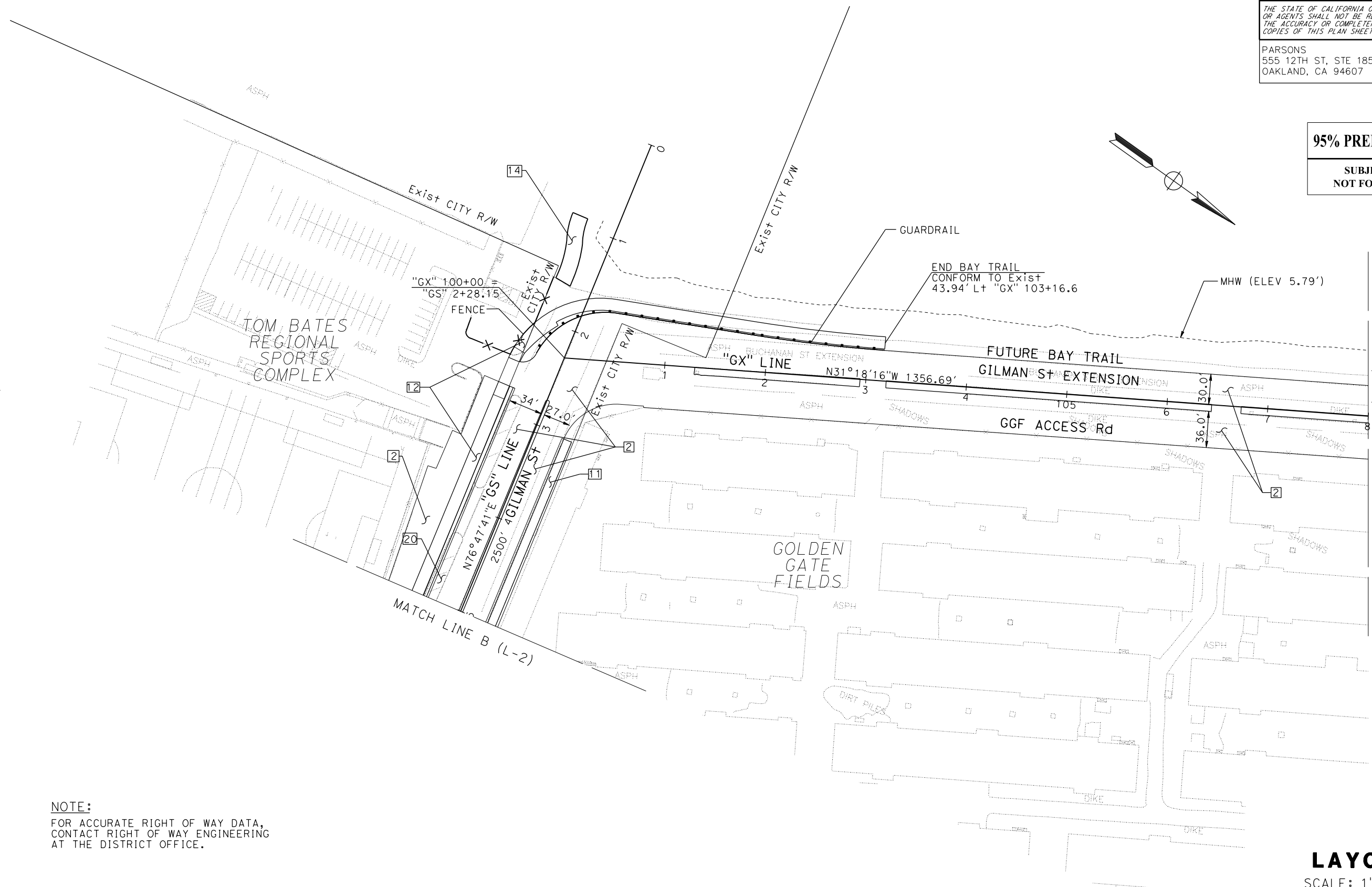
LAYOUT
 SCALE: 1" = 50'

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION	CONSULTANT FUNCTIONAL SUPERVISOR	REVISOR	DATE
	RODNEY PIMENTEL	MS	3-6-2018
	CHECKED BY	REVISOR	DATE

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	Ala	80	6.3/7.0	10	--
REGISTERED CIVIL ENGINEER DATE					
PLANS APPROVAL DATE					
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NOTE:
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CONTACT RIGHT OF WAY ENGINEERING
AT THE DISTRICT OFFICE.

LAYOUT
SCALE: 1" = 50'

L-3

LAST REVISION | DATE PLOTTED => 13-JUN-2019
00-00-00 | TIME PLOTTED => 10:18

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans
 CONSULTANT FUNCTIONAL SUPERVISOR: RODNEY PIMENTEL
 CALCULATED/DESIGNED BY: []
 CHECKED BY: []
 REVISOR: MS
 DATE: 3-6-2018

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	Ala	80	6.3/7.0	11	--

CURVE DATA

No.⊗	R	Δ	T	L
23	600.00'	22°14'44"	117.96'	232.96'
24	270.00'	17°11'29"	40.81'	81.01'
25	322.00'	30°56'53"	89.14'	173.93'

NOTE:
 FOR ACCURATE RIGHT OF WAY DATA,
 CONTACT RIGHT OF WAY ENGINEERING
 AT THE DISTRICT OFFICE.

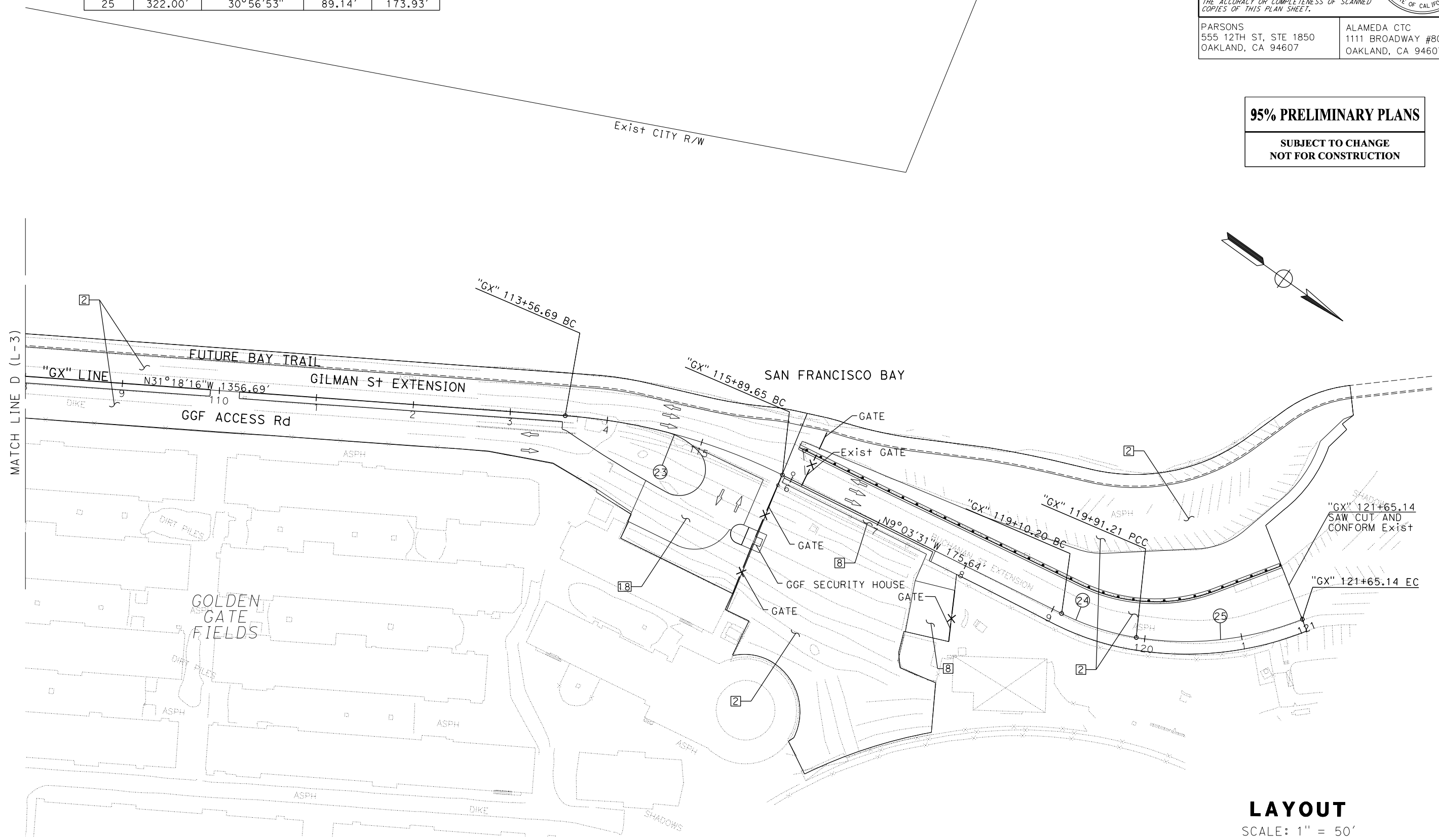
REGISTERED CIVIL ENGINEER DATE _____
 R. S. PIMENTEL
 No. C46102
 Exp. 12-31-20
 CIVIL
 STATE OF CALIFORNIA

PLANS APPROVAL DATE _____

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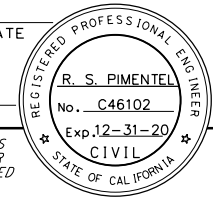
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LAYOUT
 SCALE: 1" = 50'

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	Ala	80	6.3/7.0	12	--

REGISTERED CIVIL ENGINEER DATE _____
 PLANS APPROVAL DATE _____
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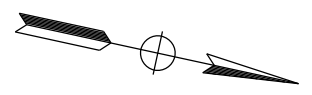


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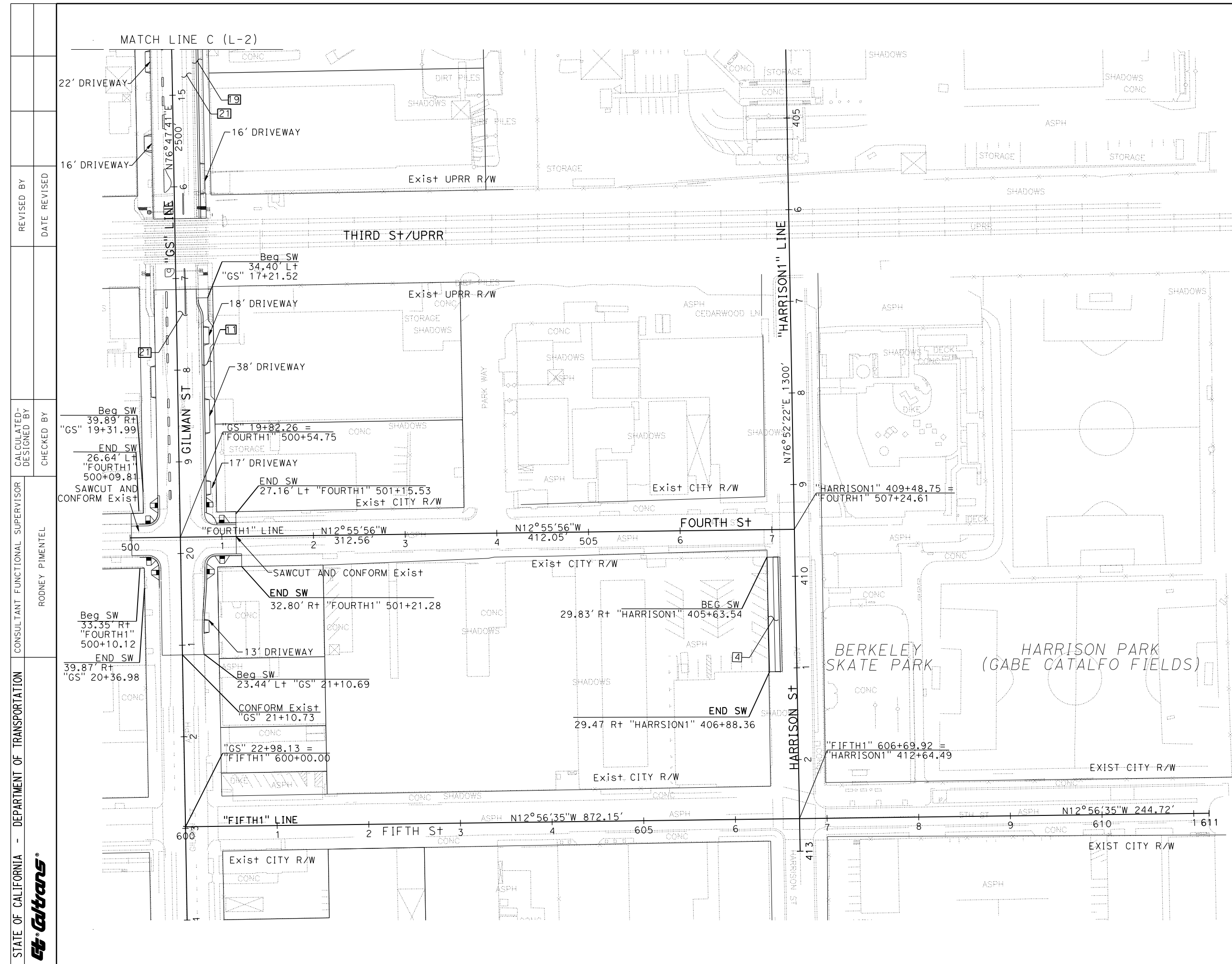
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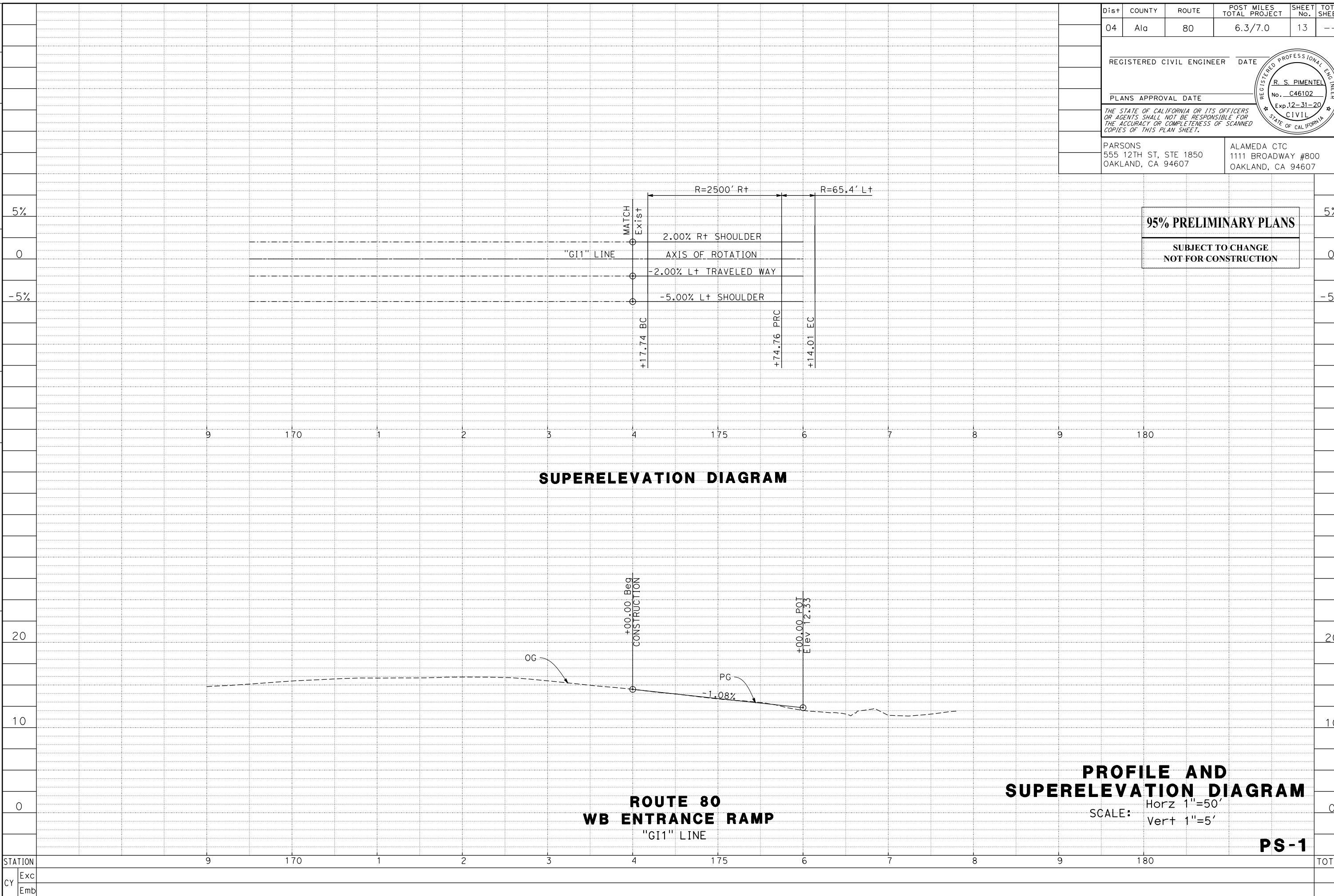
NOTE:
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 CONTACT RIGHT OF WAY ENGINEERING
 AT THE DISTRICT OFFICE.



LAYOUT
 SCALE: 1" = 50'

L-5

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Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	Ala	80	6.3/7.0	13	--
REGISTERED CIVIL ENGINEER DATE					
PLANS APPROVAL DATE					
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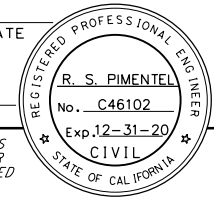
95% PRELIMINARY PLANS

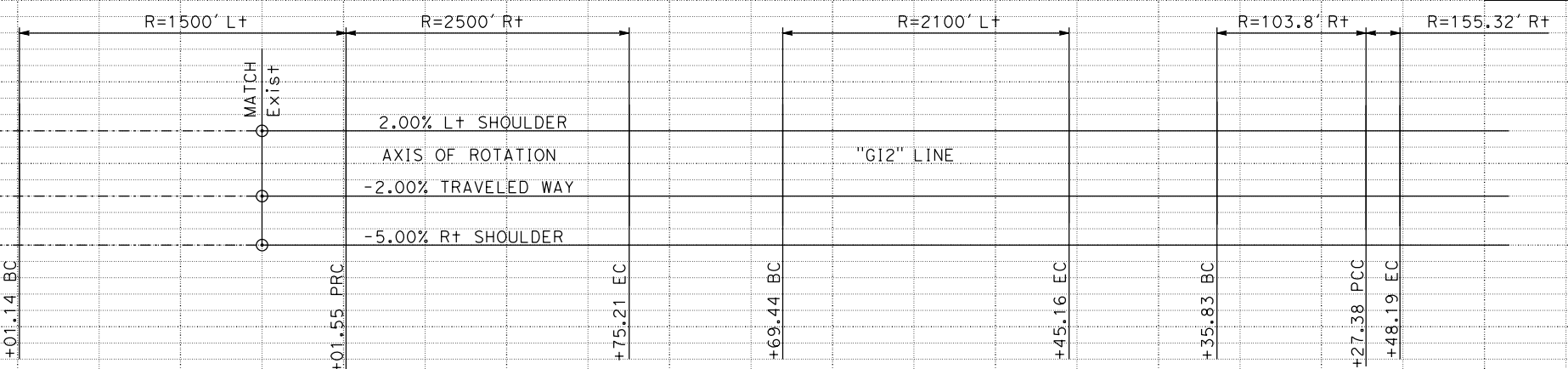
SUBJECT TO CHANGE
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LAST REVISION DATE PLOTTED => 10-JUN-2019
 00-00-00 TIME PLOTTED => 13:18

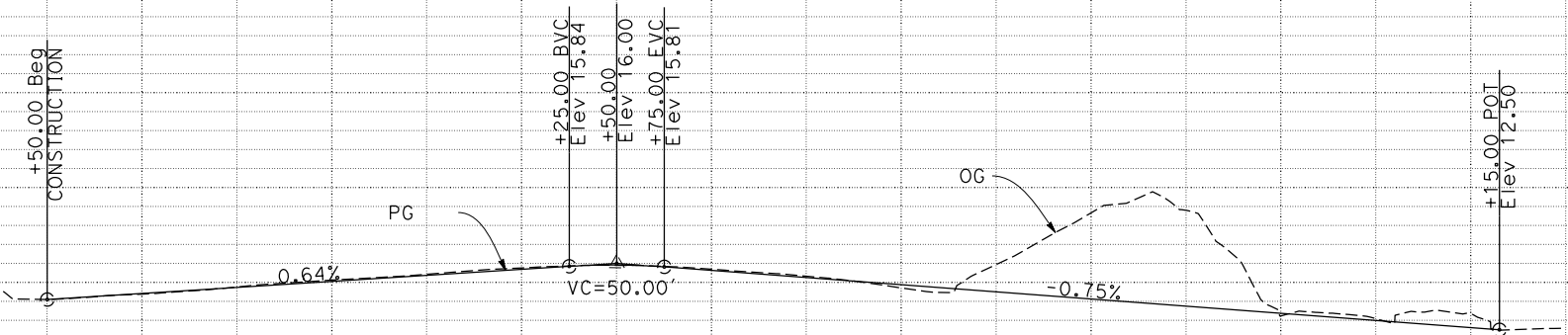
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Caltrans
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Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	Ala	80	6.3/7.0	13	--
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SUPERELEVATION DIAGRAM

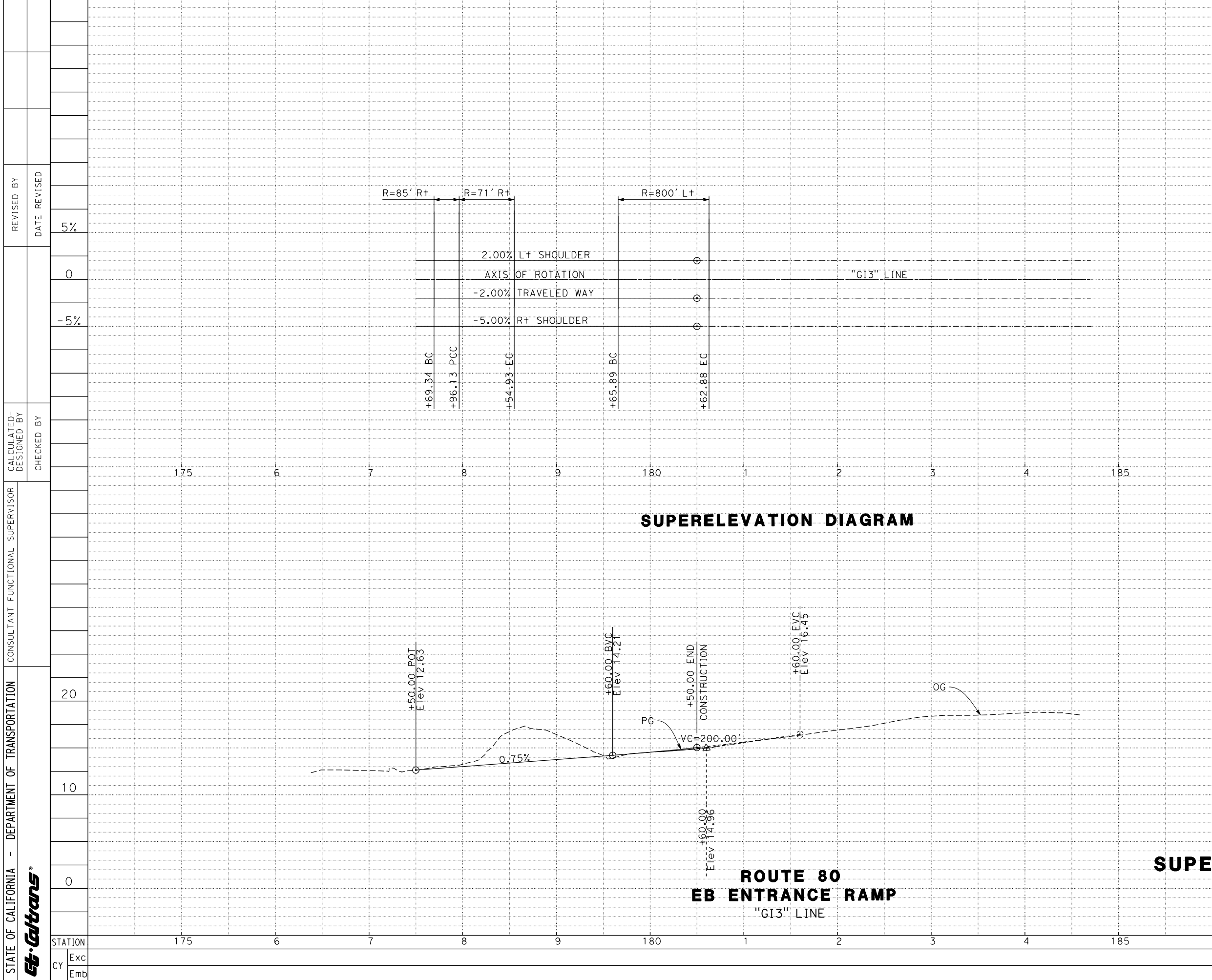


**ROUTE 80
 EB EXIT RAMP
 "G12" LINE**

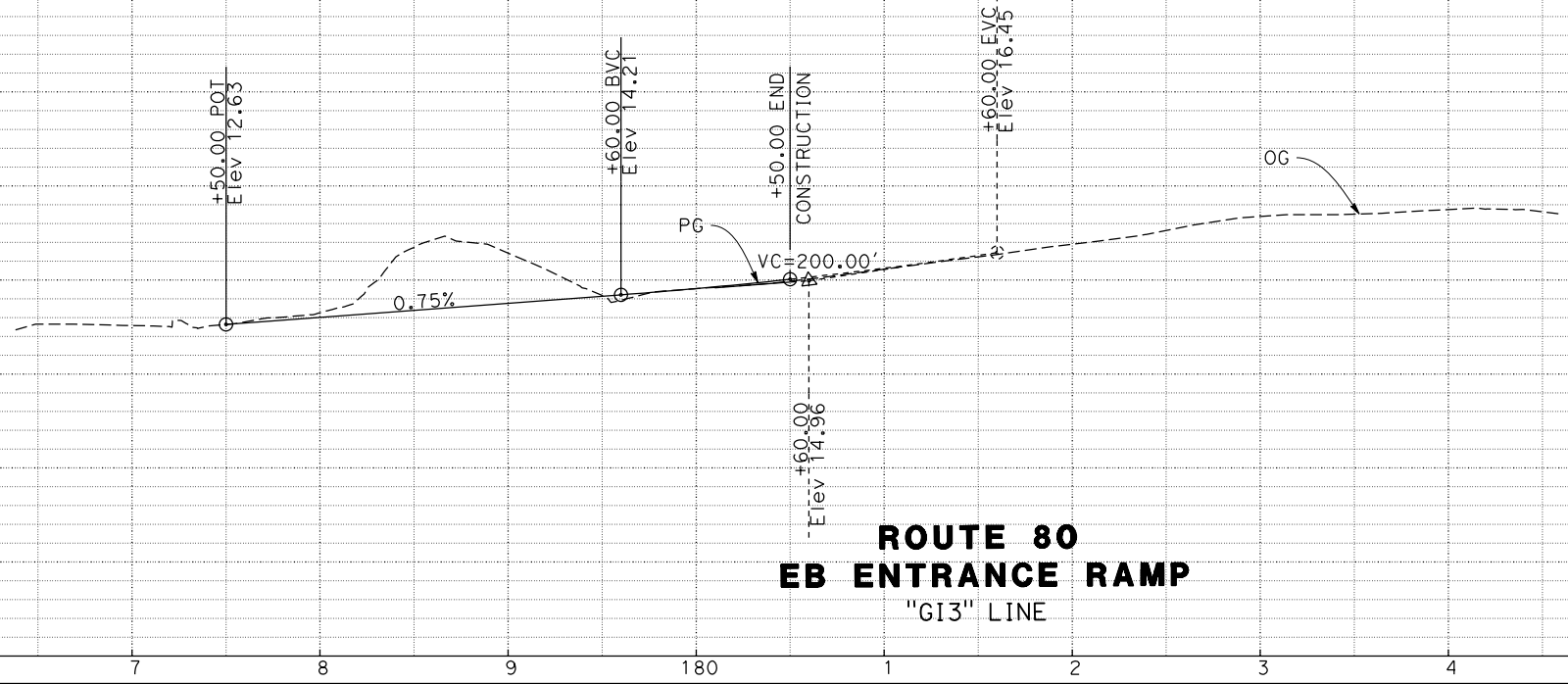
**PROFILE AND
 SUPERELEVATION DIAGRAM**
 SCALE: Horz 1"=50'
 Vert 1"=5'

PS-2

LAST REVISION DATE PLOTTED => 10-JUN-2019
 00-00-00 TIME PLOTTED => 13:18



SUPERELEVATION DIAGRAM



**ROUTE 80
EB ENTRANCE RAMP
"GI3" LINE**

**PROFILE AND
SUPERELEVATION DIAGRAM**

SCALE: Horz 1"=50'
Vert 1"=5'

PS-3

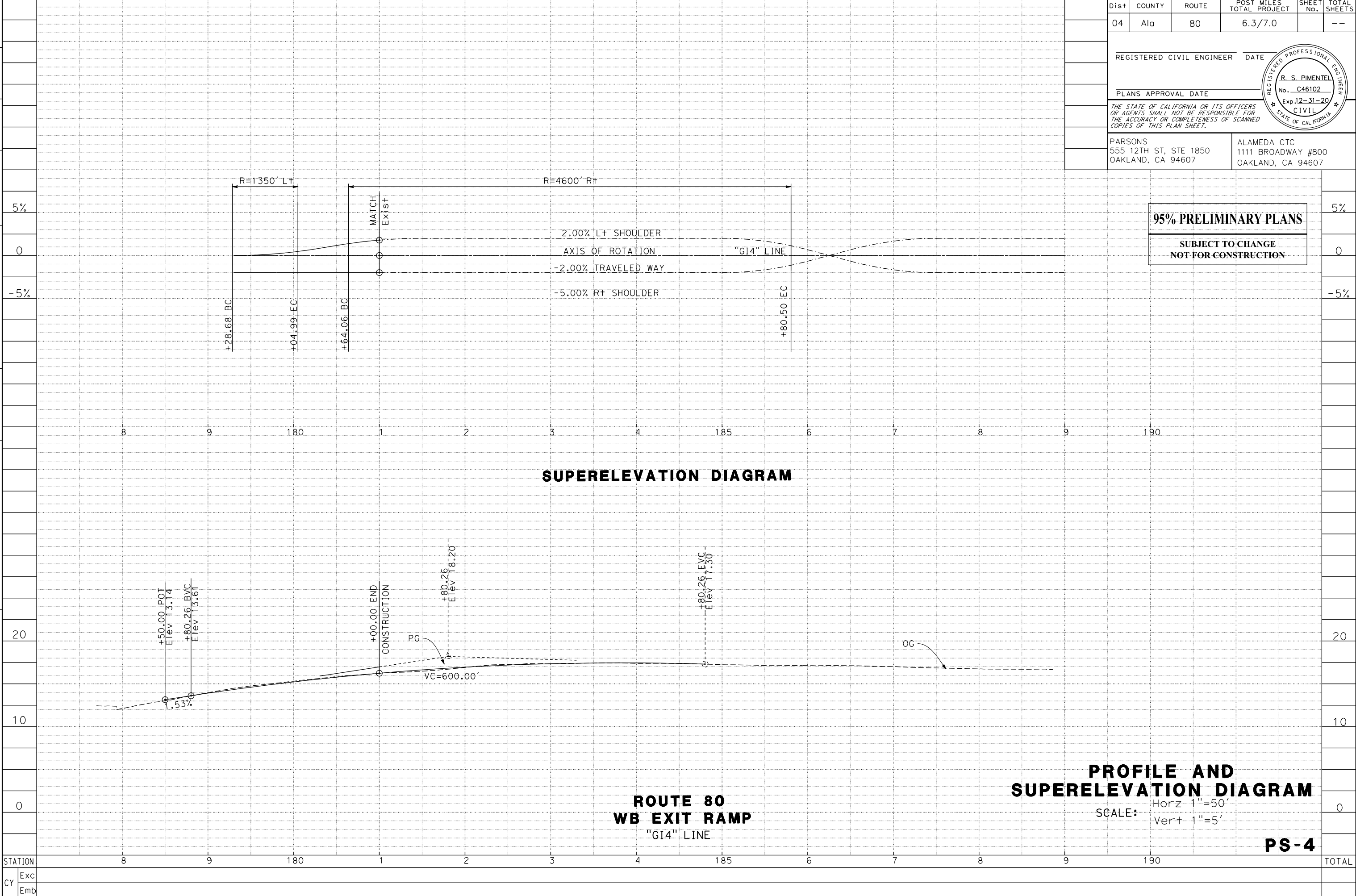
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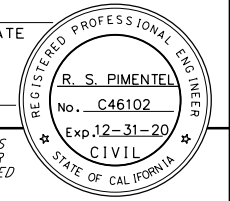
Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	Ala	80	6.3/7.0		--
REGISTERED CIVIL ENGINEER					DATE
PLANS APPROVAL DATE					
PARSONS 555 12TH ST, STE 1850 OAKLAND, CA 94607			ALAMEDA CTC 1111 BROADWAY #800 OAKLAND, CA 94607		

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STATION	175	6	7	8	9	180	1	2	3	4	185	TOTAL
	Exc											
CY	Emb											

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans
 CONSULTANT FUNCTIONAL SUPERVISOR
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 DATE REVISED



Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	Ala	80	6.3/7.0		--
REGISTERED CIVIL ENGINEER					DATE
PLANS APPROVAL DATE					
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Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	Ala	80	6.3/7.0		--

LICENSED LANDSCAPE ARCHITECT

PLANS APPROVAL DATE

LEAH HAYGOOD
signature
8-31-19
Renewal Date
Date

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HAYGOOD & ASSOCIATES
1496-B SOLANO AVENUE
ALBANY, CA94706

ALAMEDA CTC
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OAKLAND, CA 94607

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NOTE:
UNDERLINED PORTIONS OF BOTANICAL NAME INDICATE ABBREVIATION USED ON PLANTING PLAN.

PLANT LEGEND

PLANT GROUP (SIZE)	PLANT No.	SYMBOL	BOTANICAL NAME	COMMON NAME	HOLE SIZE		BASIN TYPE	WOOD MULCH ②	APPLICATION RATES ①			MINIMUM PLANTING DISTANCE FROM:						REMARKS		
					DIAMETER	DEPTH			BASIN	SOIL AMENDMENT	ORGANIC FERTILIZER		ON CENTER SPACING	ETW	EP	FENCE	WALL		PAVED DITCH	EARTH DITCH
											INCH	INCH								
A (No. 1)	1		CHONDROPETALUM TECTORUM	SMALL CAPE RUSH	18"	18"	II	⑥	6 CY/ 1000 SqFt	6 LB/ 1000 SqFt		4						SHRUB		
	2		DIETES <u>ORANGE DROP</u>	ORANGE DROP FORNIGHT LILY	18"	18"	II	⑥	6 CY/ 1000 SqFt	6 LB/ 1000 SqFt		2						SHRUB ③		
	3		ARBUTUS UNEDO ' <u>COMPACTA</u> '	COMPACT STRAWBERRY TREE	18"	18"	II	1	2	1	1	6		8	8	8	8	10	SHRUB	
	4		BACCHARIS PILULARIS ' <u>TWIN PEAKS</u> '	TWIN PEAKS COYOTE BUSH	18"	18"	II	1	2	1	1	8	10						SHRUB	
	5		CEANOTHUS MARITIMUS ' <u>POINT SIERRA</u> '	POINT SIERRA CEANOTHUS	18"	18"	II	1	2	1	1	4							SHRUB	
	6		RHAMNUS CALIFORNICA ' <u>MOUND SAN BRUNO</u> '	MOUND SAN BRUNO COFFEEBERRY	18"	18"	II	1	2	1	1	6		8	8	8	6	10	SHRUB	
⑤ I (POT)	7		AEONIUM <u>ARBOREUM</u>	TREE AEONIUM	6"	6"	II	⑥	6 CY/ 1000 SqFt	6 LB/ 1000 SqFt		1						GROUND COVER ③		
	8		ERIGERON FOLIOSUS VAR. <u>FRA NCISCENSIS</u>	SAN FRANCISCO LEAFY FLEABANE	6"	6"	II	⑥	6 CY/ 1000 SqFt	6 LB/ 1000 SqFt		1						GROUND COVER ③		
	9		SEDUM SPURIUM <u>JOHN CREECH</u>	JOHN CREECH STONECROP	6"	6"	II	⑥	6 CY/ 1000 SqFt	6 LB/ 1000 SqFt		1						GROUND COVER ③		

- NOTES: APPLICABLE WHERE CIRCLED**
- ① QUANTITIES SHOWN ARE "PER PLANT" UNLESS SHOWN AS SQFT OR SOYD APPLICATION RATES
 - ② BASIN MULCH IN MULCH AREAS IS INCLUDED WITH MULCH QUANTITIES SHOWN ON PLANTING QUANTITIES SHEET
 - ③ CULTIVATE THROUGHOUT, EXCEPT WITHIN BIORETENTION AREAS, PRIOR TO PLANTING. DO NOT CULTIVATE WITHIN BIORETENTION AREAS.
 - 4 STAKE TREE
 - ⑤ USE 4" POT. SEE SPECIAL PROVISIONS
 - ⑥ APPLY WOOD MULCH THROUGHOUT, EXCEPT WITHIN BIORETENTION AREAS. DO NOT APPLY WOOD MULCH WITHIN BIORETENTION AREAS.

LEGEND:

- ROCK BLANKET. SEE ROCK BLANKET DETAIL ON 'LANDSCAPE DETAILS LD-1' OR 'LD-2' SHEET
- BROOM FINISH CONCRETE
- PLANT ESTABLISHMENT WORK LIMITS
- ROADSIDE CLEARING WORK LIMITS

PLANT LEGEND
WITHIN STATE RIGHT OF WAY

PL-1

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	Ala	80	6.3/7.0		--

LICENSED LANDSCAPE ARCHITECT

PLANS APPROVAL DATE

LEAH HAYGOOD
signature
8-31-19
Renewal Date
Date

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HAYGOOD & ASSOCIATES
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ALAMEDA CTC
1111 BROADWAY #800
OAKLAND, CA 94607

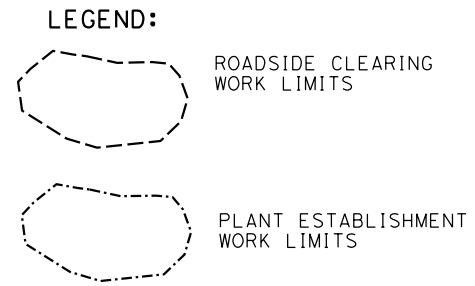
NOTE:
UNDERLINED PORTIONS OF BOTANICAL NAME INDICATE ABBREVIATION USED ON PLANTING PLAN.

95% PRELIMINARY PLANS
SUBJECT TO CHANGE
NOT FOR CONSTRUCTION

PLANT LEGEND

PLANT GROUP (SIZE)	PLANT No.	SYMBOL	BOTANICAL NAME	COMMON NAME	HOLE SIZE		BASIN TYPE	WOOD MULCH ②	APPLICATION RATES ①				MINIMUM PLANTING DISTANCE FROM:						REMARKS
					DIAMETER	DEPTH			SOIL AMENDMENT	ORGANIC FERTILIZER	PACKET FERTILIZER	ON CENTER SPACING	ETW	EP	FENCE	WALL	PAVED DITCH	EARTH DITCH	
A (No. 1)	1	⊖	BACCHARIS PILULARIS <u>'TWIN PEAKS'</u>	TWIN PEAKS COYOTE BUSH	18	18	11	1	2	1	1	8	10						SHRUB
	2	⊖	CEANOTHUS MARITIMUS <u>'POINT SIERRA'</u>	POINT SIERRA CEANOTHUS	18	18	11	1	2	1	1	4							SHRUB
B (No. 5)	3	⊙	ACER <u>MACROPHYLLUM</u>	BIG LEAF MAPLE	24	24	11	2	3	2	2		30		20	20	20	22	TREE ⑥⑦
U (No. 15)	4	⊕	CUPRESSUS <u>MACROCARPA</u>	MONTEREY CYPRESS	36	36	11	2	3	2	2		30		20	20	20	22	TREE ⑥⑦
④ I (POT)	5	⊖	FESTUCA <u>RUBRA</u>	CALIFORNIA RED FESCUE. NO MOW	6	6	11	⑧	6 CY/1000 SqFt	6 LB/1000 SqFt		1							NO MOW GRASS ③
Z (30" BOX)	⑤ 6	★	TRACHYCARPUS <u>FORTUNEI</u>	WINDMILL PALM	48	36	11	3	3	2	2								PALM ⑥

- NOTES: APPLICABLE WHERE CIRCLED**
- ① QUANTITIES SHOWN ARE "PER PLANT" UNLESS SHOWN AS SOFT OR SOYD APPLICATION RATES
 - ② BASIN MULCH IN MULCH AREAS IS INCLUDED WITH MULCH QUANTITIES SHOWN ON PLANTING QUANTITIES SHEET
 - ③ CULTIVATE THROUGHOUT, EXCEPT WITHIN BIORETENTION AREAS, PRIOR TO PLANTING. DO NOT CULTIVATE WITHIN BIORETENTION AREAS.
 - ④ USE 4" POT. SEE SPECIAL PROVISIONS.
 - ⑤ TREE HEIGHT 10'
 - ⑥ STAKE TREE
 - ⑦ FOLIAGE PROTECTOR
 - ⑧ APPLY WOOD MULCH THROUGHOUT, EXCEPT WITHIN BIORETENTION AREAS. DO NOT APPLY WOOD MULCH WITHIN BIORETENTION AREAS.



PLANT LEGEND
WITHIN CITY RIGHT OF WAY

PL-2

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans

LAST REVISION DATE PLOTTED => 5/6/2019
00-00-00 TIME PLOTTED => 8:59:34 AM

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	Ala	80	6.3/7.0		--

LICENSED LANDSCAPE ARCHITECT

PLANS APPROVAL DATE

THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.

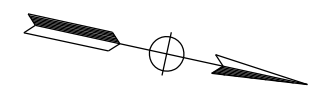


HAYGOOD & ASSOCIATES
1496-B SOLANO AVENUE
ALBANY, CA94706

ALAMEDA CTC
1111 BROADWAY #800
OAKLAND, CA 94607

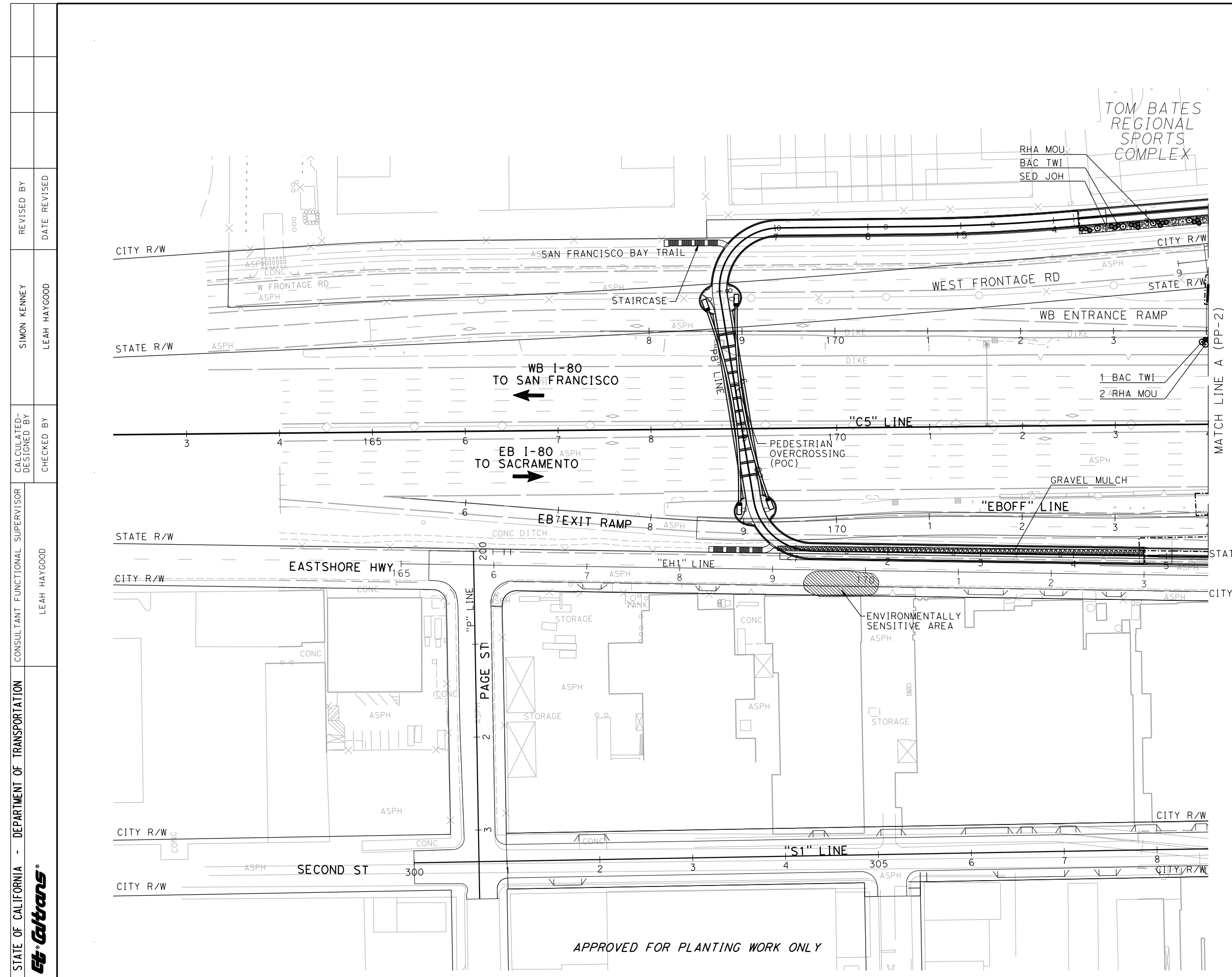
95% PRELIMINARY PLANS

**SUBJECT TO CHANGE
NOT FOR CONSTRUCTION**



- NOTES:
- FOR ACCURATE RIGHT OF WAY DATA, CONTACT RIGHT OF WAY ENGINEERING AT THE DISTRICT OFFICE.
 - DO NOT CULTIVATE BIOSWALE AREAS. SQFT AREA GIVEN FOR CULTIVATION IS FOR NON BIOSWALE AREAS ONLY.

PLANTING PLAN
SCALE: 1" = 50'
WITHIN STATE RIGHT OF WAY
PP-1



APPROVED FOR PLANTING WORK ONLY

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

Simon Kenney Leah Haygood

REVISOR DATE

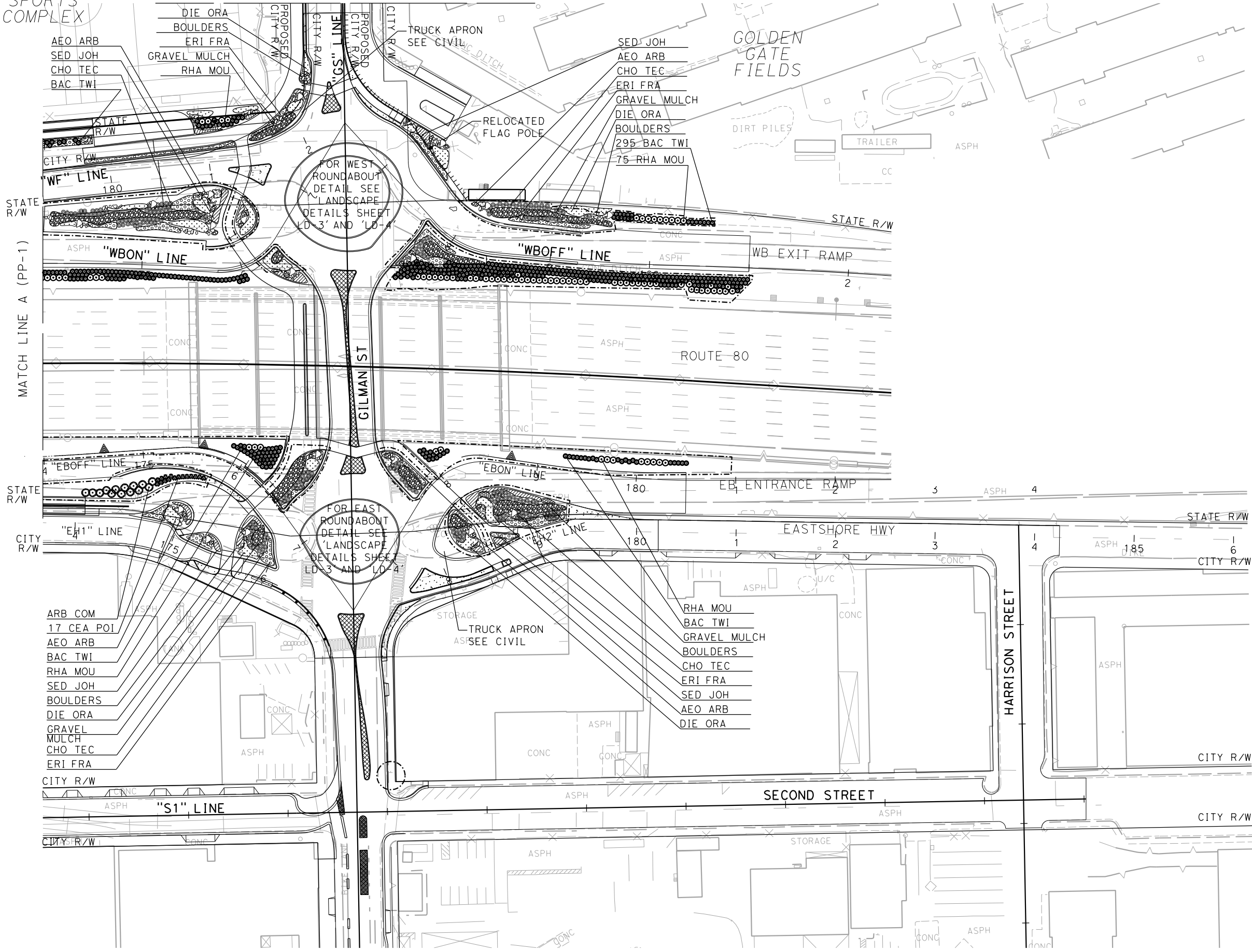
DESIGNER CHECKER

CONSULTANT SUPERVISOR

LAST REVISION DATE PLOTTED => 5/6/2019 8:59:36 AM

TOM BATES REGIONAL SPORTS COMPLEX

MATCH LINE B (PP-3)



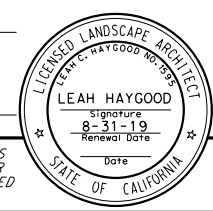
Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	Ala	80	6.3/7.0		--

LICENSED LANDSCAPE ARCHITECT

PLANS APPROVAL DATE

THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.

DATE

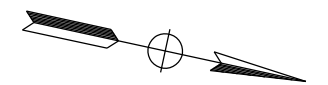


HAYGOOD & ASSOCIATES
1496-B SOLANO AVENUE
ALBANY, CA 94706

ALAMEDA CTC
1111 BROADWAY #800
OAKLAND, CA 94607

- NOTES:**
1. FOR ACCURATE RIGHT OF WAY DATA, CONTACT RIGHT OF WAY ENGINEERING AT THE DISTRICT OFFICE.
 2. DO NOT CULTIVATE BIOSWALE AREAS. SOFT AREA GIVEN FOR CULTIVATION IS FOR NON BIOSWALE AREAS ONLY.

95% PRELIMINARY PLANS
NOT FOR PUBLIC DISTRIBUTION
NOT FOR CONSTRUCTION



PLANTING PLAN
SCALE: 1" = 50'
WITHIN STATE RIGHT OF WAY
PP-2

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

Caltrans

REVISOR

SIMON KENNEY

LEAH HAYGOOD

DATE

REVISOR

DATE

CHECKED BY

LEAH HAYGOOD

DESIGNED BY

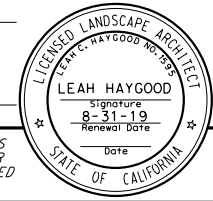
LEAH HAYGOOD

FUNCTIONAL SUPERVISOR

LEAH HAYGOOD

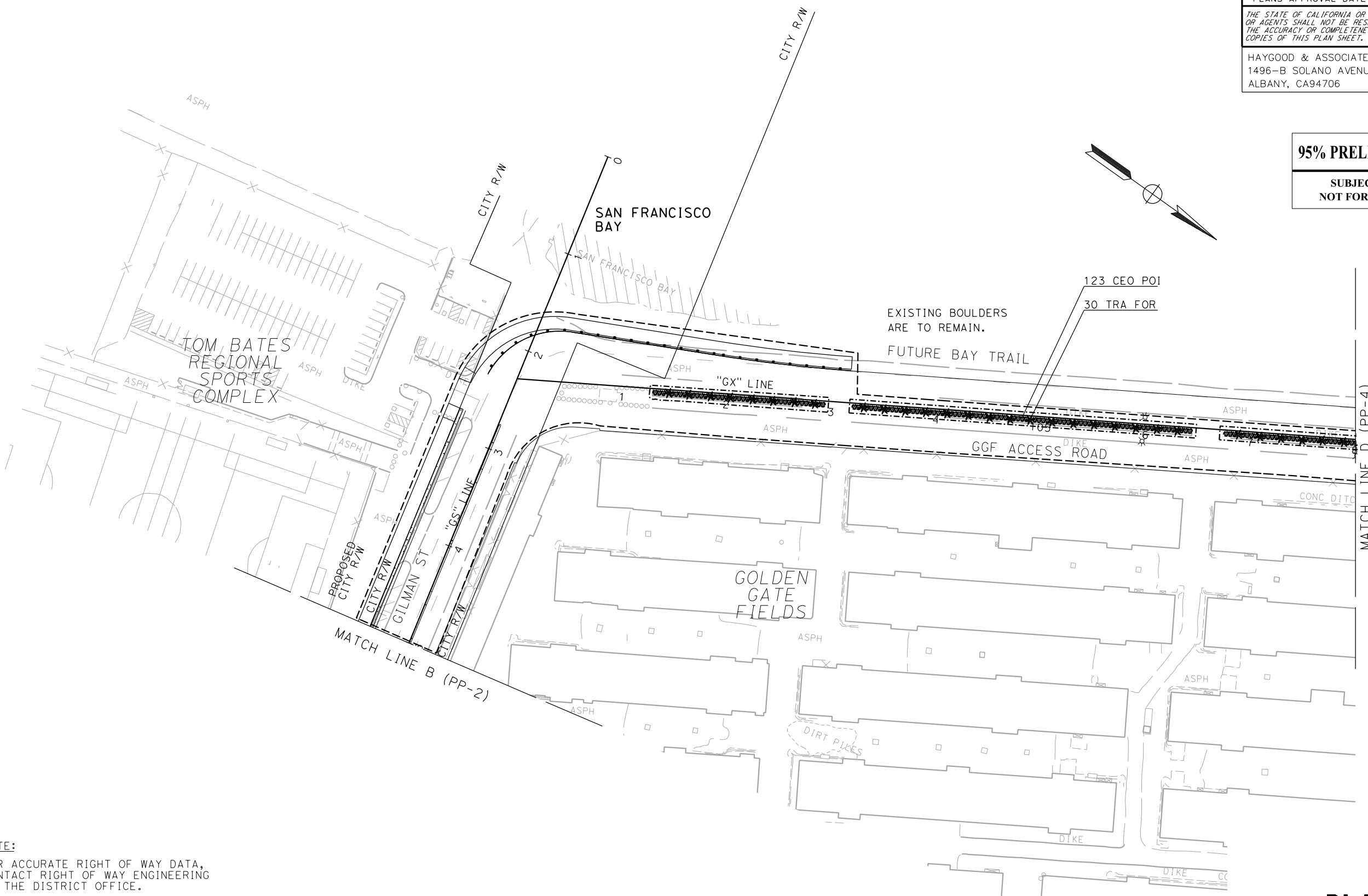
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Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	Ala	80	6.3/7.0		--

LICENSED LANDSCAPE ARCHITECT	
	
PLANS APPROVAL DATE	
<small>THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.</small>	
HAYGOOD & ASSOCIATES 1496-B SOLANO AVENUE ALBANY, CA94706	ALAMEDA CTC 1111 BROADWAY #800 OAKLAND, CA 94607

95% PRELIMINARY PLANS


**SUBJECT TO CHANGE
NOT FOR CONSTRUCTION**



NOTE:
FOR ACCURATE RIGHT OF WAY DATA,
CONTACT RIGHT OF WAY ENGINEERING
AT THE DISTRICT OFFICE.

APPROVED FOR PLANTING WORK ONLY

PLANTING PLAN
SCALE: 1" = 50'
WITHIN CITY RIGHT OF WAY
PP-3

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION	REVISOR	DATE
	REVISOR	DATE
CONSULTANT FUNCTIONAL SUPERVISOR	DESIGNED BY	CHECKED BY
LEAH HAYGOOD	SIMON KENNEY	LEAH HAYGOOD
	REVISOR	DATE
	REVISOR	DATE

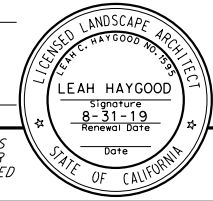
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Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	Ala	80	6.3/7.0		--

LICENSED LANDSCAPE ARCHITECT

PLANS APPROVAL DATE

THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.

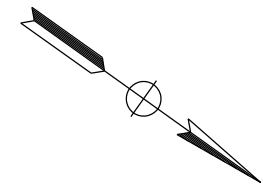


HAYGOOD & ASSOCIATES
1496-B SOLANO AVENUE
ALBANY, CA94706

ALAMEDA CTC
1111 BROADWAY #800
OAKLAND, CA 94607

NOTES:

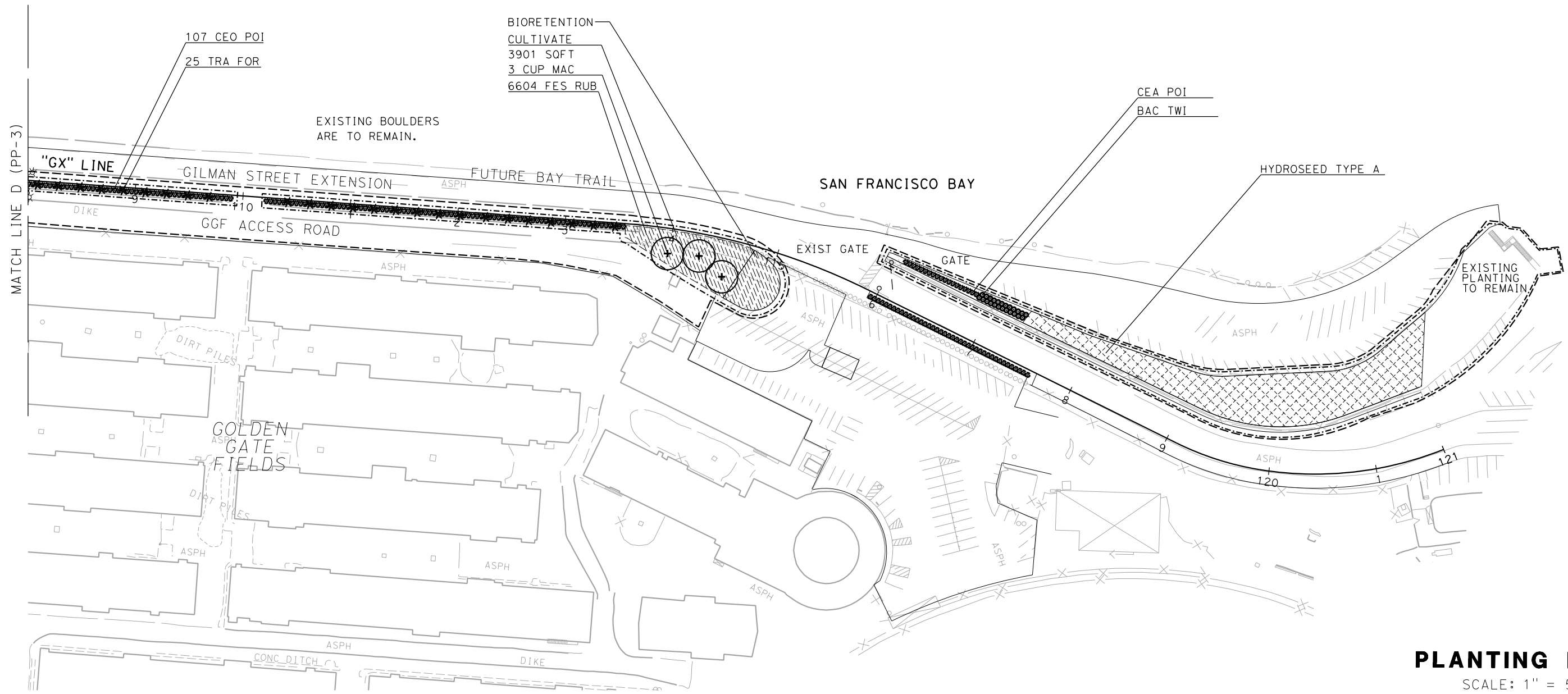
1. FOR ACCURATE RIGHT OF WAY DATA, CONTACT RIGHT OF WAY ENGINEERING AT THE DISTRICT OFFICE.
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95% PRELIMINARY PLANS

**SUBJECT TO CHANGE
NOT FOR CONSTRUCTION**

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION	CONSULTANT	FUNCTIONAL SUPERVISOR	CALCULATED-DESIGNED BY	REVISOR	DATE
	LEAH HAYGOOD	LEAH HAYGOOD	SIMON KENNEY	SIMON KENNEY	
			LEAH HAYGOOD	LEAH HAYGOOD	



APPROVED FOR PLANTING WORK ONLY

PLANTING PLAN
SCALE: 1" = 50'
WITHIN CITY RIGHT OF WAY
PP-4

LAST REVISION DATE PLOTTED => 5/6/2019 8:59:36 AM

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans
 CONSULTANT FUNCTIONAL SUPERVISOR
 LEAH HAYGOOD
 CALCULATED/DESIGNED BY
 CHECKED BY
 SIMON KENNEY
 LEAH HAYGOOD
 REVISED BY
 DATE REVISED

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	Ala	80	6.3/7.0		--

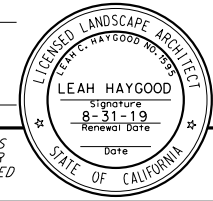
LICENSED LANDSCAPE ARCHITECT

PLANS APPROVAL DATE

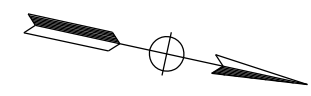
THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.

HAYGOOD & ASSOCIATES
 1496-B SOLANO AVENUE
 ALBANY, CA94706

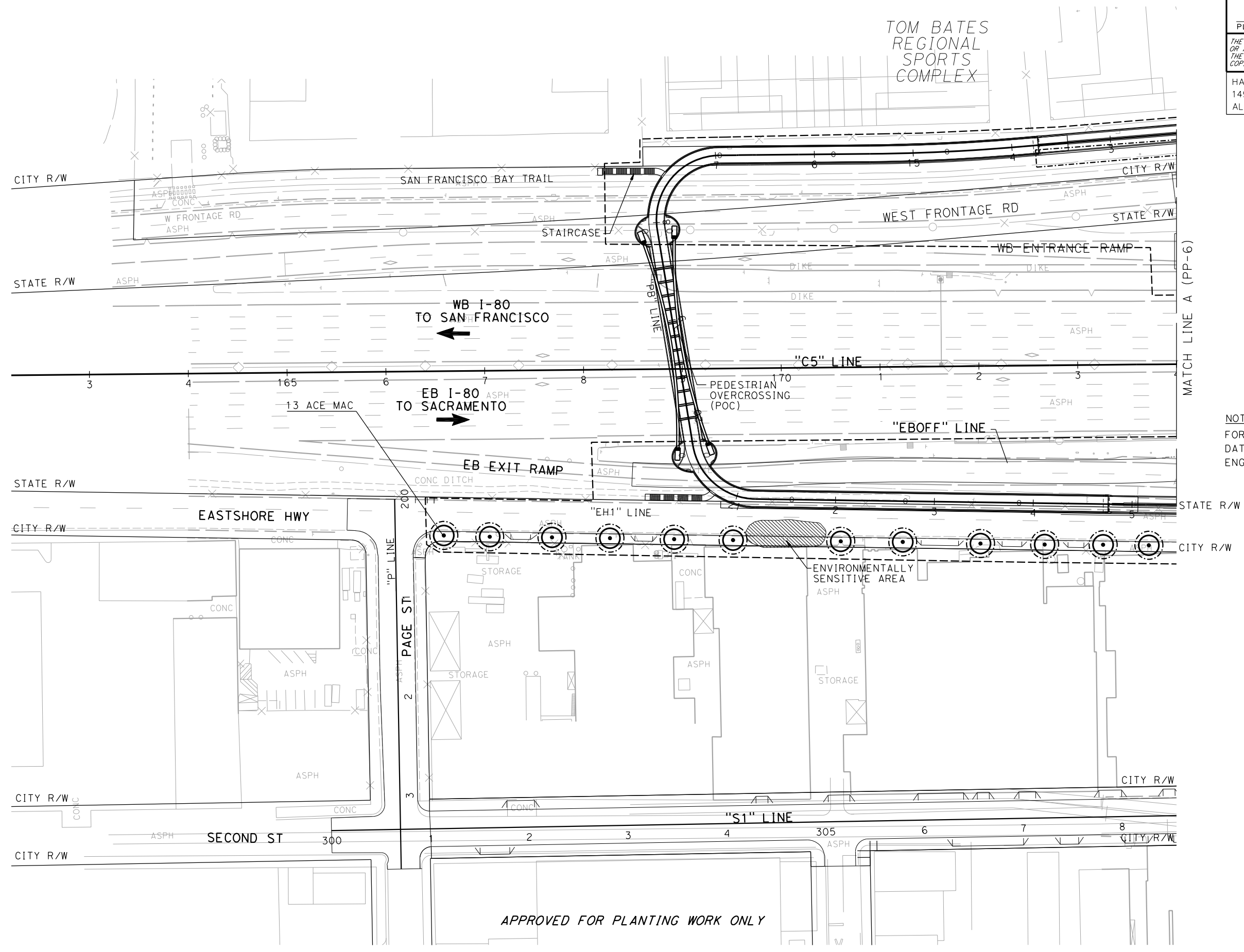
ALAMEDA CTC
 1111 BROADWAY #800
 OAKLAND, CA 94607



95% PRELIMINARY PLANS
SUBJECT TO CHANGE
NOT FOR CONSTRUCTION



NOTE:
 FOR ACCURATE RIGHT OF WAY DATA, CONTACT RIGHT OF WAY ENGINEERING AT THE DISTRICT OFFICE.



APPROVED FOR PLANTING WORK ONLY

PLANTING PLAN
 SCALE: 1" = 50'
 WITHIN CITY RIGHT OF WAY
PP-5

LAST REVISION DATE PLOTTED => 5/6/2019 8:59:39 AM TIME PLOTTED => 8:59:39 AM

TOM BATES
REGIONAL
SPORTS
COMPLEX

MATCH LINE B (PP-3)

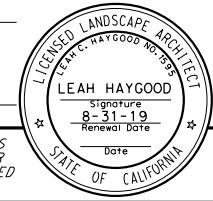
GOLDEN
GATE
FIELDS

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	Ala	80	6.3/7.0		--

LICENSED LANDSCAPE ARCHITECT

PLANS APPROVAL DATE

THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.



HAYGOOD & ASSOCIATES
1496-B SOLANO AVENUE
ALBANY, CA94706

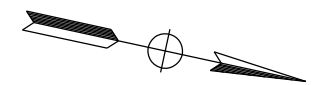
ALAMEDA CTC
1111 BROADWAY #800
OAKLAND, CA 94607

95% PRELIMINARY PLANS

**SUBJECT TO CHANGE
NOT FOR CONSTRUCTION**

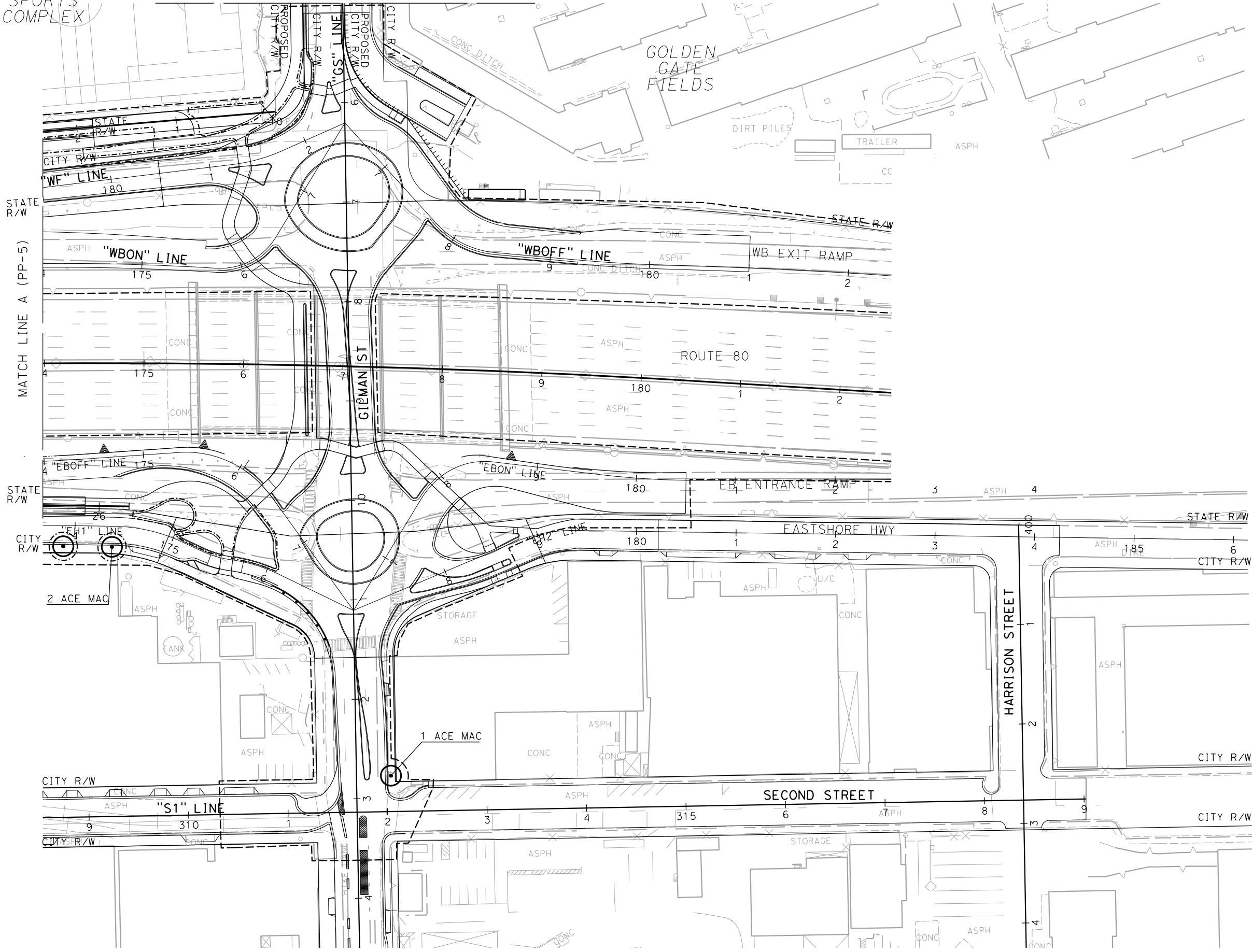
NOTES:

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NOTE:

FOR ACCURATE RIGHT OF WAY DATA, CONTACT RIGHT OF WAY ENGINEERING AT THE DISTRICT OFFICE.



APPROVED FOR PLANTING WORK ONLY

PLANTING PLAN
SCALE: 1" = 50'
WITHIN CITY RIGHT OF WAY
PP-6

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

Caltrans

REVISOR

SIMON KENNEY

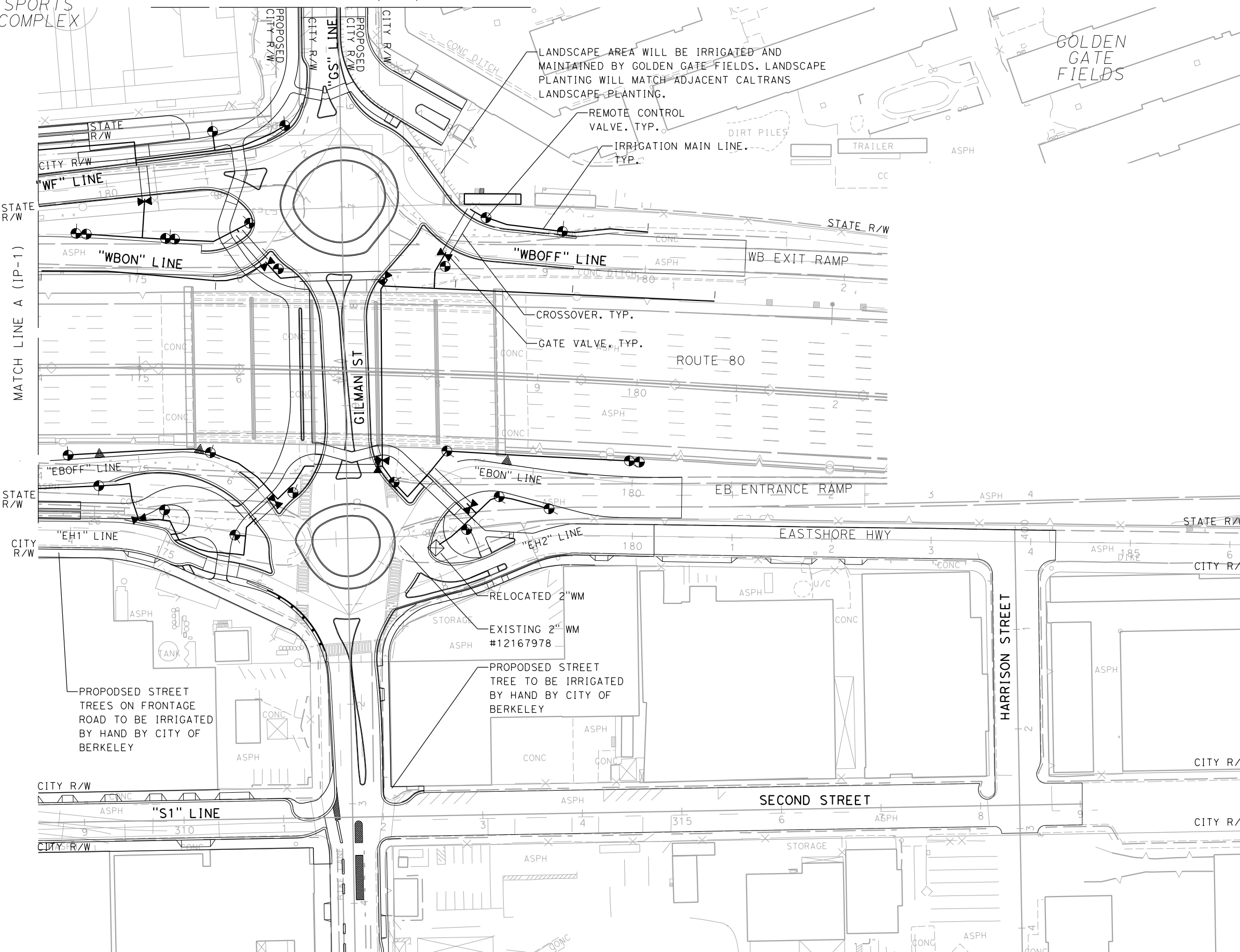
CALCULATED-DESIGNED BY

CONSULTANT FUNCTIONAL SUPERVISOR

LEAH HAYGOOD

TOM BATES
REGIONAL
SPORTS
COMPLEX

MATCH LINE B (IP-3)



LANDSCAPE AREA WILL BE IRRIGATED AND MAINTAINED BY GOLDEN GATE FIELDS. LANDSCAPE PLANTING WILL MATCH ADJACENT CALTRANS LANDSCAPE PLANTING.

GOLDEN GATE FIELDS

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	Ala	80	6.3/7.0		--

LICENSED LANDSCAPE ARCHITECT

PLANS APPROVAL DATE

THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.

LEAH HAYGOOD
signature
8-31-19
Renewal Date
Date
STATE OF CALIFORNIA

HAYGOOD & ASSOCIATES
1496-B SOLANO AVENUE
ALBANY, CA94706

ALAMEDA CTC
1111 BROADWAY #800
OAKLAND, CA 94607

95% PRELIMINARY PLANS

**SUBJECT TO CHANGE
NOT FOR CONSTRUCTION**

NOTE:
FOR ACCURATE RIGHT OF WAY DATA,
CONTACT RIGHT OF WAY ENGINEERING
AT THE DISTRICT OFFICE.

IRRIGATION PLAN

SCALE: 1" = 50'
WITHIN STATE RIGHT OF WAY

IP-2

IRRIGATION INFORMATION WILL BE ADDED AT THE 95% PS&E SUBMITTAL

APPROVED FOR IRRIGATION WORK ONLY

REVISOR	DATE	REVISION
SIMON KENNEY	LEAH HAYGOOD	
CALCULATED/DESIGNED BY	CHECKED BY	
LEAH HAYGOOD		
CONSULTANT FUNCTIONAL SUPERVISOR		
LEAH HAYGOOD		
DEPARTMENT OF TRANSPORTATION		
STATE OF CALIFORNIA		

BORDER LAST REVISED 7/2/2010

USERNAME => Simon
DGN FILE => 04000201551sp002.dgn

RELATIVE BORDER SCALE
IS IN INCHES

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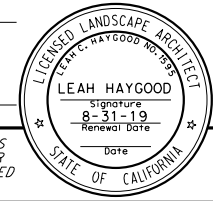
UNIT 0000

PROJECT NUMBER & PHASE

04000201551

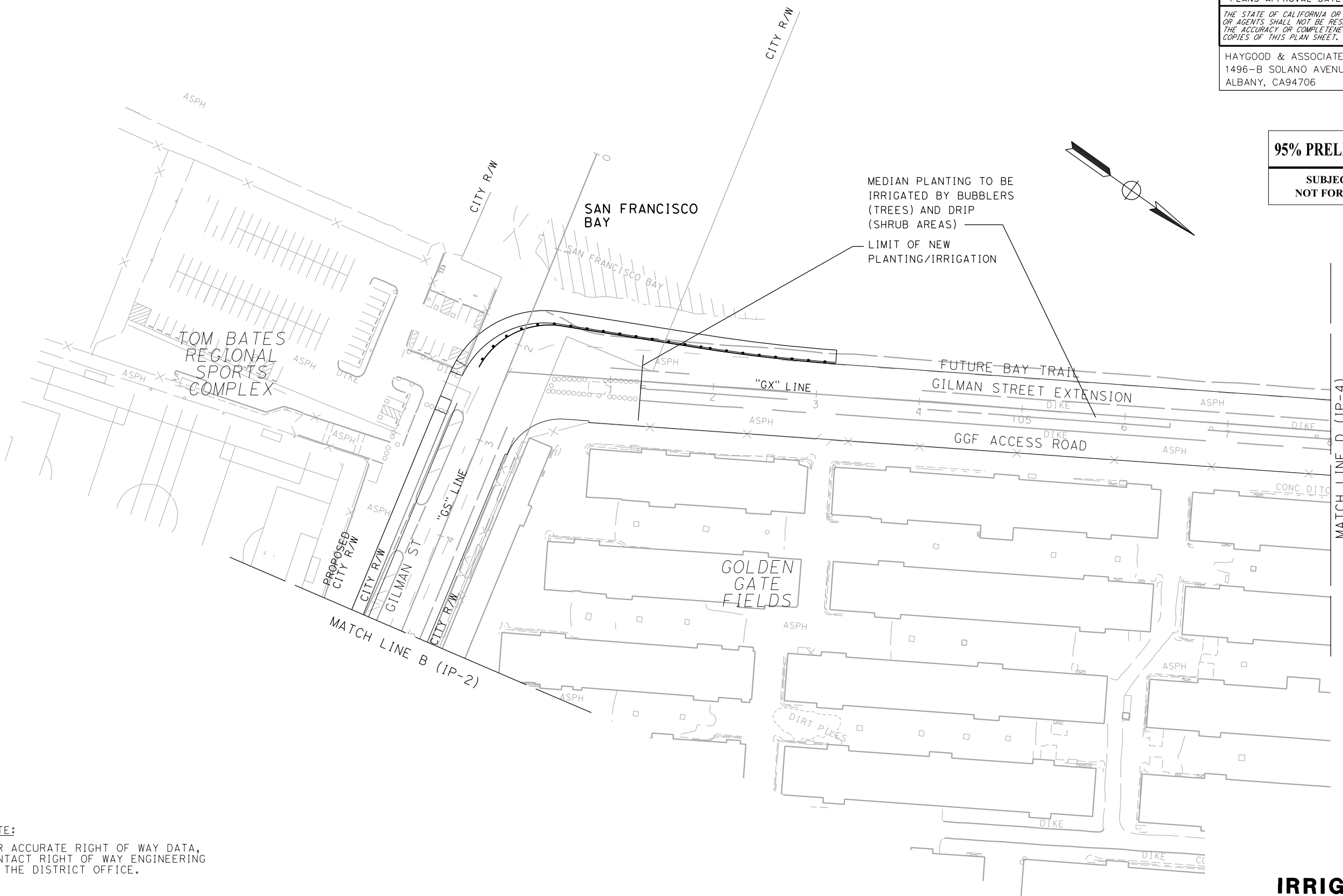
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00-00-00 TIME PLOTTED => 2:57:42 PM

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	Ala	80	6.3/7.0		--

LICENSED LANDSCAPE ARCHITECT	
	
PLANS APPROVAL DATE	
<small>THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.</small>	
HAYGOOD & ASSOCIATES 1496-B SOLANO AVENUE ALBANY, CA94706	ALAMEDA CTC 1111 BROADWAY #800 OAKLAND, CA 94607

95% PRELIMINARY PLANS


**SUBJECT TO CHANGE
NOT FOR CONSTRUCTION**



NOTE:
FOR ACCURATE RIGHT OF WAY DATA,
CONTACT RIGHT OF WAY ENGINEERING
AT THE DISTRICT OFFICE.

IRRIGATION INFORMATION WILL BE ADDED AT THE 95% PS&E SUBMITTAL
APPROVED FOR IRRIGATION WORK ONLY

IRRIGATION PLAN
SCALE: 1" = 50'
WITHIN CITY RIGHT OF WAY
IP-3

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION	CONSULTANT FUNCTIONAL SUPERVISOR	CALCULATED-DESIGNED BY	REVISOR	DATE
	LEAH HAYGOOD	CHECKED BY	SIMON KENNEY	7/2/2010
			LEAH HAYGOOD	

USERNAME => Simon
DGN FILE => 04000201551sp003.dgn

RELATIVE BORDER SCALE
15 IN INCHES



UNIT 0000

PROJECT NUMBER & PHASE

04000201551

LAST REVISION DATE PLOTTED => 5/13/2019
00-00-00 TIME PLOTTED => 2:57:43 PM

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	Ala	80	6.3/7.0		--

LICENSED LANDSCAPE ARCHITECT

PLANS APPROVAL DATE

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HAYGOOD & ASSOCIATES
1496-B SOLANO AVENUE
ALBANY, CA94706

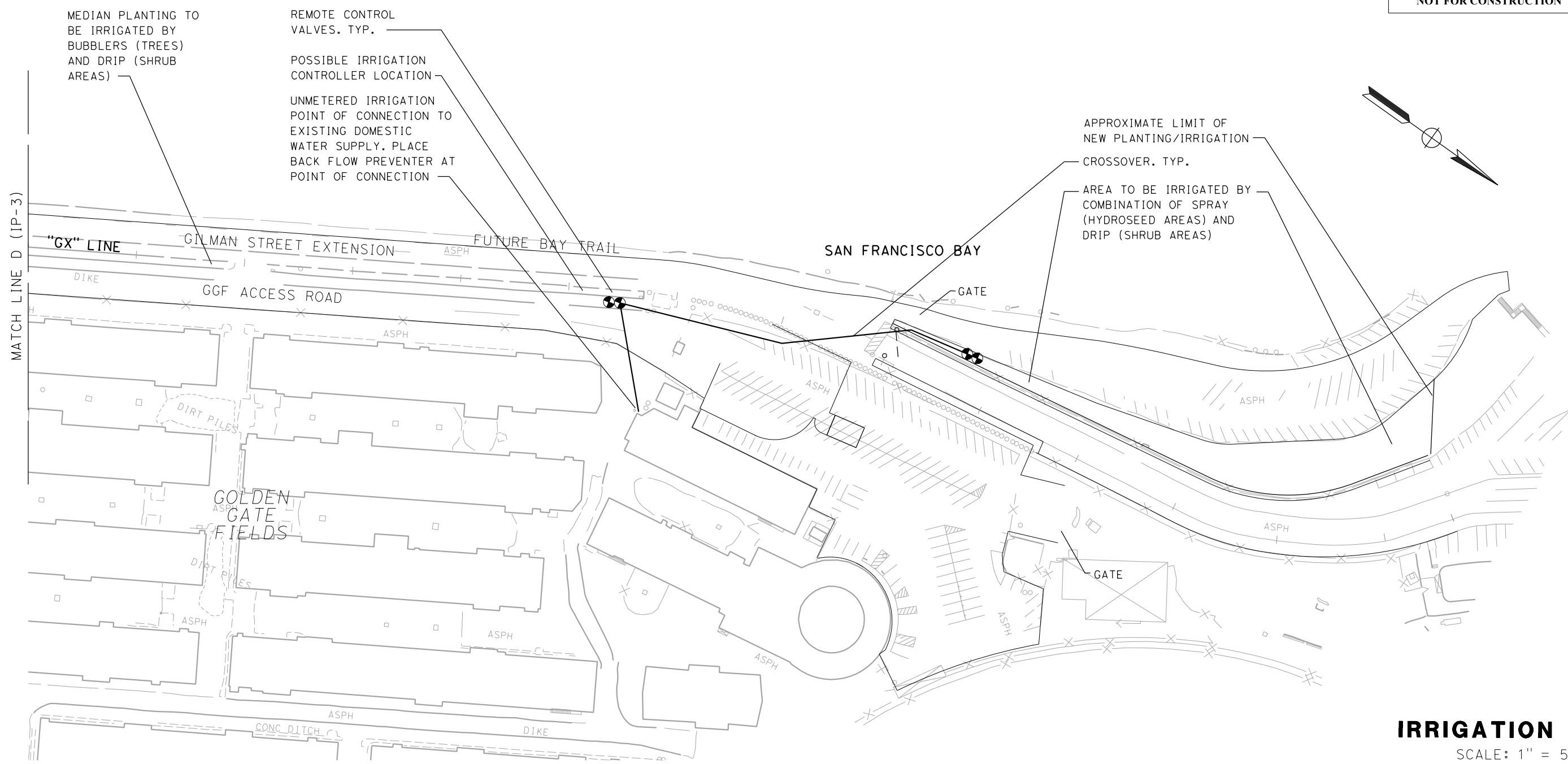
ALAMEDA CTC
1111 BROADWAY #800
OAKLAND, CA 94607

NOTE:
FOR ACCURATE RIGHT OF WAY DATA,
CONTACT RIGHT OF WAY ENGINEERING
AT THE DISTRICT OFFICE.

95% PRELIMINARY PLANS

**SUBJECT TO CHANGE
NOT FOR CONSTRUCTION**

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION	CONSULTANT FUNCTIONAL SUPERVISOR	CALCULATED-DESIGNED BY	REVISOR	DATE
LEAH HAYGOOD	LEAH HAYGOOD	SIMON KENNEY	SIMON KENNEY	
			LEAH HAYGOOD	



IRRIGATION INFORMATION WILL BE ADDED AT THE 95% PS&E SUBMITTAL

APPROVED FOR IRRIGATION WORK ONLY

IRRIGATION PLAN

SCALE: 1" = 50'

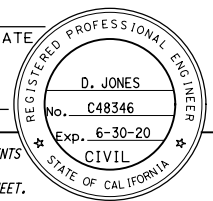
WITHIN CITY RIGHT OF WAY

IP-4

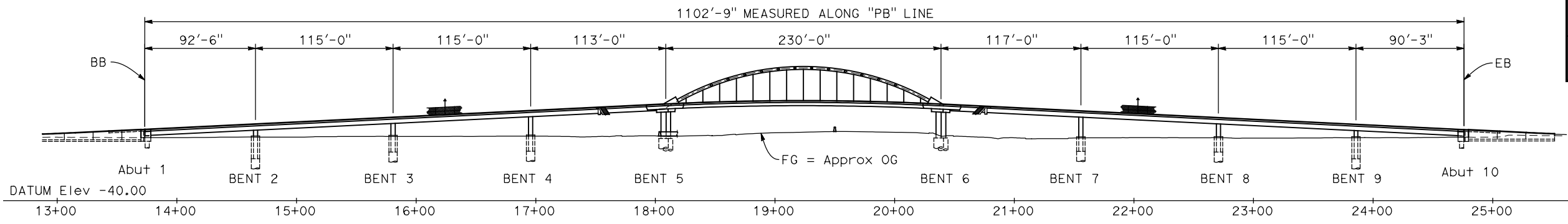
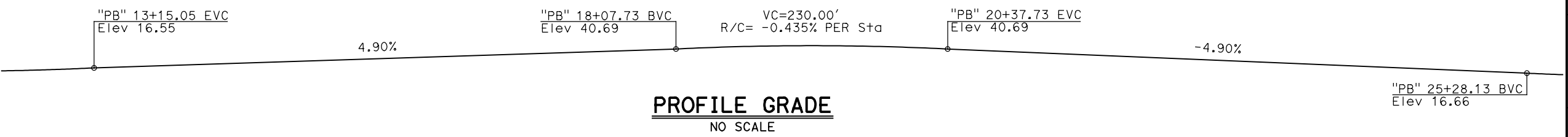
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DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
04	ALA	80	6.3/7.0		

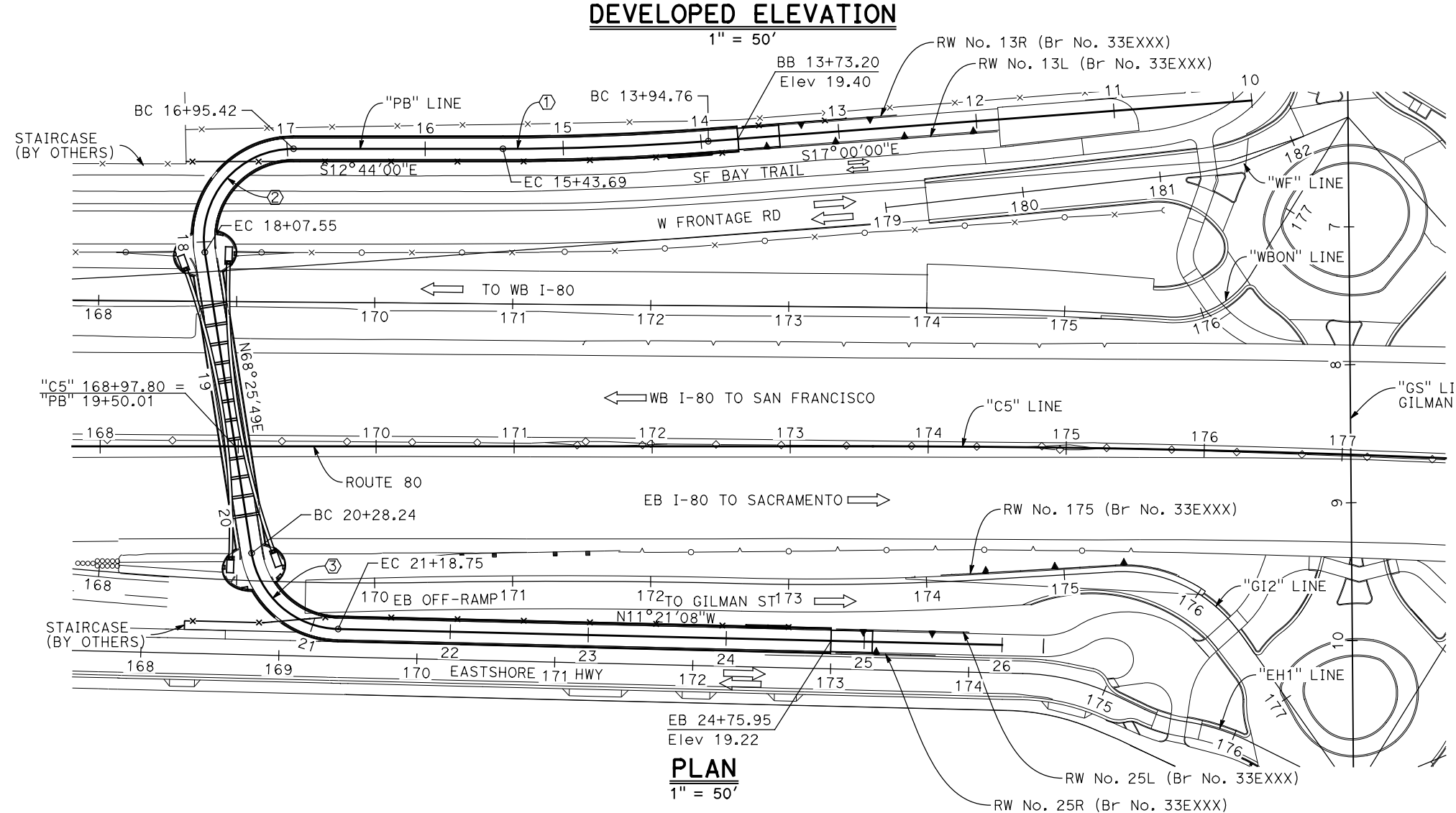
REGISTERED CIVIL ENGINEER DATE _____
 PLANS APPROVAL DATE _____
 THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.



PARSONS
 555 12TH ST, STE 1850
 OAKLAND, CA 94607
 ALAMEDA CTC
 1111 BROADWAY, STE 800
 OAKLAND, CA 94607



No.	R	Δ	T	L
①	2000.00'	4°16'00"	74.50'	148.93'
②	65.00'	98°50'11"	75.89'	112.13'
③	65.00'	79°46'57"	54.33'	90.51'



- NOTES:
1. For Typical Sections, see "GENERAL PLAN NO. 2" sheet.
 2. For "INDEX TO PLANS", see "INDEX TO PLANS" sheet.
 3. For "GENERAL NOTES", see "GENERAL NOTES" sheet.
 4. For vertical clearance and other details not shown, see "STRUCTURE PLAN NO. 1" thru "STRUCTURE PLAN NO. 3" sheets.

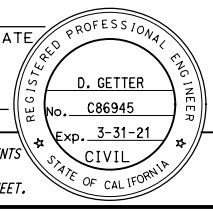
LEGEND:
 Indicates Direction of Traffic

95% PRELIMINARY PLANS
 SUBJECT TO CHANGE
 NOT FOR CONSTRUCTION

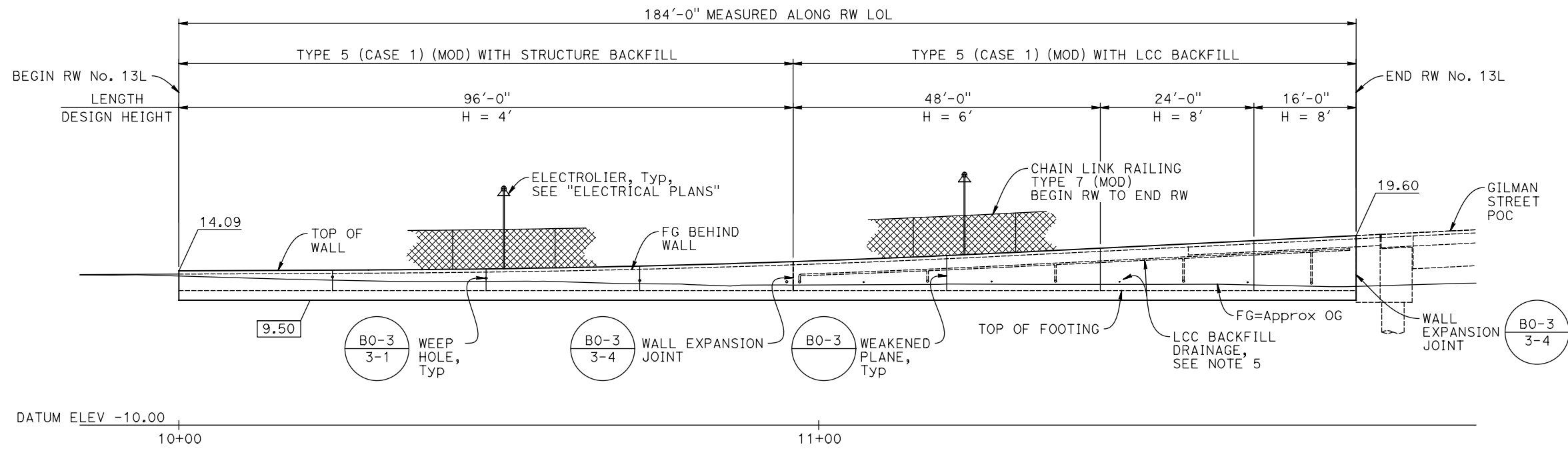
DESIGN OVERSIGHT	DESIGN BY D. Getter	CHECKED X	LOAD & RESISTANCE FACTOR DESIGN	LIVE LOADING 90 PSF PEDESTRIAN; H10 TRUCK	PREPARED FOR THE STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION	BRIDGE No. 33-XXXX	GILMAN STREET POC GENERAL PLAN NO. 1
SIGN OFF DATE	DETAILS BY E. Baltay	CHECKED X	LAYOUT BY E. Baltay	CHECKED D. Getter	David Jones PROJECT ENGINEER	POST MILE 6.49	
	QUANTITIES BY X	CHECKED X	SPECIFICATIONS BY X	PLANS AND SPECS COMPARED X			
DESIGN GENERAL PLAN SHEET (ENGLISH) (REVISION 4/19/2018)		DATE PLOTTED => #DATE FILE => #REQUEST		TIME PLOTTED => #TIME USERNAME => #USER		ORIGINAL SCALE IN INCHES FOR REDUCED PLANS 0 1 2 3	
UNIT: PROJECT NUMBER & PHASE: 0400020155						CONTRACT No.: 04-0A770	
DISREGARD PRINTS BEARING EARLIER REVISION DATES						REVISION DATES 12/20/18	
						SHEET 1 OF 1	

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
04	ALA	80	6.3/7.0		

REGISTERED CIVIL ENGINEER DATE _____
 PLANS APPROVAL DATE _____
 THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.



PARSONS
 555 12TH ST, STE 1850
 OAKLAND, CA 94607
 ALAMEDA CTC
 1111 BROADWAY, STE 800
 OAKLAND, CA 94607

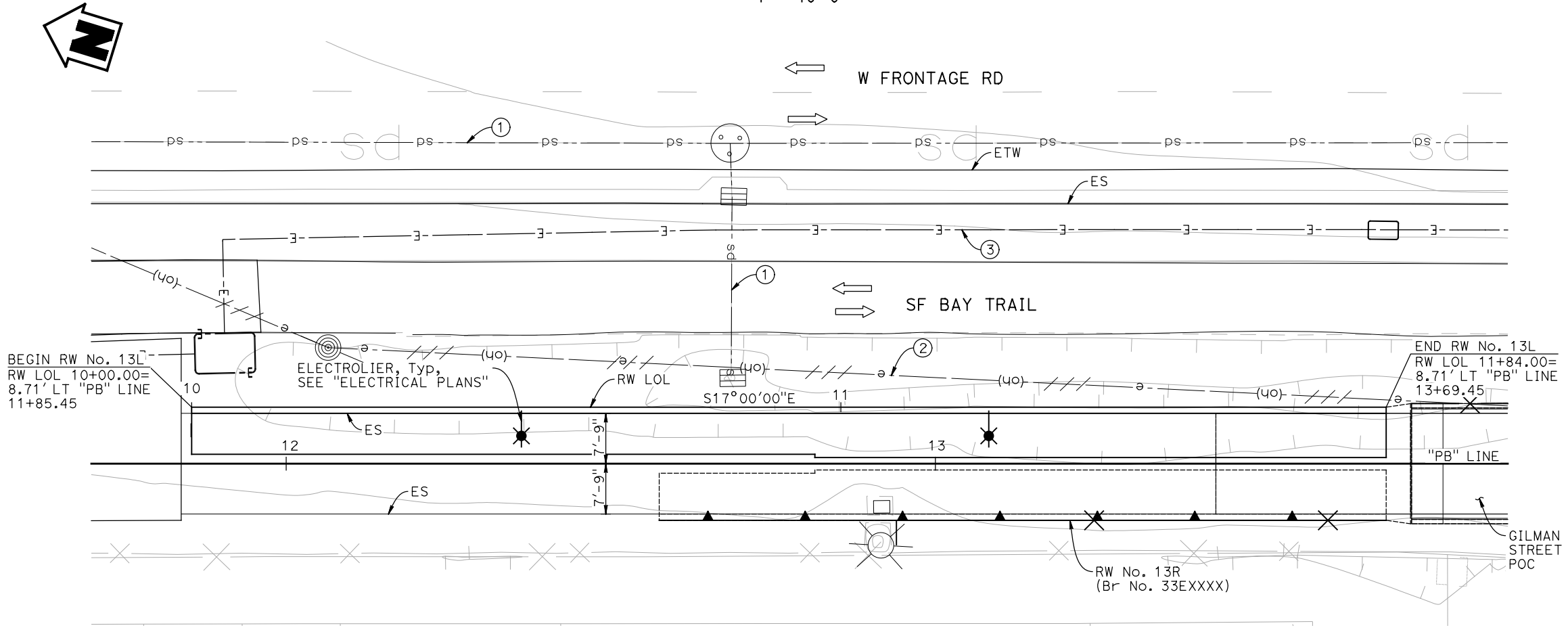


MIRROR ELEVATION
 1" = 10'-0"

- NOTES:
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 - For "TYPICAL SECTION", see "GENERAL PLAN NO. 2" sheet.
 - For "INDEX TO PLANS", see "INDEX TO PLANS" sheet.
 - For LCC backfill drainage details, see "LCC BACKFILL DRAINAGE DETAILS" sheet.

- LEGEND:
- ← Indicates Direction of Traffic
 - XX.XX Indicates Top of Wall Elevation
 - XX.XX Indicates Bottom of Footing Elevation

- UTILITIES:
- Existing Storm Drain (protect in place)
 - Existing OH Electric (to be relocated)
 - Proposed UG Electric



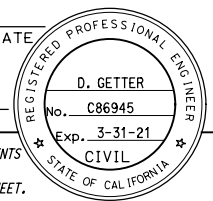
PLAN
 1" = 10'-0"

95% PRELIMINARY PLANS
 SUBJECT TO CHANGE
 NOT FOR CONSTRUCTION

DESIGN OVERSIGHT	DESIGN BY D. Getter	CHECKED	LOAD & RESISTANCE FACTOR DESIGN	LIVE LOADING 90 PSF PEDESTRIAN; H-10 TRUCK	PREPARED FOR THE STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION	BRIDGE No. 33EXXXX	RETAINING WALL NO. 13L GENERAL PLAN NO. 1
SIGN OFF DATE	DETAILS BY A. Magpantay	CHECKED	LAYOUT BY D. Getter	CHECKED	PROJECT ENGINEER David Jones	POST MILE 6.60	
DESIGN GENERAL PLAN SHEET (ENGLISH) (REVISION 4/19/2018)	QUANTITIES BY	CHECKED	SPECIFICATIONS BY	PLANS AND SPECS COMPARED	PROJECT NUMBER & PHASE: 0400020155	CONTRACT No.: 04-0A770	
DATE PLOTTED => #DATE FILE => #REQUEST		TIME PLOTTED => #TIME USERNAME => #USER		ORIGINAL SCALE IN INCHES FOR REDUCED PLANS	0 1 2 3	DISREGARD PRINTS BEARING EARLIER REVISION DATES	REVISION DATES 12/20/18
							SHEET 1 OF 8

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
04	ALA	80	6.3/7.0		

REGISTERED CIVIL ENGINEER DATE _____
 PLANS APPROVAL DATE _____
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 OAKLAND, CA 94607

NOTES:

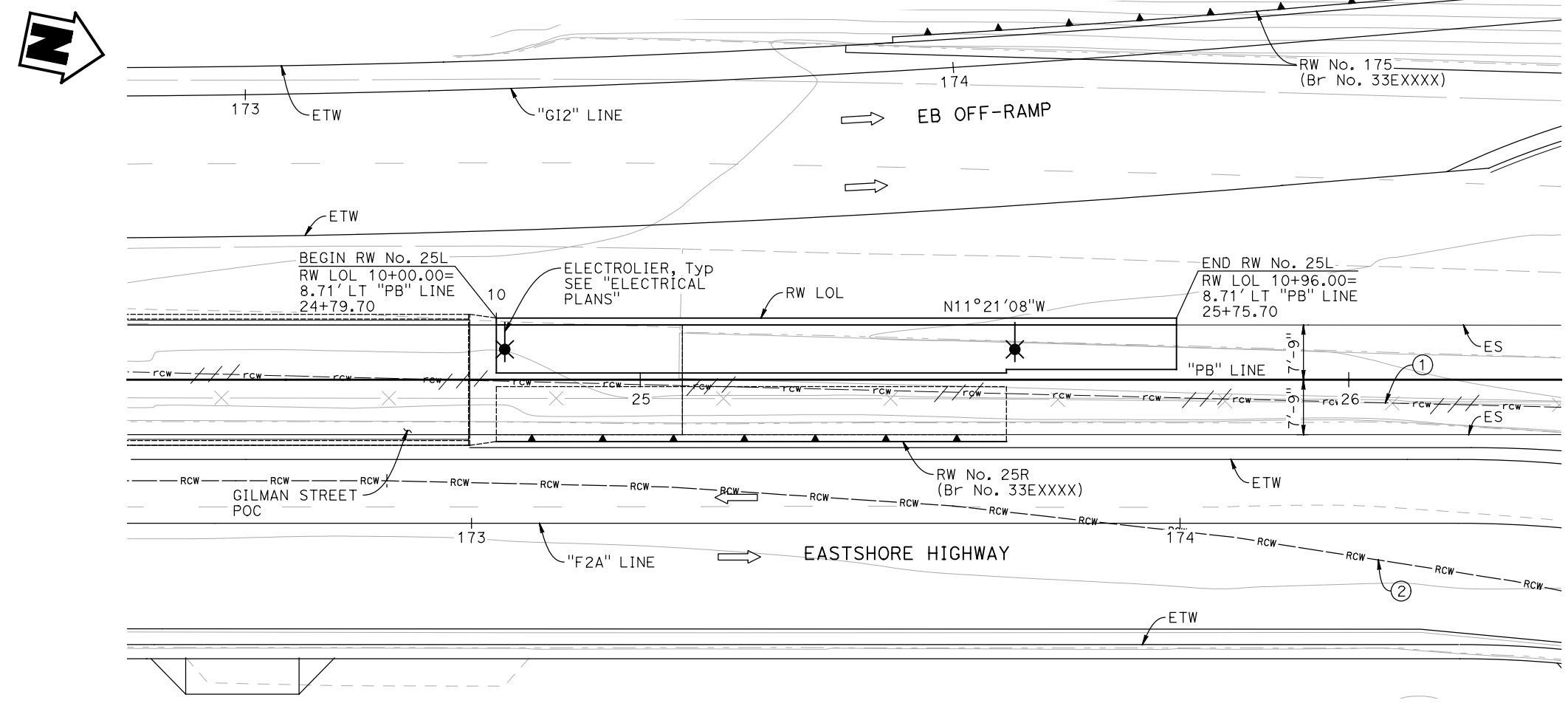
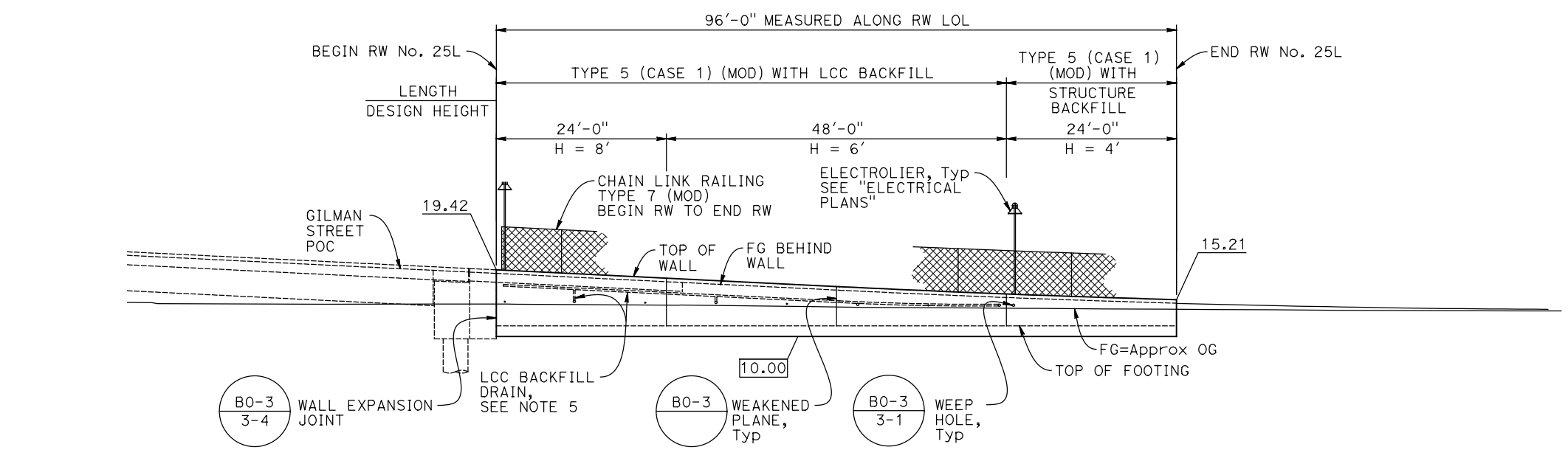
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- For "TYPICAL SECTION", see "GENERAL PLAN NO. 2" sheet.
- For "INDEX TO PLANS", see "INDEX TO PLANS" sheet.
- For LCC backfill drainage details, see "LCC BACKFILL DRAINAGE DETAILS" sheet.

LEGEND:

- ← Indicates Direction of Traffic
- XX.XX Indicates Top of Wall Elevation
- XX.XX Indicates Bottom of Footing Elevation

UTILITIES:

- ① Existing Recycled Water (to be relocated)
- ② Proposed Recycled Water



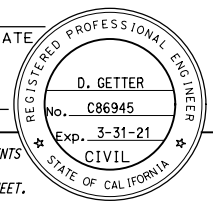
PLAN
1" = 10'-0"

95% PRELIMINARY PLANS
 SUBJECT TO CHANGE
 NOT FOR CONSTRUCTION

DESIGN OVERSIGHT	DESIGN BY D. Getter	CHECKED	LOAD & RESISTANCE FACTOR DESIGN	LIVE LOADING 90 PSF PEDESTRIAN; H-10 TRUCK	PREPARED FOR THE STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION	BRIDGE No. 33EXXXX	RETAINING WALL NO. 25L GENERAL PLAN NO. 1	
SIGN OFF DATE	DETAILS BY A. Magpantay	CHECKED	LAYOUT BY D. Getter	CHECKED	PROJECT ENGINEER David Jones	POST MILE 6.58		
DESIGN GENERAL PLAN SHEET (ENGLISH) (REVISION 4/19/2018)	QUANTITIES BY	CHECKED	SPECIFICATIONS BY	PLANS AND SPECS COMPARED	UNIT: PROJECT NUMBER & PHASE: 0400020155	CONTRACT No.: 04-0A770	REVISION DATES: 12/20/18	
DATE PLOTTED => #DATE FILE => #REQUEST					TIME PLOTTED => #TIME USERNAME => #USER		ORIGINAL SCALE IN INCHES FOR REDUCED PLANS	
					0 1 2 3		SHEET 1 OF 8	

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
04	ALA	80	6.3/7.0		

REGISTERED CIVIL ENGINEER DATE _____
 PLANS APPROVAL DATE _____
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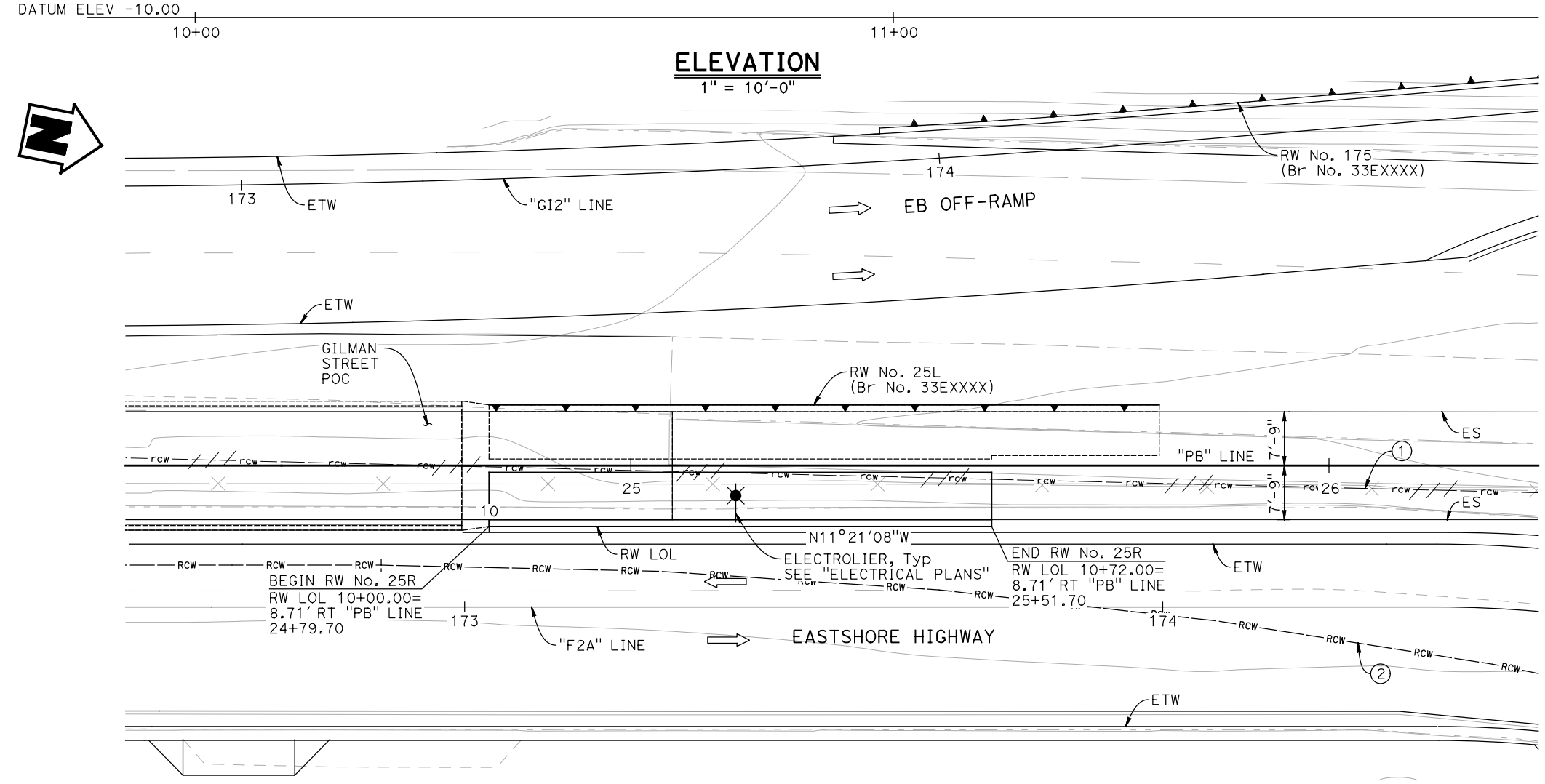
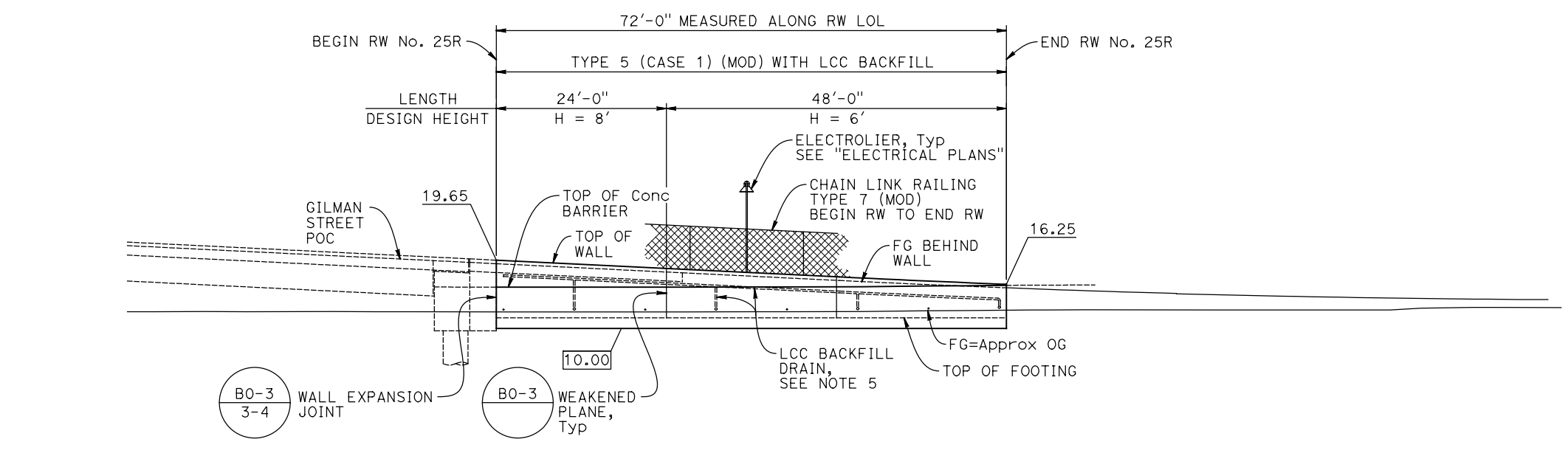


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 - For "TYPICAL SECTION", see "GENERAL PLAN NO. 2" sheet.
 - For "INDEX TO PLANS", see "INDEX TO PLANS" sheet.
 - For LCC backfill drainage details, see "LCC BACKFILL DRAINAGE DETAILS" sheet.

- LEGEND:
- ← Indicates Direction of Traffic
 - XX.XX Indicates Top of Wall Elevation
 - XX.XX Indicates Bottom of Footing Elevation

- UTILITIES:
- ① Existing Recycled Water (to be relocated)
 - ② Proposed Recycled Water



PLAN
 1" = 10'-0"

95% PRELIMINARY PLANS
 SUBJECT TO CHANGE
 NOT FOR CONSTRUCTION

DESIGN OVERSIGHT	DESIGN BY D. Getter	CHECKED	LOAD & RESISTANCE FACTOR DESIGN	LIVE LOADING 90 PSF PEDESTRIAN; H-10 TRUCK	PREPARED FOR THE STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION	BRIDGE No. 33EXXXX	RETAINING WALL NO. 25R GENERAL PLAN NO. 1
SIGN OFF DATE	DETAILS BY A. Magpantay	CHECKED	LAYOUT BY D. Getter	CHECKED	PROJECT ENGINEER David Jones	POST MILE 6.58	
DESIGN GENERAL PLAN SHEET (ENGLISH) (REVISION 4/19/2018)	QUANTITIES BY	CHECKED	SPECIFICATIONS BY	PLANS AND SPECS COMPARED	UNIT: PROJECT NUMBER & PHASE:	CONTRACT No.: 04-0A770	
DATE PLOTTED => #DATE FILE => #REQUEST		TIME PLOTTED => #TIME USERNAME => #USER		ORIGINAL SCALE IN INCHES FOR REDUCED PLANS	0 1 2 3	DISREGARD PRINTS BEARING EARLIER REVISION DATES	REVISION DATES 12/20/18
							SHEET 1 OF 8

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
04	ALA	80	6.3/7.0		

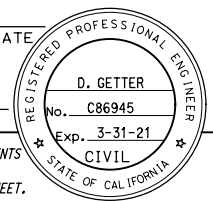
NOTES:

1. For electrolier and conduit details, see "ELECTRICAL PLANS".
2. For chain link railing details, see "CHAIN LINK RAILING AND LIGHTING NO. 1" and "CHAIN LINK RAILING AND LIGHTING NO. 2" sheets.
3. For LCC backfill drain details, see "LCC BACKFILL DRAIN DETAILS" sheet.

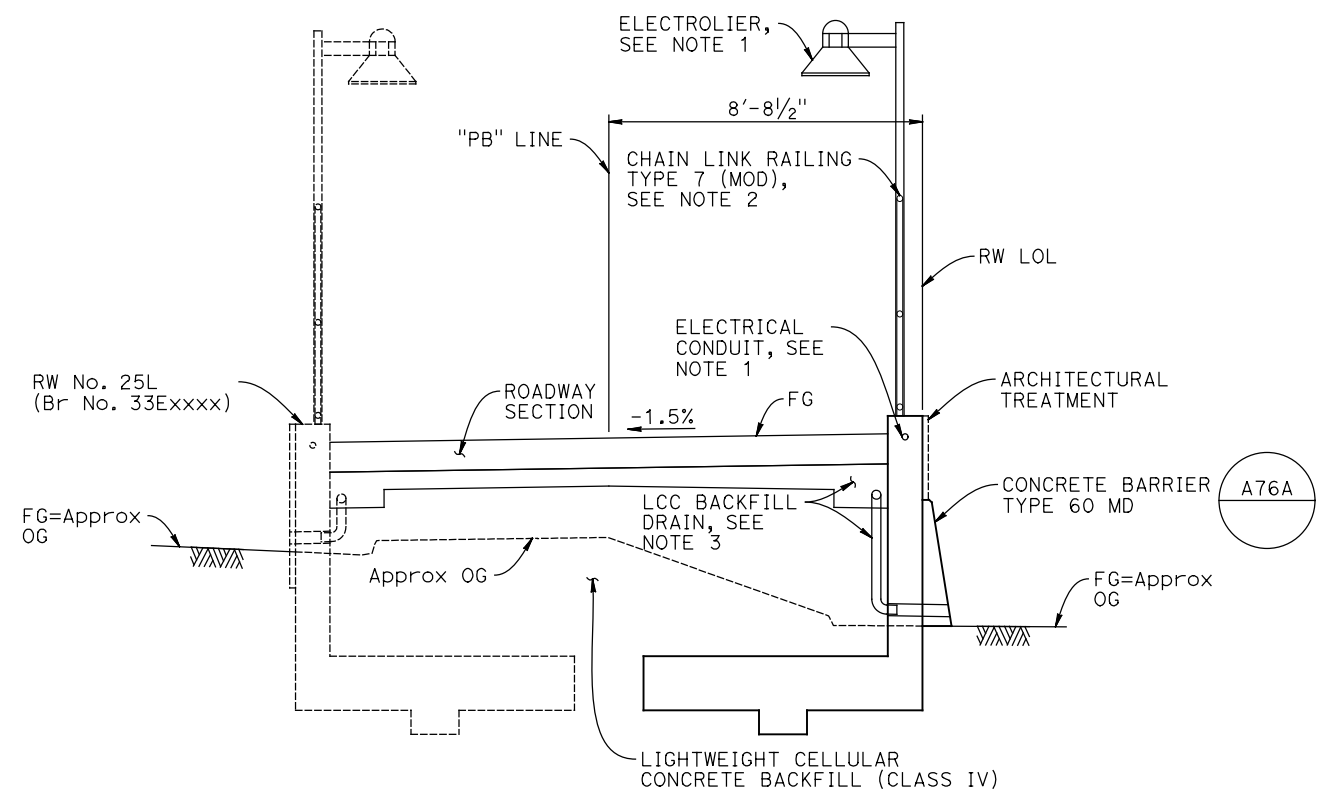
REGISTERED CIVIL ENGINEER DATE _____

PLANS APPROVAL DATE _____

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TYPICAL SECTION - TYPE 5 (CASE 1) (MOD)
 $\frac{3}{8}'' = 1'-0''$

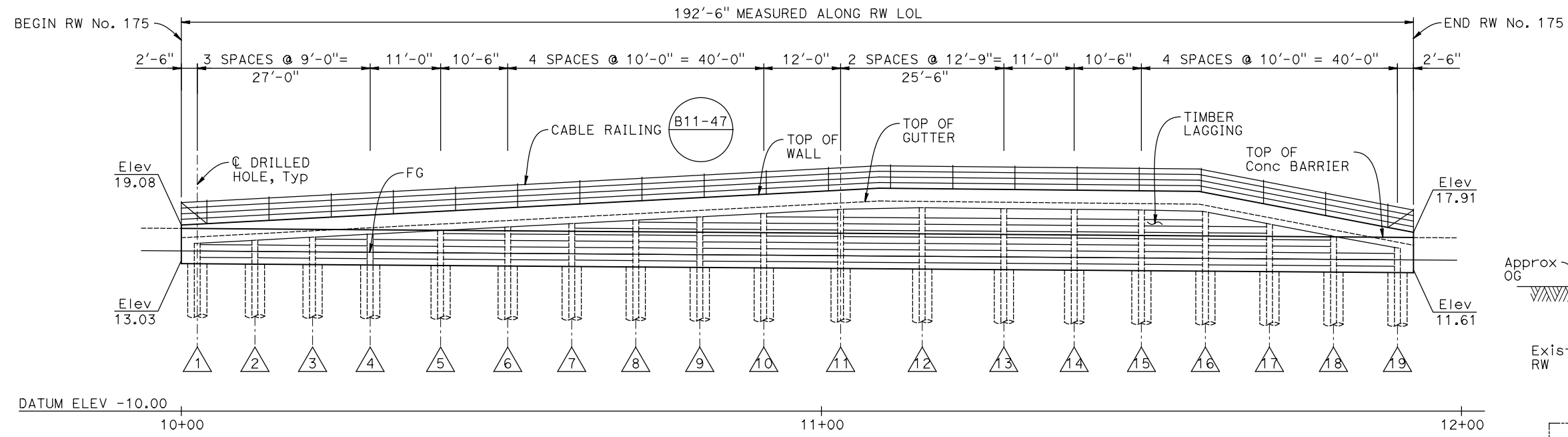
95% PRELIMINARY PLANS
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DESIGN OVERSIGHT	DESIGN BY D. Getter	CHECKED	LOAD & RESISTANCE FACTOR DESIGN	LIVE LOADING 90 PSF PEDESTRIAN; H-10 TRUCK	PREPARED FOR THE STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION	BRIDGE No. 33EXXX	RETAINING WALL NO. 25R		
SIGN OFF DATE	DETAILS BY A. Magpantay	CHECKED	LAYOUT BY D. Getter	CHECKED	PROJECT ENGINEER David Jones	POST MILE 6.58		GENERAL PLAN NO. 2	
DESIGN GENERAL PLAN SHEET (ENGLISH) (REVISION 4/19/2018)	DATE PLOTTED => #DATE	TIME PLOTTED => #TIME	ORIGINAL SCALE IN INCHES FOR REDUCED PLANS	0 1 2 3	UNIT: PROJECT NUMBER & PHASE: 0400020155	CONTRACT No.: 04-0A770	DISREGARD PRINTS BEARING EARLIER REVISION DATES	REVISION DATES	SHEET 2 OF 8

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	ALA	80	6.3/7.0		

REGISTERED CIVIL ENGINEER DATE _____
 REGISTERED PROFESSIONAL ENGINEER
 No. C86945
 Exp. 3-31-21
 CIVIL
 STATE OF CALIFORNIA

PLANS APPROVAL DATE _____
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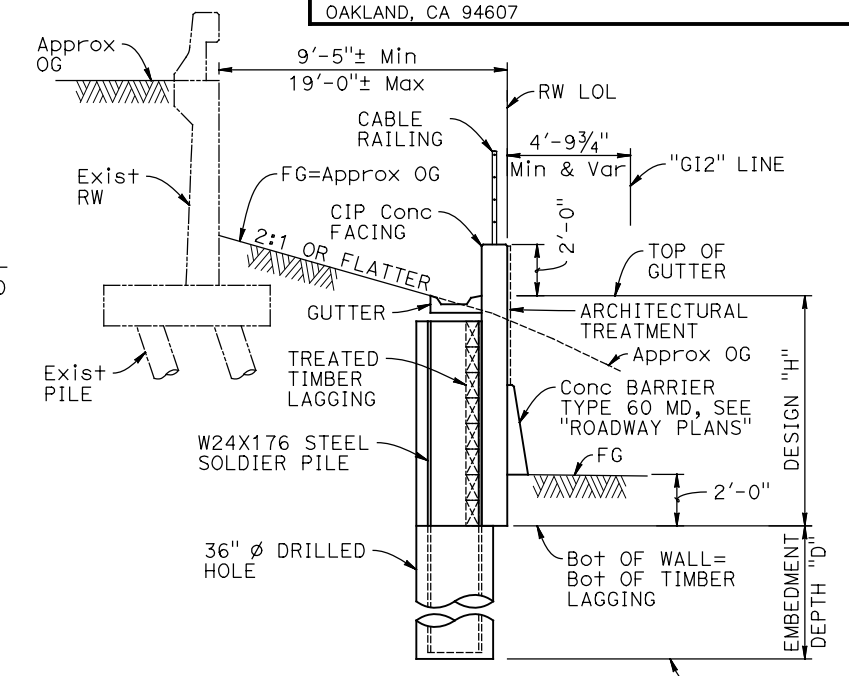


DEVELOPED ELEVATION
 1" = 10'-0"

- NOTES:
- Contours shown represent approximate existing ground.
 - For "INDEX TO PLANS" and "GENERAL NOTES", see "INDEX TO PLANS" sheet.
 - Locations of existing retaining walls and piles are approximate. The Contractor must verify all controlling field dimensions before fabricating any material.

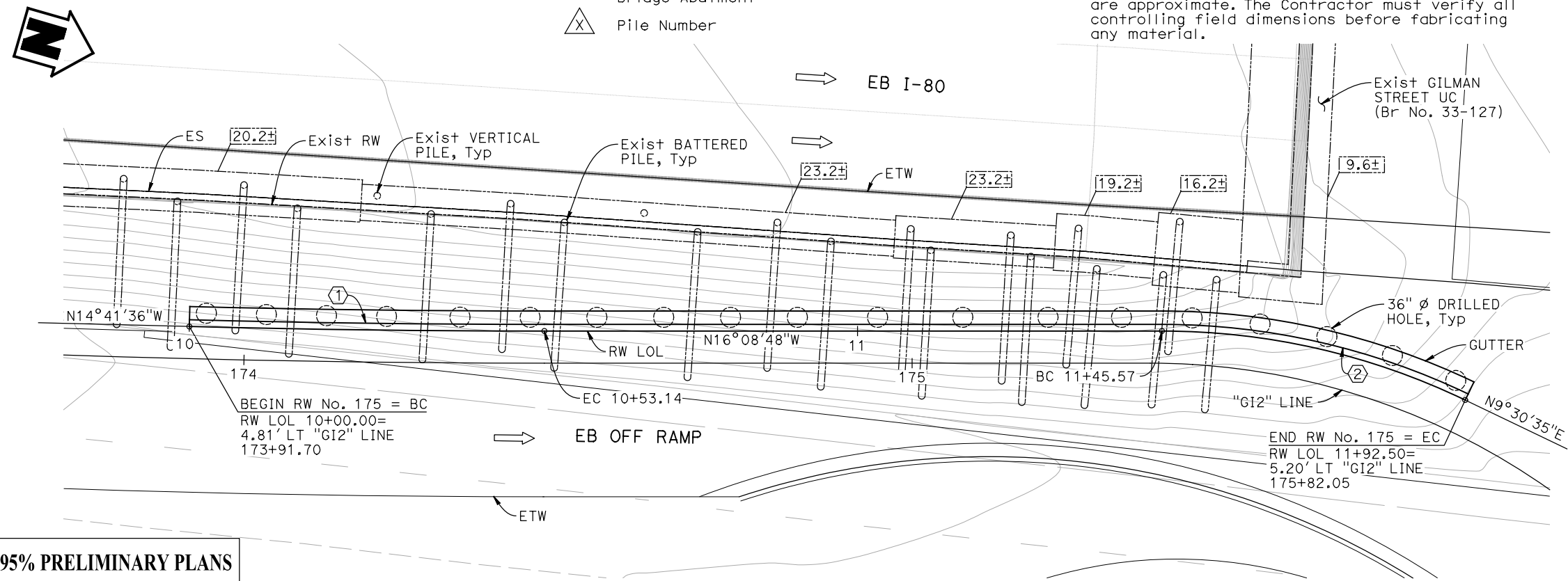
CURVE DATA				
NO.	R	Δ	T	L
①	2095.19'	01°27'11"	26.57'	53.14'
②	104.81'	25°39'23"	23.87'	46.93'

LEGEND:
 ← Indicates Direction of Traffic
 XX.X Indicates Approximate Bottom of Footing Elevation of Existing Retaining Wall or Bridge Abutment
 X Pile Number



TYPICAL SECTION
 3/8" = 1'-0"

STATION	PILE NUMBER	TOP OF WALL ELEVATION	BOTTOM OF WALL ELEVATION	PILE EMBEDMENT "D"
10+02.50	1	19.21'	13.01'	14'
10+11.50	2	19.68'	12.95'	14'
10+20.50	3	20.16'	12.88'	14'
10+29.50	4	20.63'	12.81'	14'
10+40.50	5	21.21'	12.73'	22'
10+51.00	6	21.76'	12.65'	22'
10+61.00	7	22.29'	12.58'	22'
10+71.00	8	22.82'	12.50'	31'
10+81.00	9	23.34'	12.43'	31'
10+91.00	10	23.87'	12.36'	31'
11+03.00	11	24.50'	12.27'	31'
11+15.75	12	24.75'	12.17'	31'
11+28.50	13	24.62'	12.08'	31'
11+39.50	14	24.51'	12.00'	31'
11+50.00	15	24.41'	11.92'	31'
11+60.00	16	24.13'	11.85'	31'
11+70.00	17	22.22'	11.77'	31'
11+80.00	18	20.30'	11.70'	22'
11+90.00	19	18.39'	11.63'	14'



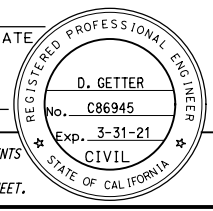
PLAN
 1" = 10'-0"

95% PRELIMINARY PLANS
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DESIGN OVERSIGHT	DESIGN BY D. Getter	CHECKED	LOAD & RESISTANCE FACTOR DESIGN	LIVE LOADING 90 PSF PEDESTRIAN; H-10 TRUCK	PREPARED FOR THE STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION	BRIDGE No. 33Exxxx	RETAINING WALL NO. 175		
SIGN OFF DATE	DETAILS BY A. Magpantay	CHECKED	LAYOUT BY D. Getter	CHECKED	PROJECT ENGINEER David Jones	POST MILE 6.59		GENERAL PLAN	
DESIGN GENERAL PLAN SHEET (ENGLISH) (REVISION 4/19/2018)	QUANTITIES BY	CHECKED	SPECIFICATIONS BY	PLANS AND SPECS COMPARED	UNIT: PROJECT NUMBER & PHASE: 0400020155	CONTRACT No.: 04-0A770	DISREGARD PRINTS BEARING EARLIER REVISION DATES	REVISION DATES 12/20/18	SHEET 1 OF 5

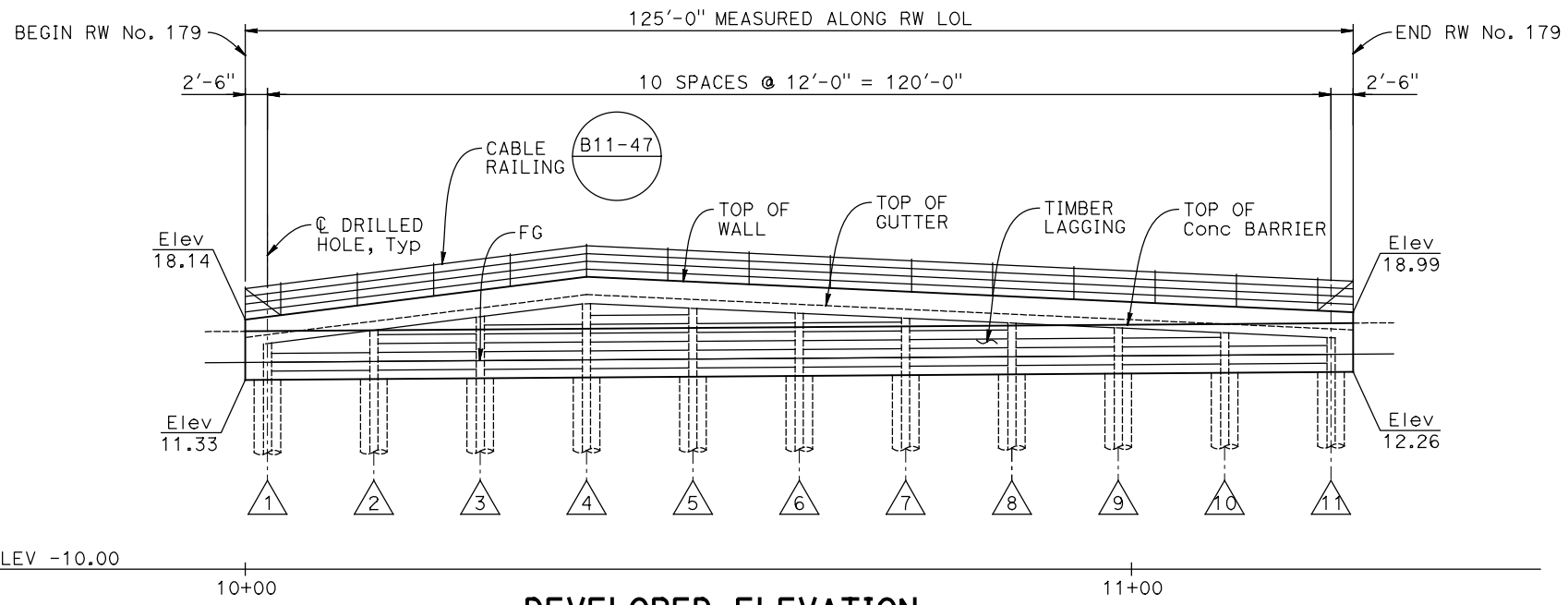
DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	ALA	80	6.3/7.0		

REGISTERED CIVIL ENGINEER DATE _____
 PLANS APPROVAL DATE _____
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95% PRELIMINARY PLANS
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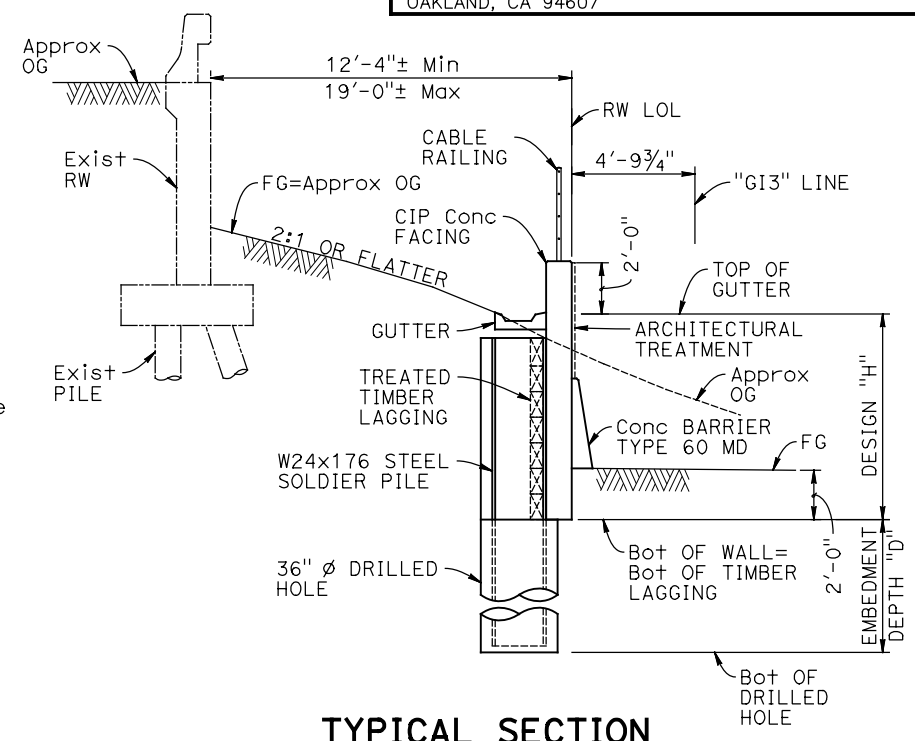


DATUM ELEV -10.00
 10+00 11+00

- LEGEND:**
- ← Indicates Direction of Traffic
 - XX.X Indicates Approximate Bottom of Footing Elevation of Existing Retaining Wall or Bridge Abutment
 - X Pile Number
- UTILITIES:**
- ① Existing Storm Drain (to be relocated)

- NOTES:**
- Contours shown represent approximate existing ground.
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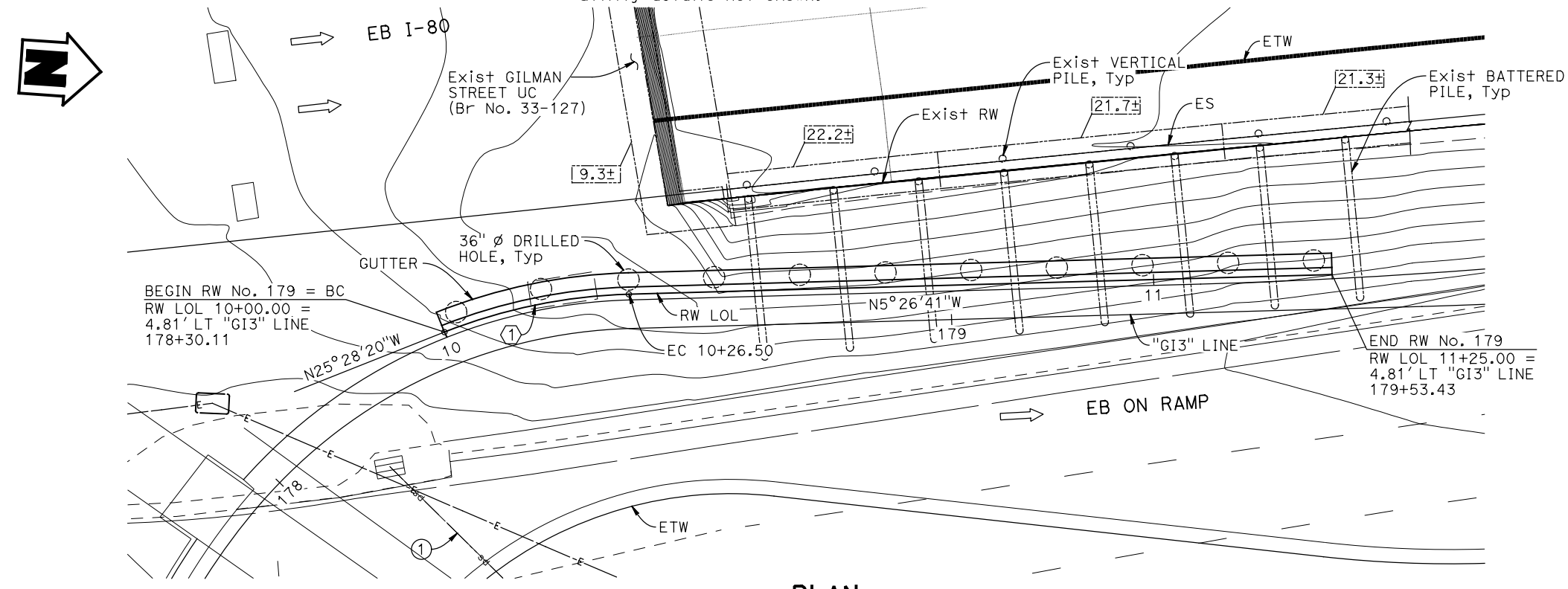
DEVELOPED ELEVATION
 1" = 10'-0"



TYPICAL SECTION
 3/8" = 1'-0"

STATION	PILE NUMBER	TOP OF WALL ELEVATION	BOTTOM OF WALL ELEVATION	PILE EMBEDMENT "D"
10+02.50	1	18.46'	11.35'	15'
10+14.50	2	19.96'	11.44'	24'
10+26.50	3	21.47'	11.53'	30'
10+38.50	4	22.98'	11.62'	30'
10+50.50	5	22.42'	11.71'	30'
10+62.50	6	21.87'	11.79'	24'
10+74.50	7	21.31'	11.88'	24'
10+86.50	8	20.76'	11.97'	24'
10+98.50	9	20.21'	12.06'	15'
11+10.50	10	19.66'	12.15'	15'
11+22.50	11	19.11'	12.24'	15'

CURVE DATA				
NO.	R	Δ	T	L
①	75.81'	20°01'39"	13.39'	26.50'



PLAN
 1" = 10'-0"

DESIGN OVERSIGHT 1	DESIGN BY D. Getter	CHECKED	LOAD & RESISTANCE FACTOR DESIGN LIVE LOADING 90 PSF PEDESTRIAN; H-10 TRUCK	PREPARED FOR THE STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION	BRIDGE No. 33Exxxx	RETAINING WALL NO. 179 GENERAL PLAN
SIGN OFF DATE	DETAILS BY A. Magpantay	CHECKED	LAYOUT BY D. Getter	PROJECT ENGINEER David Jones	POST MILE 6.67	
DESIGN GENERAL PLAN SHEET (ENGLISH) (REVISION 4/19/2018)	QUANTITIES BY	CHECKED	SPECIFICATIONS BY	PLANS AND SPECS COMPARED	UNIT: PROJECT NUMBER & PHASE: 0400020155	CONTRACT No.: 04-0A770
DATE PLOTTED => #DATE FILE => #REQUEST	TIME PLOTTED => #TIME USERNAME => #USER	ORIGINAL SCALE IN INCHES FOR REDUCED PLANS	0 1 2 3	DISREGARD PRINTS BEARING EARLIER REVISION DATES	REVISION DATES 12/20/18	SHEET 1
						OF 5

ATTACHMENT C

PRELIMINARY COST ESTIMATE SUMMARY

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Gilman St Roundabout Cost Estimate

Project ID: 0400020155

Type of Estimate : PA/ED
Program Code :
Project Limits : Dist 04, Alameda County, Interstate 80 (PM 6.3 to 7.0)
Description: Construct Multi-Lane Roundabouts

Scope : Replace existing stop-controlled intersections with multi lane roundabouts (pavement widening, roadway reconstruction)

Alternative : Roundabout

	Current Cost	Escalated Cost
ROADWAY ITEMS	\$ 23,946,300	\$ 25,404,700
STRUCTURE ITEMS	\$ 13,348,000	\$ 14,160,900
SUBTOTAL CONSTRUCTION COST	\$ 37,294,300	\$ 39,565,600
RIGHT OF WAY	\$ 4,090,319	\$ 4,984,994
TOTAL CAPITAL OUTLAY COST	\$ 41,385,000	\$ 44,551,000
SCOPING/PLANNING	\$ 794,000	\$ 794,000
PA/ED SUPPORT	\$ 5,015,200	\$ 5,015,200
PS&E SUPPORT	\$ 5,043,000	\$ 5,043,000
RIGHT OF WAY SUPPORT	\$ 505,800	\$ 505,800
CONSTRUCTION SUPPORT	\$ 5,815,000	\$ 5,815,000
TOTAL CAPITAL OUTLAY SUPPORT COST*	\$ 17,173,000	\$ 17,173,000
TOTAL PROJECT COST	\$ 58,558,000	\$ 61,724,000

If Project has been programmed enter Programmed Amount \$ -

Date of Estimate (Month/Year) Month / Year
5 / 2019

Estimated Date of Construction Start (Month/Year) 12 / 2020

Number of Working Days 525 Working Days

Estimated Mid-Point of Construction (Month/Year) Month / Year
8 / 2021

Number of Plant Establishment Days Days

Estimated Project Schedule

PID Approval 9 / 2014
 PA/ED Approval 6 / 2019
 PS&E 12 / 2019
 RTL 7 / 2020
 Begin Construction 12 / 2020

Approved by Project Manager



6/25/2019

(510) 907-2172

Project Manager

Date

Phone

I. ROADWAY ITEMS SUMMARY

Section	Cost
1 Earthwork	\$ 433,900
2 Pavement Structural Section	\$ 4,441,400
3 Drainage	\$ 256,000
4 Specialty Items	\$ 5,123,200
5 Environmental	\$ 2,961,700
6 Traffic Items	\$ 3,363,500
7 Detours	\$ -
8 Minor Items	\$ 248,700
9 Roadway Mobilization	\$ 1,598,700
10 Supplemental Work	\$ 647,000
11 State Furnished	\$ 239,800
12 Contingencies	\$ 3,123,500
13 Overhead	\$ 1,508,900
TOTAL ROADWAY ITEMS	
	\$ 23,946,300

Estimate Prepared By :

Sasan Daneshmand

6/25/2019

510-907-2169

Name and Title

Date

Phone

Estimate Reviewed By :

Bob Smith

6/25/2019

510-907-2172

Name and Title

Date

Phone

By signing this estimate you are attesting that you have discussed your project with all functional units and have incorporated all their comments or have discussed with them why they will not be incorporated.

SECTION 1: EARTHWORK

Item code	Unit	Quantity	Unit Price (\$)	Cost
100100 Develop Water Supply	LS	1	x 10,000.00	= \$ 10,000
170103 Clearing & Grubbing	LS	1	x 39,200.00	= \$ 39,200
190101 Roadway Excavation	CY	2,710	x 56.00	= \$ 151,760
190105 Roadway Excavation (Type Z-2) ADL	CY	500	x 280.00	= \$ 140,000
192037 Structure Excavation (Retaining Wall)	CY	1,041	x 49.00	= \$ 51,009
193013 Structure Backfill (Retaining Wall)	CY	414	x 89.00	= \$ 36,846
198010 Imported Borrow	CY	100	x 50.00	= \$ 5,000
XXXXXX Some Item			x	= \$ -

TOTAL EARTHWORK SECTION ITEMS	\$ 433,900
--------------------------------------	-------------------

SECTION 2: PAVEMENT STRUCTURAL SECTION

Item code	Unit	Quantity	Unit Price (\$)	Cost
260203 Class 2 Aggregate Base	CY	6,329	x 52.00	= \$ 329,108
260303 Class 3 Aggregate Base	CY	292	x 65.00	= \$ 18,980
374207 Crack Treatment	LNMI	3	6,675.00	= \$ 20,025
390132 Hot Mix Asphalt (Type A)	TON	14,182	x 110.00	= \$ 1,560,020
390133A Textured Hot Mix Asphalt	CY	284	x 496.00	= \$ 140,864
390137 Rubberized Hot Mix Asphalt (Gap Graded)	TON	1,766	x 160.00	= \$ 282,560
397005 Tack Coat	TON	227.0	x 965.00	= \$ 219,055
398000 Remove Asphalt Concrete Pavement	CY	121	x 18.00	= \$ 2,178
398100 Remove Asphalt Concrete Dike	LF	1,050	3.30	= \$ 3,465
398200 Cold Plane Asphalt Concrete Pavement	SQYD	16,599	x 4.30	= \$ 71,376
398300 Remove Base and Surfacing	CY	4,432	x 23.00	= \$ 101,936
730020 Minor Concrete (Curb)	CY	210	x 1,200.00	= \$ 252,000
731504 Minor Concrete (Curb and Gutter)	CY	584	x 520.00	= \$ 303,680
731511 Minor Concrete (Island Paving)	CY	295	x 720.00	= \$ 212,400
731516 Minor Concrete (Driveway)	CY	100	x 600.00	= \$ 60,000
731521 Minor Concrete (Sidewalk)	CY	1,025	x 620.00	= \$ 635,500
731623 Minor Concrete (Curb Ramp)	CY	40	x 1,100.00	= \$ 44,000
731700 Remove Curb	LF	5,000	x 15.00	= \$ 75,000
731780 Remove Concrete Sidewalk	SQYD	5,200	x 21.00	= \$ 109,200
731840 Remove Concrete (Curb and Gutter)	LF	3,250	x 12.50	= \$ 40,625

TOTAL STRUCTURAL SECTION ITEMS	\$ 4,441,400
---------------------------------------	---------------------

SECTION 3: DRAINAGE

Item code	Unit	Quantity	Unit Price (\$)	Cost
710150 Remove Inlet	EA	4	x 990.00 = \$	3,960
710156 Remove Manhole	EA	2	x 1,160.00 = \$	2,320
710184 Reconstruct Inlet	EA	12	x 2,600.00 = \$	31,200
710208 Adjust Frame and Cover to Grade	EA	3	x 733.00 = \$	2,199
710250 Modify Inlet to Manhole	EA	4	x 2,200.00 = \$	8,800
610109 18" Alternative Pipe Culvert (Type A)	LF	75	x 92.00 = \$	6,900
65XXXX XXX" RCP Pipe	LF	700	x 100.00 = \$	70,000
707117 36" Precast Concrete Pipe Inlet	EA	3	x 4,700.00 = \$	14,100
707217 36" Precast Concrete Pipe Manhole	EA	12	x 3,040.00 = \$	36,480
XXXXXX 60" Flap Gate	EA	1	x 80,000.00 = \$	80,000
TOTAL DRAINAGE ITEMS				\$ 256,000

SECTION 4: SPECIALTY ITEMS

Item code	Unit	Quantity	Unit Price (\$)	Cost
027344 Remove Railroad Tracks	LF	4,240	x 70.00 = \$	296,800
033894 Remove Bollards (Wood)	EA	105	x 200.00 = \$	21,000
070030 Lead Compliance Plan	LS	1	x 4,400.00 = \$	4,400
080050 Progress Schedule (Critical Path Method)	LS	1	x 5,100.00 = \$	5,100
170203 Remove Tree	EA	9	x 950.00 = \$	8,550
470610 Curtain Closure Wall	SF	6,717	x 192 = \$	1,289,000
490603 24" Cast-In-Drilled-Hole Concrete Piling (Retaining Wall)	LF	2,700	x 301.00 = \$	812,700
510060 Structural Concrete (Retaining Wall)	CY	264	x 1,393.00 = \$	367,752
511035 Architectural Treatment (<i>Undercrossing Art</i>)	LS	1	x 162,000 = \$	162,000
511064 Fractured Rib Texture (Retaining Wall)	SQFT	14,542	x 17.00 = \$	247,214
520103 Bar Reinf. Steel (Retaining Wall)	LB	22,578	x 2.00 = \$	45,156
710100 Remove Flagpole	EA	2	x 500.00 = \$	1,000
780460 Anti-Graffiti Coating	SQFT	16,215	x 1.25 = \$	20,269
800320 Chain Link Fence	LF	185	x 27.00 = \$	4,995
803015 Remove Wood Fence	LF	115	x 14.00 = \$	1,610
803020 Remove Fence	LF	240	x 7.00 = \$	1,680
803020 Remove Fence	LF	425	x 4.50 = \$	1,913
803030 Remove Fence - Type BW)	LF	340	x 5.00 = \$	1,700
803040 Remove Fence - Type WM)	LF	3,000	x 8.50 = \$	25,500
820107 Delineator (Class 1)	EA	25	x 63.00 = \$	1,575
832002 Metal Beam Guard Railing	LF	250	x 45.00 = \$	11,250
839774 Remove Concrete Barrier	LF	1,000	x 36.00 = \$	36,000
XXXXXX UPRR Crossing Modifications	LS	1	x 1,500,000.00 = \$	1,500,000
XXXXXX Replace Fence for Avis	LS	1	x 60,000.00 = \$	60,000
820850 Monument Sign 2nd and Gilman	EA	1	x 100,000.00 = \$	100,000
XXXXXX Undercrossing Lighting	LS	6	x 15,000.00 = \$	90,000
XXXXXX Swing Pipe Gate	LS	1	x 6,000.00 = \$	6,000
XXXXXX Berkeley Sewer Line (Paid for by others)	LS	1	x 301,990.00 =	\$ 301,990
XXXXXX Relocate EBMUD Recycled Water Line (Paid for by others)	LS	1	x 1,295,473.00 =	\$ 1,295,473
TOTAL SPECIALTY ITEMS				\$ 5,123,200

SECTION 5: ENVIRONMENTAL

5A - ENVIRONMENTAL MITIGATION

Item code	Unit	Quantity	Unit Price (\$)	Cost
Biological Mitigation	LS	x	= \$	-
120149 Temporary Pavement Marking (ESA)	SF	250	x 9.00	= \$ 2,250
130680 TEMPORARY SILT FENCE	LF	7,495	x 5.03	= \$ 37,700
141000 Temporary Fence (Type ESA)	LF	221	x 7.00	= \$ 1,547
141120 Treated Wood Waste	LB	400	2.75	\$ 1,100
148005 Noise Monitoring	LS	1	26,500.00	\$ 26,500
Subtotal Environmental				\$ 69,097

5B - LANDSCAPE AND IRRIGATION

Item code	Unit	Quantity	Unit Price (\$)	Cost
200123 Cultivation	SQYD	556	30.00	\$ 16,680
202006 Soil Amendment	CY	140	60.00	\$ 8,400
202037 Organic Fertilizer	LB	173	5.00	\$ 865
202038 Packet Fertilizer	EA	1,321	2.00	\$ 2,642
204006 PLANT (GROUP F)	EA	42,384	1.40	\$ 59,338
204009 PLANT (GROUP I)	EA	6,730	8.00	\$ 53,840
204036 PLANT (GROUP B)	EA	1,255	35.00	\$ 43,925
204038 PLANT (GROUP U)	EA	33	175.00	\$ 5,775
204042 PLANT (GROUP Z)(EA)	EA	55	960.00	\$ 52,800
204099 Plant Establishment Work(1 Year)	LS	1	x 100,000.00	= \$ 100,000
204099 Plant Establishment Work(3 Year)	LS	1	x 200,000.00	= \$ 200,000
205035 WOOD MULCH	CY	49	235.00	\$ 11,499
205051 FOLIAGE PROTECTOR	EA	17	64.00	\$ 1,088
206400 Check and Test Existing Irrigation Facilities	LS	1	x 4,600.00	= \$ 4,600
208000 Irrigation System	LS	1	x 518,252.50	= \$ 518,253
208304 Water Meter	EA	3	x 141,000.00	= \$ 423,000
210300 HYDROMULCH	SQFT	35,712	0.10	\$ 3,571
210420 STRAW	SQFT	35,712	0.10	\$ 3,571
210430 HYDROSEED	SQFT	35,712	0.10	\$ 3,571
210610 COMPOST (CY)	CY	111	100.00	\$ 11,100
210630 INCORPORATE MATERIALS	SQFT	35,712	0.40	\$ 14,285
XXXXXX Hardscape Treatment (Center of Roundabout)	LS	2	x 127,000.00	\$ 254,000
Subtotal Landscape and Irrigation				\$ 1,792,803

5C - EROSION CONTROL

Item code	Unit	Quantity	Unit Price (\$)	Cost
203032 Erosion Control (Hydroseed)	SQFT	22,275	0.27	\$ 6,014
210360 Erosion Control (Compost Sock)	LF	863	x 11.00	= \$ 9,493
Subtotal Erosion Control				\$ 15,507

5D - NPDES

Item code	Unit	Quantity	Unit Price (\$)	Cost
130100 Job Site Management	LS	1	x 75,000.00	= \$ 75,000
130300 Prepare SWPPP	LS	1	x 12,067.00	= \$ 12,067
130310 Rain Event Action Plan (REAP)	EA	80	x 500.00	= \$ 40,000
130320 Stormwater Sampling and Analysis Day	EA	24	x 2,461.13	= \$ 59,067
130330 Storm Water Annual Report	EA	2	x 2,000.00	= \$ 4,000
130610 Temporary Check Dam	LF	250	x 13.00	= \$ 3,250
130620 Temporary Drainage Inlet Protection	EA	24	x 253.00	= \$ 6,072
130640 Temporary Fiber Roll	LF	595	x 4.00	= \$ 2,380
130710 Temporary Construction Entrance	EA	35	x 4,000.00	= \$ 140,000
130730 Street Sweeping	LS	1	x 30,000.00	= \$ 30,000
130800 Temporary Active Treatment System	LS	1	x 63,000.00	= \$ 63,000
130900 Temporary Concrete Washout Facility	EA	2	x 2,150.00	= \$ 4,300
130900 Temporary Concrete Washout (Portable)	LS	1	x 25,000.00	= \$ 25,000
210110 Imported Biofiltration Soil (swale)	CY	955	100.00	\$ 95,500
260303 Class 3 AB (swale)	CY	155	65.00	\$ 10,075
680905 8" perforated plastic pipe underdrain (swale)	LF	1,719	41.00	\$ 70,479
XXXXXX Detention Device (Bioretention)	LS	1	44,013.50	\$ 44,014
XXXXXX Trash Capture	LS	1	400,000.00	\$ 400,000

Supplemental Work for NPDES

(These costs are not accounted in total here but under Supplemental Work on sheet 7 of 11).

066595 Water Pollution Control Maintenance Sharing*	LS	1	x 12,100.00	= \$ 12,100
066596 Additional Water Pollution Control**	LS	1	x 100,000.00	= \$ 100,000
066597 Storm Water Sampling and Analysis***	LS	1	x 6,000.00	= \$ 6,000
XXXXXX Some Item				

Subtotal NPDES (Without Supplemental Work) \$ 1,084,204

*Applies to all SWPPPs and those WPCPs with sediment control or soil stabilization BMPs.

**Applies to both SWPPPs and WPCP projects.

*** Applies only to project with SWPPPs.

TOTAL ENVIRONMENTAL	\$ 2,961,700
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SECTION 6: TRAFFIC ITEMS

6A - Traffic Electrical

Item code	Unit	Quantity		Unit Price (\$)		Cost
770090 Lighting (City Street)	LS	1	x	560,000.00	= \$	560,000
860810 Inductive Loop Detectors	EA		x		= \$	-
860090 Maintain Existing Traffic Management System	LS	1	x	4,700.00	= \$	4,700
860705 Interconnection Facilities	LS	1	x	41,502.00	= \$	41,502
8609XX Traffic Monitoring Stations	LS		x		= \$	-
861088 Relocate Ramp Metering System (Location X)	LS	1	x	12,000.00	= \$	12,000
870400 Signals & Lighting	LS	1	x	250,000.00	= \$	250,000
870510 Ramp Metering System (Location X)	LS	1	x	150,000.00	= \$	150,000
860705A Jack and bore 4" welded steel pipe conduit (for inter	LF	99	x	390.00	= \$	38,610
<i>Subtotal Traffic Electrical</i>						\$ 1,056,812

6B - Traffic Signing and Striping

Item code	Unit	Quantity		Unit Price (\$)		Cost
120090 Construction Area Signs	LS	1	x	30,000.00	= \$	30,000
141101 Remove Yellow Painted Traffic Stripe (Hazardous W	LF	7,710	x	2.65	= \$	20,432
560233 Furnished Formed Panel Sign (OH)	SQFT	500	x	17.00	= \$	8,500
730070 Detectable Warning Surface	SQFT	525	x	40.00	= \$	21,000
820207 Remove Roadside Sign (Wood Post)	EA	19	x	105.00	= \$	1,995
820280 Remove Roadside Sign (Metal Post)	EA	16	x	135.00	= \$	2,160
820590 Relocate Roadside Sign-One Post	EA	4	x	270.00	= \$	1,080
820600 Relocate Roadside Sign-Two Post	EA	13	x	320.00	= \$	4,160
820840 Roadside Sign (One Post)	EA	65	x	250.00	= \$	16,250
820850 Roadside Sign (Two Post)	EA	5	x	440.00	= \$	2,200
820880 Install Sign (Mast Arm Hanger Method)	LB		x		= \$	-
820890 Install Sign Panels	SQFT	500	x	51.00	= \$	25,500
820900 Install Roadside Sign Panel on Ex. Post	EA	25	x	150.00	= \$	3,750
840504 4" Thermoplastic Traffic Stripe	LF	27,000	x	1.00	= \$	27,000
840505 6" Thermoplastic Traffic Stripe	LF	1,600		2.00	= \$	3,200
840506 8" Thermoplastic Traffic Stripe	LF	1,050		2.00	= \$	2,100
840508 8" Thermoplastic Traffic Stripe (Broken 2-4)	LF	300	x	2.00	= \$	600
840515 Thermoplastic Pavement Markings	SQFT	5,688	x	8.50	= \$	48,348
840519 Thermoplastic Crosswalk and Pavement Markings	SQFT	3,319	x	5.00	= \$	16,595
840526 4" Thermoplastic Traffic Stripe (Broken 17-7)	LF	1,950	x	1.00	= \$	1,950
910400 Green Pavement Paint (Cycle Path)	SQFT	1,900	x	14.00	= \$	26,600
<i>Subtotal Traffic Signing and Striping</i>						\$ 263,420

6C - Stage Construction and Traffic Handling

Item code	Unit	Quantity		Unit Price (\$)		Cost
120100 Traffic Control System	LS	1	x	278,000.00	= \$	278,000
128651 Portable Changeable Message Signs	EA	8	x	189,000.00	= \$	1,512,000
129000 Temporary Railing (Type K)	LF	9,900	x	24.00	= \$	237,600
129100 Temp. Crash Cushion Module	EA	65	x	240.00	= \$	15,600
<i>Subtotal Stage Construction and Traffic Handling</i>						\$ 2,043,200

TOTAL TRAFFIC ITEMS	\$ 3,363,500
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SECTION 7: DETOURS

Include constructing, maintaining, and removal

Item code	Unit	Quantity	Unit Price (\$)	Cost
0713XX Temporary Fence (Type X)	LF	x	= \$	-
07XXXX Temporary Drainage	LS	x	= \$	-
120143 Temporary Pavement Delineation	LF	x	= \$	-
1286XX Temporary Signals	EA	x	= \$	-
129000 Temporary Railing (Type K)	LF	x	= \$	-
190101 Roadway Excavation	CY	x	= \$	-
198001 Imported Borrow	CY	x	= \$	-
198050 Embankment	CY	x	= \$	-
250401 Class 4 Aggregate Subbase	CY	x	= \$	-
260201 Class 2 Aggregate Base	CY	x	= \$	-
390132 Hot Mix Asphalt (Type A)	TON	x	= \$	-
XXXXXX Some Item	LS	x	= \$	-
TOTAL DETOURS				\$ -

SUBTOTAL SECTIONS 1-7 \$ 16,579,700

SECTION 8: MINOR ITEMS

8A - Americans with Disabilities Act Items

ADA Items 0.5% \$ 82,899

8B - Bike Path Items

Bike Path Items 0.5% \$ 82,899

8C - Other Minor Items

Other Minor Items 0.5% \$ 82,899

Total of Section 1-7 \$ 16,579,700 x 1.5% = \$ 248,696

TOTAL MINOR ITEMS \$ 248,700

SECTIONS 9: MOBILIZATION

Item code	Quantity	Unit Price (\$)	Cost
999990 Total Section 1-8	16,828,400 x	10%	\$ 1,598,698
TOTAL MOBILIZATION			\$ 1,598,700

SECTION 10: SUPPLEMENTAL WORK

Item code	Unit	Quantity	Unit Price (\$)	Cost
066015 Federal Trainee Program	LS	1 x	7,200.00 = \$	7,200
066090 Maintain Traffic	LS	1 x	367,500.00 = \$	367,500
066094 Value Analysis	LS	1 x	10,000.00 = \$	10,000
066204 Remove Rock & Debris	LS	x	= \$	-
066222 Locate Existing Cross-Over	LS	x	= \$	-
066670 Payment Adjustments For Price Index Fluctuations	LS	1 x	22,200.00 = \$	22,200
066700 Partnering	LS	1 x	70,000.00 = \$	70,000
066866 Operation of Existing Traffic Management System Elements D	LS	x	= \$	-
066921 Dispute Resolution Advisor	LS	1 x	22,000.00 = \$	22,000
XXXXXX Tow Service	LS	1 x	30,000.00 = \$	30,000
<i>Cost of NPDES Supplemental Work specified in Section 5C</i>				<i>= \$ 118,100</i>
Total Section 1-8		\$ 16,828,400	0.0%	= \$ -
TOTAL SUPPLEMENTAL WORK			\$ 647,000	

SECTION 11: STATE FURNISHED MATERIALS AND EXPENSES

Item code	Unit	Quantity	Unit Price (\$)	Cost
066063 Public Information	LS	1	x 30,000.00 =	\$30,000
066105 RE Office	LS	1	x 183,000.00 =	\$183,000
066803 Padlocks	LS		x =	\$0
066838 Reflective Numbers and Edge Sealer	LS		x =	\$0
066901 Water Expenses	LS		x =	\$0
066916 Annual Construction General Permit Fee	EA	2	x 880.00 =	\$1,760
066062A COZEEP Expenses	LS	1	x 25,000.00 =	\$25,000
06684X Ramp Meter Controller Assembly	LS		x =	\$0
06684X TMS Controller Assembly	LS		x =	\$0
06684X Traffic Signal Controller Assembly	LS		x =	\$0
XXXXXX Some Item				

Total Section 1-8	\$	16,828,400	0.0%	= \$	-
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TOTAL STATE FURNISHED	\$239,800
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SECTION 12: TIME-RELATED OVERHEAD

Estimated Time-Related Overhead (TRO) Percentage (0% to 10%) = 5%

Item code	Unit	Quantity	Unit Price (\$)	Cost
090100 Time-Related Overhead	WD	525	X \$2,874.10 =	\$1,508,900

TOTAL TIME-RELATED OVERHEAD	\$1,508,900
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SECTION 13: CONTINGENCY

(Pre-PSR 30%-50%, PSR 25%, Draft PR 20%, PR 15%, after PR approval 10%, Final PS&E 5%)

Total Section 1-11	\$	20,822,800	x	15%	=	\$3,123,420
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TOTAL CONTINGENCY	\$3,123,500
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II. STRUCTURE ITEMS

	<u>Bridge 1</u>	<u>GGF Security Gate</u>	
DATE OF ESTIMATE	00/00/00	00/00/00	00/00/00
Bridge Name	XXXXXXXXXXXXXXXXXXXX	XXXXXXXXXXXXXXXXXXXX	XXXXXXXXXXXXXXXXXXXX
Bridge Number	57-XXX	57-XXX	57-XXX
Structure Type	POC	XXXXXXXXXXXXXXXXXXXX	XXXXXXXXXXXXXXXXXXXX
Width (Feet) [out to out]	18.5-22.0 LF	0.00 LF	0.00 LF
Total Bridge Length (Feet)	1102.75 LF	0.00 LF	0.00 LF
Total Area (Square Feet)	22342 SQFT	64 SQFT	0 SQFT
Structure Depth (Feet)	0.00 LF	0.00 LF	0.00 LF
Footing Type (pile or spread)	XXXXXXXXXXXXXXXXXXXX	XXXXXXXXXXXXXXXXXXXX	XXXXXXXXXXXXXXXXXXXX
Cost Per Square Foot	-	\$3,906.25	\$0.00

COST OF EACH STRUCTURE	\$13,098,000.00	\$250,000.00	\$0.00
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DATE OF ESTIMATE	00/00/00	00/00/00	00/00/00
Name	XXXXXXXXXXXXXXXXXXXX	XXXXXXXXXXXXXXXXXXXX	XXXXXXXXXXXXXXXXXXXX
Bridge Number	57-XXX	57-XXX	57-XXX
Structure Type	XXXXXXXXXXXXXXXXXXXX	XXXXXXXXXXXXXXXXXXXX	XXXXXXXXXXXXXXXXXXXX
Width (Feet) [out to out]	0.00 LF	0.00 LF	0.00 LF
Total Length (Feet)	0.00 LF	0.00 LF	0.00 LF
Total Area (Square Feet)	0 SQFT	0.00 SQFT	0.0 SQFT
Structure Depth (Feet)	0.00 LF	0.00 LF	0.00 LF
Footing Type (pile or spread)	XXXXXXXXXXXXXXXXXXXX	XXXXXXXXXXXXXXXXXXXX	XXXXXXXXXXXXXXXXXXXX
Cost Per Square Foot	\$0.00	\$0.00	\$0.00

COST OF EACH STRUCTURE	\$0.00	\$0.00	\$0.00
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TOTAL COST OF BRIDGES	\$13,098,000.00
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TOTAL COST OF BUILDINGS	\$250,000.00
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TOTAL COST OF STRUCTURES¹	\$13,348,000.00
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Estimate Prepared By: 
Daniel Getter, Senior Bridge Engineer

12/14/2018
Date

¹Structure's Estimate includes Overhead and Mobilization.
Add more sheets if needed. Call them 9a, 9b, 9c, ..., etc

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ATTACHMENT D

RIGHT-OF-WAY DATA SHEET

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RIGHT OF WAY DATA SHEET FOR LOCAL PUBLIC AGENCIES

17-EX-21 (Rev 12/2014)

To: District Office Chief
R/W Local Programs

Date: 05/07/2019

Attention: Julie McDaniel
District Office Chief
Right of Way Airspace Leasing, Local Programs

Co. Alameda Rte. I-80
PM. 6.38/6.95

Expense Authorization: 04-0A770
Project ID: 0400020155

Subject: **RIGHT OF WAY DATA SHEET- LOCAL PROGRAMS**

Project Description: I-80 /Gilman Street Interchange Improvement Project

Right of way necessary for the subject project will be the responsibility of Alameda County Transportation Commission.

The information in this data sheet was developed by Parsons / Associated Right of Way Services, Inc.

I. **Right of Way Engineering**

What level of right of way engineering is required for this project?

Minimal (Requires Right of Way Retracement Narrative)

- No fee or easement acquisitions are required for the project; AND
- No excess lands will be created by the project; AND
- No Temporary Construction Easements (TCEs) are required for the project; AND
- No retaining walls, sound walls, footings, signs, traffic signals, or similar improvements will be constructed within ten feet of the existing right of way line.

Minor (Requires Land Net, and PS&E Project Control sheets)

- No fee or easement acquisitions are required for the project; AND
- No excess lands will be created by the project; AND one or both of the following:
- Temporary Construction Easements (TCEs) are required for the project;
- Improvements will be constructed within ten feet of the existing right of way line.

Moderate (Requires Land Net, PS&E Project Control sheets, Base Map, and Appraisal Map)

- At least one fee and/or easement (except TCEs) acquisition is required for the project; AND
- No excess lands will be created by the project; AND
- No parcels will be transferred to the State.

Major (Requires full compliance with Right of Way Manual and Local Public Agency Coordination (LPAC) Guidelines including, but not limited to, pre-design Record of Survey, Base Map, Appraisal Map, legal descriptions and deeds, property transfer documents, JUAs/CCUAs, Record Map, monuments, and one or more Record of Surveys)

- One or more fee and/or easement parcels will be transferred to the State; AND/OR
- Excess lands will be created by the project.

II. **Engineering Surveys**

Is any surveying or photogrammetric mapping required?

- No (Provide explanation)
 Yes (Complete the following)

Datum Requirements

1. The units for this project are

- U. S. Survey Feet;
 Metric (Provide explanation).

2. The horizontal datum for this project is

- California Coordinate System of 1983 (NAD 83 (1992), Epoch _____);
 California Coordinate System of 1983 (NAD 83 (2011), Epoch (2010.00);
(Provide Datum Tag and Epoch).
 Other (Provide explanation).

3. The vertical datum for this project is

- North American Vertical Datum of 1988 (NAVD 88);
 National Geodetic Vertical Datum of 1927 (NGVD 27) (Provide explanation).
 Other (Provide explanation).

III. **Parcel Information (Land and Improvements)**

Are there any property rights required within the proposed project limits?

- No Yes (Complete the following)

Provide a general description of the right of way and excess lands required (zoning, use, major improvements, critical or sensitive parcels, etc.)

- 1.) Proposed acquisitions of partial fee simple, temporary construction easements, and access control are required from two properties; one will also have a permit to enter and construct. Temporary construction easements are required from two properties. Access control rights are required from two properties. A permit to enter and construct is needed from one property. A total of seven properties are involved. Two are zoned SP – Specific Plan and five are zoned M – Manufacturing.
- 2.) Section 83 Parcels – Three City of Berkeley parcels will be incorporated into the State’s Highway System by California Streets and Highway Code Section 83. Two are portions of Gilman Street and one is a portion of Eastshore Highway.

RIGHT OF WAY DATA SHEET FOR LOCAL PUBLIC AGENCIES

Right of Way Cost Estimate:

	Current Value	Escalation Rate		Escalated Value
A. Acquisition, including Excess Lands, Damages, and Goodwill	<u>\$2,554,526</u>	<u>10</u>	%	<u>\$3,090,976</u>
Environmental Mitigation - None	<u>\$0</u>		%	<u>\$0</u>
Grantor's Appraisal Cost	<u>\$40,000</u>	<u>N/A</u>		<u>\$40,000</u>
B. Utility Relocation - Project Liability (from Section VII)	<u>\$1,464,793</u>	<u>7.5</u>	%	<u>\$1,819,708</u>
C. Relocation Assistance	<u>\$10,000</u>	<u>10</u>	%	<u>\$13,310</u>
D. Clearance Demolition	<u>\$0</u>		%	<u>\$0</u>
E. Title and Escrow Fees	<u>\$21,000</u>	<u>N/A</u>	%	<u>\$21,000</u>
F. <u>TOTAL ESCALATED VALUE</u>				<u>\$4,984,994</u>
G. Railroad Construction Costs (flagger, track work etc)	<u>\$1,500,000</u>			(These are construction costs to be included in PS&E)
H. Construction Contract Work	<u>\$91,600</u>			(These are construction costs to be included in PS&E)
I. <u>TOTAL PARCEL COUNT</u>				<u>10</u>

IV. **Dedications**

Are there any property rights that have been acquired, or anticipate will be acquired, through the "dedication" process for the Project?

No X Yes (Complete the following)

Number of dedicated parcels: _____

Have the dedication parcel(s) been accepted by the municipality involved? No Yes

RIGHT OF WAY DATA SHEET FOR LOCAL PUBLIC AGENCIES

V. **Excess Lands / Relinquishments**

Are there Caltrans property rights which may become excess lands or potential relinquishment areas?

No X Yes _____ (Provide an explanation in Remarks Section XIII.)

VI. **Relocation Information**

Are there relocations anticipated? YES X NO _____

(If yes, provide the following information)

No. of personal property relocations 1

No. of single family _____ No. of business/non profit _____

No. of multi-family _____ No. of farms _____

Based on Draft / Final Relocation Impact Statement / Study (circle one) –
Dated _____, it is anticipated that sufficient replacement housing
will / will not be available without Last Resort Housing.

RIGHT OF WAY DATA SHEET FOR LOCAL PUBLIC AGENCIES

17-EX-21 (Rev 12/2014)

VII. Utility Relocation Information

Anticipate any utility facilities or utility rights of way to be affected?

No _____ Yes X (Complete the following)

Facility	Owner	Estimated Relocation Expense		
		State Obligation	Local Obligation	Utility Owner Obligation
Electric	PG&E	\$0	\$1,461,553	\$100,000
Recycled Water	EBMUD	\$0	\$0	\$1,295,473
Sewer	City of Berkeley			\$301,990
Totals				
Number of facilities <u> 1 </u>		\$0	\$1,464,793	\$1,697,463

Note: For the Electric relocation, the project contractor will construct the trench and PG&E will perform the installation work. For EBMUD Recycled Water and Berkeley Sewer, the project contractor will construct the trench and perform the installation work.

The following checked items may seriously impact lead time for utility relocation:

- Longitudinal policy conflict(s)
- Environmental concerns impacting acquisition of potential easements
- Power lines operating in excess of 50 KV and substations

VIII. **Rail Information**

Are railroad facilities or railroad rights of way affected?

No _____ Yes X* (Complete the following)

Describe railroad facilities or railroad rights of way affected.

Owner's Name	Transverse Crossing	Longitudinal Encroachment
A. Union Pacific Railroad Co.	N/A	N/A
B.		

Discuss types of agreements and rights required from the railroads. Are grade crossings requiring services contracts, or grade separations requiring construction and maintenance agreements involved?

*Right of Way Agreement and C+M Agreement for CPUC Improvements – New flashing signals and gates, protect in place existing flashing signals and replace existing gates. Restriping, signage and raised medians within UPRR R/W. Queue-cutter signals and electrical conduit within UPRR R/W. A CPUC GO88-B will be required for any modifications to any safety devices. All flagging costs should be included in the C+M.

IX. **Clearance Information**

Are there improvements that require clearance?

No X Yes _____ (Complete the following)

- A. Number of Structures to be demolished _____
- B. Estimated Cost of Demolition \$ _____
- C. If there is demolition and clearance, will it be done prior to construction or as part of the construction contract?

X. **Hazardous Materials/Waste**

Are there any sites and/or improvements in the Project Limits that are known to contain hazardous waste/materials?

None X Yes _____ (Explain in the Remarks Section XIII)

Are there any sites and/or improvements in the Project Limits that are suspected to contain hazardous waste/materials?

None X Yes _____ (Explain in the Remarks Section XIII)

RIGHT OF WAY DATA SHEET FOR LOCAL PUBLIC AGENCIESXI. **Project Scheduling****Completion Dates**

Proposed completion of Appraisal maps and legal descriptions, if needed	<u>11/2018</u>
Proposed Environmental Clearance	<u>06/2019</u>
Proposed R/W Certification	<u>04/2020</u>
Proposed Ready to List (RTL)	<u>07/2020</u>
Proposed Construction Award	<u>12/2020</u>

XII. **Proposed Funding**

	Local	State	Federal	Other
Acquisition	<u>\$3,090,976</u>	<u>\$0</u>	<u>\$0</u>	<u>\$0</u>
Utilities	<u>\$1,819,708</u>	<u>\$0</u>	<u>\$0</u>	<u>\$2,108,753</u>
Relocation Assistance Program	<u>\$13,310</u>	<u>\$0</u>	<u>\$0</u>	<u>\$0</u>
R/W Support Costs	<u>\$505,800</u>	<u>\$0</u>	<u>\$0</u>	<u>\$0</u>

XIII. **Remarks**

Section III. Parcel Information (Land and Improvements) – Right of Way Cost Estimate – A: Includes a 30% contingency factor to address, in part, loss of business goodwill claims, limited administrative settlements, and other unknown potential impacts. An annual 10% Escalation Rate was applied to the Acquisitions, Relocation Assistance, and an annual 7.5% Escalation Rate applied to the Utilities Relocation, with the escalation for Acquisitions covering a two-year period and the escalation for Relocation Assistance and Utilities Relocation covering a three-year period.

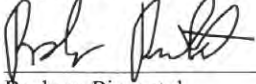
STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
RIGHT OF WAY DATA SHEET FOR LOCAL PUBLIC AGENCIES

EXHIBIT
17-EX-21 (Rev 12/2014)

Expenditure Authorization: 04-30A770
Project ID: 0400020155

Project Sponsor Consultant

Prepared by:



Rodney Pimentel
Parsons

Project Manager

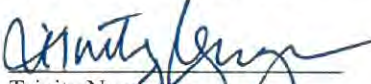
Title

05/07/2019

Date

Project Sponsor

Reviewed and Approved by:



Trinity Nguyen
Alameda County Transportation Commission

Director of Project Delivery

Title

5.7.19

Date

**R/W Professional
(ie: qualified consultant or agency)**

Reviewed and Approved by:



Steve Castellano, SR/WA, R/W-NAC
Associated Right of Way Services

Right of Way Consultant

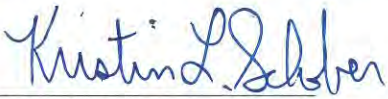
Title

5/07/19

Date

Caltrans

Reviewed and approved based on information provided to date:



Kristin Schober
Caltrans Senior R/W Agent
Local Programs
Division of Right of Way

6/27/19

Date

ATTACHMENT E

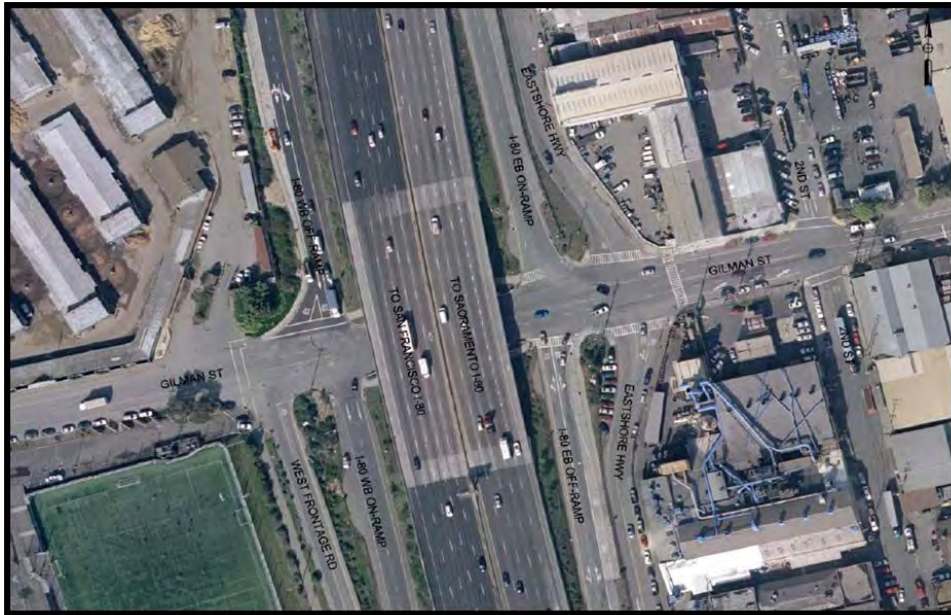
DRAFT INITIAL STUDY/ENVIRONMENTAL ASSESSMENT WITH PROPOSED MITIGATED NEGATIVE DECLARATION (SUMMARY)

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Interstate 80/Gilman Street Interchange Improvement Project

ALAMEDA COUNTY, CALIFORNIA
District 04 -ALA – 80 – POST MILE 6.38 / 6.95
EA 04-0A7700 / Project ID# 0400020155

Initial Study with Negative Declaration / Environmental Assessment with Finding of No Significant Impact



Prepared by the
State of California, Department of Transportation
and the Alameda County Transportation Commission

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



June 2019

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INTERSTATE 80/GILMAN STREET INTERCHANGE
IMPROVEMENT PROJECT

INITIAL STUDY WITH NEGATIVE DECLARATION /
ENVIRONMENTAL ASSESSMENT WITH FINDING OF NO SIGNIFICANT IMPACT

Submitted Pursuant to (State) Division 13, Public Resources Code
(Federal) 42 U.S.C. 4332(2)(c) and 49 U.S.C. 303, and/or 23 U.S.C. 138

THE STATE OF CALIFORNIA
Department of Transportation
and Alameda County Transportation Commission

COOPERATING AGENCIES:

U.S. Army Corps of Engineers, National Oceanic and Atmospheric Administration/National Marine
Fisheries Service, Bay Conservation and Development Commission, State Historic Preservation Officer,
Regional Water Quality Control Board, and the City of Berkeley

RESPONSIBLE AGENCIES:

California Transportation Commission

Date

6/21/19

Tony Tavares

District 4 Director

California Department of Transportation

NEPA/CEQA Lead Agency

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

Cristin Hallissy
Branch Chief
California Department of Transportation
111 Grand Avenue, MS 8B
Oakland, CA 94612
(510) 622-8717

Trinity Nguyen
Director of Project Delivery
Alameda County Transportation
Commission
1111 Broadway, Suite 800
Oakland, CA 94607
(510) 208-7419

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**CALIFORNIA DEPARTMENT OF TRANSPORTATION
FINDING OF NO SIGNIFICANT IMPACT**

FOR THE


**INTERSTATE 80/GILMAN STREET INTERCHANGE IMPROVEMENT
PROJECT**

The California Department of Transportation (Caltrans) and Alameda County Transportation Commission (Alameda CTC) have determined that the Build Alternative will have no significant impact on the human environment. This Finding of No Significant Impact (FONSI) is based on the attached Environmental Assessment (EA), which has been independently evaluated by Caltrans and determined to adequately and accurately discuss the need, environmental issues, and impacts of the proposed project and appropriate mitigation measures. It provides sufficient evidence and analysis for determining that an Environmental Impact Statement is not required. Caltrans takes full responsibility for the accuracy, scope, and content of the attached EA.

The environmental review, consultation, and any other action required in accordance with applicable Federal laws for this project is being, or has been, carried out by Caltrans pursuant to 23 United States Code 327 and the Memorandum of Understanding dated December 23, 2016, executed by the Federal Highway Administration and Caltrans.

Date

6/21/19


Tony Tavares
District 4 Director
California Department of Transportation

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NEGATIVE DECLARATION

Pursuant to: Division 13, Public Resources Code

Project Description

The California Department of Transportation (Caltrans) and the Alameda County Transportation Commission (Alameda CTC) propose to improve operations for vehicles, bicycles, and pedestrians where Interstate-80 (I-80) and Gilman Street intersect. The purpose of the project is to simplify and improve navigation, mobility and traffic operations, reduce congestion, vehicle queues and conflicts, improve local and regional bicycle connections and pedestrian facilities, and improve safety at the I-80/Gilman Street interchange.


Determination

Caltrans has prepared an Initial Study for this project and, following public review, has determined from this study that the proposed project would not have a significant effect on the environment for the following reasons:

The proposed project would have no effect on existing and future land use; consistency with state, regional, and local plans and programs; community impacts; traffic and transportation/pedestrian and bicycle facilities; tribal resources; wild and scenic rivers; growth; farmlands/timberlands; mineral resources; paleontology; wetlands; plant species; animal species; threatened and endangered species; natural communities; energy; wildfire; and cumulative impacts. In addition, the project would have less than significant effects to visual/aesthetics; utilities/emergency services; cultural resources; hydrology and floodplain; water quality and stormwater runoff; geology, soils, and seismicity; hazardous waste/materials; air quality; and noise.



Tony Tavares
District 4 Director
California Department of Transportation



Date

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Summary

NEPA Assignment

California participated in the “Surface Transportation Project Delivery Pilot Program” (Pilot Program) pursuant to 23 United States Code (U.S.C.) 327, for more than 5 years, beginning July 1, 2007, and ending September 30, 2012. MAP-21 (Moving Ahead for Progress in the 21st Century) (Public Law 112-141), signed by President Barack Obama on July 6, 2012, amended 23 U.S.C. 327 to establish a permanent Surface Transportation Project Delivery Program. As a result, the California Department of Transportation (Caltrans) entered into a Memorandum of Understanding (MOU) pursuant to 23 U.S.C. 327 (National Environmental Policy Act [NEPA] Assignment MOU) with the Federal Highway Administration (FHWA). The NEPA Assignment MOU became effective October 1, 2012, and it was renewed on December 23, 2016, for a term of 5 years. In summary, Caltrans continues to assume FHWA responsibilities under NEPA and other federal environmental laws in the same manner as was assigned under the Pilot Program, with minor changes. With NEPA Assignment, FHWA assigned and Caltrans assumed all of the United States Department of Transportation (USDOT) Secretary's responsibilities under NEPA. This assignment includes projects on the State Highway System and Local Assistance Projects off of the State Highway System within the State of California, except for certain categorical exclusions that FHWA assigned to Caltrans under the 23 U.S.C. 326 Categorical Exclusion Assignment MOU, projects excluded by definition, and specific project exclusions.

The project is located in Alameda County at the Interstate 80 (I-80)/Gilman Street interchange in the cities of Berkeley and Albany (Post Miles [PM] 6.38 to PM 6.95). The purpose of the project is to simplify and improve navigation, mobility, and traffic operations; reduce congestion, vehicle queues and conflicts; improve local and regional bicycle connections and pedestrian facilities; and improve safety at the I-80/Gilman Street interchange. Two alternatives are under consideration for the proposed project, the No Build Alternative and the Build Alternative – a Roundabout Alternative. The Build Alternative includes the reconfiguration of I-80 ramps and intersections at Gilman Street with roundabouts. The Build Alternative includes construction of pedestrian and bicycle facilities.

This Initial Study/Environmental Assessment (IS/EA) addresses the proposed project’s potential to have impacts on the environment. Potential impacts, project features, and avoidance and minimization measures (AMM) are summarized in Table S-1 on the following pages. The full list and text of the project’s AMM can be found in Appendix D. Resource area significance determinations are further discussed in the California Environmental Quality Act (CEQA) Checklist in Chapter 3.

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Table S-1: Summary of Environmental Impacts

Affected Resource	Potential Impact		Avoidance and Minimization Measures (AMM)
	No Build Alternative	Build Alternative – Roundabout Alternative	
Existing and Future Land use	No impacts.	No impacts.	None.
Consistency with State, Regional, and Local Plans and Programs	No impacts.	No impacts.	None.
San Francisco Bay and Shoreline	No impacts.	The Build Alternative includes improvements within SF Bay Conservation and Development Commission (BCDC) jurisdiction including modifications to the Bay shoreline, reinforced concrete pipe outfall, replacement rock slope protection, removal of parking spaces, and an extension of the San Francisco Bay Trail (Bay Trail). The proximity of the study area to San Francisco Bay and the elevation of the project site would make the area susceptible to inundation from future sea level rise.	Pre-permitting consultation will be initiated.
Parks and Recreational Facilities	No impacts.	The Build Alternative would require acquisition of 0.45 acre from Tom Bates Regional Sports Complex and would extend the Bay Trail approximately 660 feet to the west along the south side of Gilman Street, from its current terminus at the intersection of West Frontage Road and Gilman Street to just beyond the Berkeley city limits. On-street parking would be reduced by approximately 18 informal spaces at the end of Gilman Street as a result of the new trail extension. The Build Alternative would require acquisition of 1.27 acres from Tom Bates Regional Sports Complex for temporary construction easements. This would temporarily reduce the amount of parking available for users of the sports complex by approximately 125 spaces for the duration of the project. Construction of the pedestrian and bicycle overcrossing would result in closures of 800 feet of the Bay Trail for limited periods of time, 370 feet for construction of the overcrossing retaining wall, and 430 feet for construction of the overcrossing columns.	AMM COM-1: Caltrans and Alameda County Transportation Commission (Alameda CTC), and will coordinate as needed with the City of Berkeley Office of Parks, Recreation, and Waterfront (510-981-6700) as operators of Tom Bates Regional Sports Complex to minimize event scheduling impacts due to reduction of parking from potential staging areas during construction. These potential additional staging areas would be subject to additional permits and owner permissions to be secured by the contractor before the staging area could be used.

Table S-1: Summary of Environmental Impacts

Affected Resource	Potential Impact		Avoidance and Minimization Measures (AMM)
	No Build Alternative	Build Alternative – Roundabout Alternative	
Relocations and Acquisitions	No impacts.	The Build Alternative would require partial acquisitions along property frontages in study area. Temporary construction easements from some of the adjacent parcels would be required for construction.	None.
Environmental Justice	No impacts.	The Build Alternative would not result in disproportionate or adverse effects to minority or low-income populations.	AMM COM-2: A Public Outreach Plan for environmental justice populations will be developed to identify specific methods of communication. Effective communication methods include distributing flyers within the study area, at The Hub (1901 Fairview Street, Berkeley), and at the local homeless shelters, community center, houses of worship, and grocery stores, and posting information on vehicles, bus stops, and other locations frequented by low-income and minority populations.
Utilities and Emergency Services	Emergency service providers would experience increased delays due to traffic congestion.	Existing PG&E overhead electric lines would be relocated under the Build Alternative; some may be placed underground. An existing East Bay Municipal Utility District (EBMUD) recycled water transmission line would be relocated and extended as part of the Build Alternative. A new sewer line may be installed along Gilman Street. Under the Build Alternative, there would be sufficient space for an emergency vehicle to pass other vehicles in the roundabout.	AMM COM-3 in Traffic and Transportation/Pedestrian and Bicycle Facilities will help reduce potential impacts to utilities and emergency services (see full text of measure in Traffic and Transportation, Pedestrian and Bicycle Facilities).

Table S-1: Summary of Environmental Impacts

Affected Resource	Potential Impact		Avoidance and Minimization Measures (AMM)
	No Build Alternative	Build Alternative – Roundabout Alternative	
Traffic and Transportation, Pedestrian and Bicycle Facilities	Circulation and access and traffic accidents would continue to worsen due to increasing congestion.	Average delay at intersections in the study area would be reduced under the Build Alternative. Pedestrian and bicycle facilities would be improved with construction of a pedestrian and bicycle overcrossing, shared-use path, two-way cycle track, and extension of the Bay Trail.	<p>AMM COM-3: If the Build Alternative is selected as the preferred alternative, a public education campaign will be developed by Alameda CTC in coordination with Caltrans and implemented to inform area drivers and residents about the new roundabout to minimize potential accidents and disruptions to emergency service providers, and it will include information on how drivers should respond when emergency vehicles are approaching the roundabout. Proactive public information systems, such as changeable message signs, would notify travelers of pending construction activities. The campaign will include measures such as:</p> <ul style="list-style-type: none"> • Holding public meetings prior to opening the roundabout to traffic and/or giving presentations at local organization meetings; • Preparing news releases detailing what motorists and pedestrians can expect during and after construction; and • Distributing an informational brochure to residents explaining how to navigate roundabouts (both in a vehicle and as a pedestrian or bicyclists). <p>AMM COM-4: Signs would be placed on the trail in advance of construction activities to notify users of temporary closures. The Alameda CTC project website and Bay Trail Project website will be updated with temporary trail closures and traffic detours.</p>
Visual/Aesthetics	No impacts.	The Build Alternative would alter the existing visual character and quality to a less than substantial degree with the addition of the pedestrian and bicycle overcrossing, improvements to the path under the I-80 undercrossing, roundabouts, and potential undergrounding of overhead utilities.	AMM VA-1 through AMM VA-12: Minimization measures are included to help improve the overall visual quality of the study area and help soften the additional hard surfaces created by the project elements.

Table S-1: Summary of Environmental Impacts

Affected Resource	Potential Impact		Avoidance and Minimization Measures (AMM)
	No Build Alternative	Build Alternative – Roundabout Alternative	
Cultural Resources	No impacts.	To prevent inadvertent project-related effects to the National Register of Historic Places (NRHP)-assumed eligible prehistoric archaeological site identified within the area of potential effect (APE), an environmentally sensitive area (ESA) would be clearly demarcated around the established boundary of the site. An Archaeological Monitoring Area will be established in proximity to the site boundaries.	AMM CUL-1, AMM CUL-2, and AMM CUL-3: No project-related activities will take place within the vertical limits of the ESA and within an established Archaeological Monitoring Area.
Hydrology and Floodplain	No impacts.	The Build Alternative would add just under 1 acre of impervious surface area, which would have a negligible impact on flooding in the study area. The project would not result in a significant encroachment in the floodplain.	None.
Water Quality and Stormwater Runoff	The No Build Alternative may have potential permanent water quality impacts due to increasing congestion, leading to a greater deposition of particulates from exhaust and heavy metals from braking.	Stormwater impacts would be minimized through proper implementation of permanent stormwater treatment measures. There would be minimal to no impacts on water quality associated with the local water supply, recreational fishing, or other recreational aquatic features. Temporary construction site Best Management Practices (BMPs) will be implemented. Design features to address water quality impacts are a condition of the Caltrans Municipal Separate Storm Sewer Systems (MS4) Permit, Municipal Regional Permit (MRP), Construction General Permit (CGP), and other regulatory agency requirements.	AMM WQ-1 dictates restoration methods for disturbed areas, such as all slopes and disturbed areas will be restored to original topography and stabilized with effective erosion control materials. AMM WQ-2 will require turbidity monitoring during installation of the cofferdam and during dewatering.

Table S-1: Summary of Environmental Impacts

Affected Resource	Potential Impact		Avoidance and Minimization Measures (AMM)
	No Build Alternative	Build Alternative – Roundabout Alternative	
Geology, Soils, and Seismicity	No impacts.	The primary seismic hazards in the study area are strong shaking and liquefaction. Foundations for the pedestrian and bicycle overcrossing would be located on cast-in-drilled-hole piles 120 feet below the existing ground surface. Retaining walls for the pedestrian bridge will be excavated 50 feet below the ground surface. Foundations should be placed below the potentially liquefiable soils or ground improvements installed to provide lateral resistance for the foundation elements. Caltrans seismic design procedures would ensure structural integrity. All project components will be designed in accordance with standard engineering practices and Caltrans standard specifications.	None.
Paleontology	No impacts.	Construction of the Build Alternative is likely to encounter geologic units that could potentially contain paleontological resources. Any encountered fossils are likely to be poorly preserved and would not meet significance criteria because the sandstone has undergone extensive hydrothermal alteration. Any paleontological resource found within the low paleontological sensitivity deposits would be disturbed, removed from its stratigraphic location in the subsurface, and potentially damaged. These paleontological resources would not meet significance criteria.	None.

Table S-1: Summary of Environmental Impacts

Affected Resource	Potential Impact		Avoidance and Minimization Measures (AMM)
	No Build Alternative	Build Alternative – Roundabout Alternative	
Hazardous Waste and Materials	No impacts.	Contamination by petroleum hydrocarbons is widely reported in the study area, and many facilities formerly operated aboveground and underground storage tanks for fuel or solvent storage. Impacts from historical releases of chemicals could occur if contaminated media is encountered during excavations associated with light pole foundations, utility relocations, drainage systems, and piles for the pedestrian bridge overcrossing over I-80. The proposed excavation within the San Francisco Bay Is unlikely to encounter contaminated sediment.	AMM HW-1 through AMM HW-15: The soil sampling plan for the preliminary site investigation, to be conducted during the design phase, shall include a strategy for assessing the concentrations of metals associated with historical industrial releases in the study area. Due to the multiple potential sources and potential transport mechanisms (i.e., air emissions and stormwater flows), the sampling plan shall develop a statistical approach to characterizing the project site where surface and subsurface soils will be disturbed during construction. The preliminary site investigation shall collect and analyze soil samples for lead in areas near roadways or painted structures where surface soil will be disturbed.
Air Quality	Air quality would worsen in the study area under the No Build Alternative due to increased congestion, slower speeds, queuing, and delay times.	When compared to the No Build Alternative, the Build Alternative would result in slight reductions in daily criteria pollutant emissions due to improved traffic flow. The contractor shall comply with Caltrans Standard Specifications and require compliance with all applicable laws and regulations related to air quality.	AMM AQ-1: Measures to reduce particulate matter of 10 micrometers or smaller (PM ₁₀), particulate matter of 2.5 micrometers or smaller (PM _{2.5}), and diesel particulate matter from construction shall be incorporated to the extent feasible to ensure that short-term health impacts to nearby sensitive receptors are avoided.

Table S-1: Summary of Environmental Impacts

Affected Resource	Potential Impact		Avoidance and Minimization Measures (AMM)
	No Build Alternative	Build Alternative – Roundabout Alternative	
Noise	No impacts.	Noise modeling results indicated noise levels would not increase between existing conditions and the design year. The noise levels in the design year are predicted to approach or exceed the Noise Abatement Criteria (NAC) at three receptors. Noise abatement was considered; however, the estimated cost to construct noise abatement for these receptors far exceeds the reasonable allowance, and the noise barriers are not recommended for construction.	<p>AMM NOI-1: Inspection of equipment by the contractor will ensure that all equipment onsite is working properly, in good condition, and effectively muffled. All equipment will have sound-control devices no less effective than those provided on the original equipment. Each internal combustion engine used for any purpose on the job or related to the job shall be equipped with a muffler of a type recommended by the manufacturer. No internal combustion engine should be operated on the jobsite without an appropriate muffler. Idling equipment will be turned off.</p> <p>AMM NOI-2: Truck loading, unloading, and hauling operations will be minimized so that noise and vibration are kept to a minimum through the study area to the greatest possible extent.</p> <p>AMM NOI-1: Work hours along the internal access road within Golden Gate Fields property would only occur from 10:00 a.m. to 5:00 p.m., and night work would be prohibited from occurring within or adjacent to Golden Gate Fields property.</p>
Natural Communities	No impacts.	The Build Alternative would not result in impacts to sensitive habitats or natural communities. The project would result in the removal of approximately 47 trees.	<p>AMM AS-21 an AMM AS-4 would minimize impacts to natural communities.</p> <p>AMM AS-2 specifies pre-construction surveys for nesting birds will be conducted by a qualified Caltrans-approved biologist during the nesting season (February 1 to September 30).</p> <p>AMM AS-4 states native trees removed will be replaced by native trees at a 1:1 ratio. All other non native trees removed will be replaced with natives at a 1:1 ratio to the extent possible.</p>
Wetlands and Other Waters	No impacts.	The Build Alternative would result in permanent and temporary impacts to San Francisco Bay associated with installation of the tidal flap gate. These impacts would be minor in nature. No stream or wetland impacts are proposed.	None. If required, avoidance and minimization measures for impacts would be determined at the design phase.

Table S-1: Summary of Environmental Impacts

Affected Resource	Potential Impact		Avoidance and Minimization Measures (AMM)
	No Build Alternative	Build Alternative – Roundabout Alternative	
Animal Species	No impacts.	Construction-related disturbance has the potential to result in the take of nests, eggs, young, or individuals of protected species.	AMM AS-1 through AMM AS-4 would avoid and minimize impacts to animal species. These measures include pre-construction surveys and biological monitoring, installation of a cofferdam, and replacement of trees.
Threatened and Endangered Species	No impacts.	Five federally listed endangered or threatened fish species have the potential to occur within the proposed project area. The effect finding for each was “may affect, but not likely to adversely affect”. Permanent impacts to the critical habitat for these species, San Francisco Bay, have been minimized and would be limited to removal and replacement of the existing headwall, wingwalls, and rock slope protection at the Gilman Street outfall. Sediment excavation within the bay is also proposed. Two federally listed threatened or endangered bird species have the potential to occur within the proposed project area. The effect finding for each was “no effect” with no potential for a take.	AMM AS-1 through AMM AS-4 would avoid and minimize impacts to threatened and endangered species.
Invasive Species	No impacts.	Implementation of the Build Alternative has the potential to spread invasive species by the entering and exiting of construction equipment. If invasive weeds are disturbed or removed during construction-related activities, the contractor will contain the plant material and dispose of it in a manner that will not promote the spread of the invasive species.	None.
Climate Change	The No Build Alternative would result in less CO ₂ emissions than existing conditions, primarily due to improvements in engine exhaust controls.	The Build Alternative would result in less CO ₂ emissions due to improved traffic flow when compared to the No Build Alternative and existing conditions.	AMM GHG-1 through AMM GHG-5 and AMM SLR-1 through AMM SLR-3 would avoid and minimize impacts to greenhouse gases and sea-level rise.

ATTACHMENT F

**STORM WATER DATA REPORT COVER
SHEET**

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Dist-County-Route: 04-ALA-80
Post Mile Limits: PM 6.38/6.95
Type of Work: Interchange Improvement
Project ID (EA): 0400020155 (04-0A7700)
Program Identification: 20.20.400.100
Phase: PID PA/ED PS&E

Regional Water Quality Control Board(s): San Francisco Bay (2)

Total Disturbed Soil Area: 5.59 acres
(Caltrans); 2.97 acres (City of Berkeley), 0.27 acres (City of Albany)
PCTA: 2.88 acres (Caltrans); 2.80 acres (City of Berkeley); 0.13 acres (City of Albany)

Alternative Compliance (acres): 0 ATA 2 (50% Rule)? Yes No

Estimated Const. Start Date: 12/31/2020 Estimated Const. Completion Date: 01/04/2023

Risk Level: RL 1 RL 2 RL 3 WPCP Other: _____

Is MWEL0 applicable? Yes No **To be determined during PS&E phase**

Is the Project within a TMDL watershed? Yes No

TMDL Compliance Units (acres): 0.72

Notification of ADL reuse (if yes, provide date): Yes Date: _____ No

This Report has been prepared under the direction of the following Licensed Person. The Licensed Person attests to the technical information contained herein and the date upon which recommendations, conclusions, and decisions are based. Professional Engineer or Landscape Architect stamp required at PS&E only.

Analette Ochoa 6/6/19
Analette Ochoa, P.E., Registered Project Engineer Date

I have reviewed the stormwater quality design issues and find this report to be complete, current and accurate:

Ron Kiaaina 6/11/19
Ron Kiaaina, Project Manager Date

Amrinder Jhaj for 6/20/19
Amrinder Jhaj, Designated Maintenance Representative Date

Alex McDonald 6.11.2019
Alex McDonald, Designated Landscape Architect Representative Date

Norman Gonsalves 6/6/2019
Norman Gonsalves, District SW Coordinator Date

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ATTACHMENT G



PAVEMENT STRATEGY CHECKLIST

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PAVEMENT STRATEGY CHECKLIST

Date: June 12, 2019

Project description and project elements: The Alameda County Transportation Commission (Alameda CTC) and California Department of Transportation (Caltrans) propose to improve traffic operations at the Interstate 80 (I-80)/Gilman Street interchange in the City of Berkeley in Alameda County. The build alternative (Roundabout Alternative) was developed to meet the identified purpose and need of the project while avoiding or minimizing environmental impacts. Work for the build alternatives includes reconfiguring the intersection and connected freeway ramps, constructing and improving pedestrian and bicycle facilities, corresponding landscape and drainage modifications, and utility relocation.

EA:	<u>04-0A7700</u>	Project Manager:	<u>Ron Kiaaina</u>
Co/Rte:	<u>ALA 80</u>	Office:	<u>District 4</u>
Project Engineer:	<u>Rodney Pimentel</u>	Initial:	<u></u>
Design Senior:	<u>Sasan Daneshvar</u>	Initial:	<u></u>
		Program:	<u>20.20.400.100</u>
		PM Limits:	<u>6.3/7.0</u>

Prepared by Parsons and reviewed by:

Materials Engineer (8th floor) :  Signature: 
For

This project is at the following phase (please check one):

- PID (PSSR, etc.)
- PR
- PS&E
- OTHER

Describe existing structural section (e.g., shoulder, traveled way). Show limits if different sections are within the project:

The existing traveled way on Gilman Street consists of 0.25' Type "A" asphalt concrete (AC), 0.50' untreated rock base (URB), and 0.33' imported subbase (SB). The shoulders consist of 1.20' recycled AC and 0.35' Class 4 aggregate subbase (AS). The existing traveled way on the Eastbound I-80 Gilman Street Off-Ramp consists of 0.15' Type G Rubberized Hot-Mix Asphalt (RHMA-G), 0.85' recycled AC, 0.40' recycled asphalt concrete base (ACB) and 1.15' AS. The existing traveled way on the Westbound I-80 Gilman Street On-Ramp is 0.10' rubberized open-graded asphalt concrete (OGAC), 0.60' AC, 0.25' asphalt treated permeable base (ATPB), 0.45' AC, 1.30' AS. The existing traveled way on the Eastbound I-80 Gilman Street Off-Ramp consists of 0.15' RHMA-G, 0.15' recycled AC, 0.25' AC, 0.50' URB, and 0.33' imported SB. The existing traveled way of the Westbound I-80 Gilman Street Off-Ramp is 0.15' RHMA-G, 0.10' open-graded friction course (OGFC), variable 0.60' to 0.80' recycled AC, 0.25' ATPB, and 1.00' AS.

What pavement types/structural sections does Materials propose for each segment (shoulders and traveled way)?

Alignment	Design TI	Assumed Design R-value	Existing AC (in)	Existing AB (in)	Mill and Overlay			Reconstruction			Other	
					RHMA Thickness (ft)	Level Course HMA (ft)	Mill Depth (ft)	RHMA-G Thickness (ft)	HMA (Type A) Thickness (ft)	Class 2 AB Thickness (ft)		
I-80 Westbound Exit Ramp	11.0	40	8-11*	3*	0.2	0.15	0.35	0.2	0.50	0.75	N/A	
West Roundabout		30	N/A	N/A	N/A	N/A	N/A	0.2	0.50	1.20	N/A	
West Roundabout Truck Apron			N/A	N/A	N/A	N/A	N/A	N/A	0.70	1.20	Textured HMA with color coating	
West Frontage Road	10.5	30	4-7	0-10	N/A	0.35	0.00	N/A	0.55	1.30	N/A	
Gilman Street from W. Frontage Rd to N terminus			3	5								
Gilman Street from Eastshore Hwy to W. Frontage Rd			3	5	N/A	N/A	N/A	0.2	0.35	1.30		
Gilman Street from 4 th St to Eastshore Hwy		3	5	0.2	0.15	0.15						
I-80 Eastbound Entrance Ramp		40	10*	5*	0.2	0.15	0.35	0.2	0.50	0.60		N/A
I-80 Westbound Entrance Ramp			8*	3*								
East Roundabout		30	N/A	N/A	N/A	N/A	N/A	0.2	0.50	1.05		N/A
East Roundabout Truck Apron	N/A		N/A	N/A	N/A	N/A	N/A	N/A	0.70	1.05	Textured HMA with color coating	
I-80 Eastbound Exit Ramp	10.0	40	5*	6*	0.2	0.15	0.35	0.2	0.50	0.50	N/A	
2 nd Street north of Gilman	9.5	30	6	0	N/A	0.35	0.15	N/A	0.5	1.15	N/A	
Eastshore Highway south of Gilman			2	7								
Eastshore Highway north of Gilman			6	0								
Page Street			6	8	N/A	0.35	0.00	N/A	N/A	N/A		N/A
Harrison Street			3	6								
Gilman Extension			3	6-8								
2 nd Street south of Gilman	9.5	20	6	0	N/A	N/A	N/A	N/A	0.5	1.35	N/A	
Golden Gate Fields Parking Lot Entry	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.5	1.15	Textured HMA with color coating	
Gravel Access Road	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.6	Geotextile CI2	
Bay Trail	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.35	0.5	0.7' CI 3 AB	

Notes: * = From As-builts; TI = Traffic Index; AC = Asphalt Concrete; AB = Aggregate Base; HMA = Hot Mix Asphalt; RHMA = Rubberized Hot Mix Asphalt.

Pavement is involved in:

Entire project OR Part of the project

Assumptions (Is future widening in Regional Transportation Plan? Yes or no?): Please provide information for all of the following items that apply to this project.

	Yes	No	Question
1.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Are you implementing an innovative strategy (e.g., cold foam Hot-Mix Asphalt (HMA)), pre-cast concrete pavement, continuously reinforced pavement, etc)? If so, which are you implementing and why? If not, why not? Explain: <i>Conventional pavement types proposed due to local agency maintenance.</i>
2.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Has Rapid Rehab strategy been considered (e.g., weekend closures and lane replacements)? Explain: <i>Yes, weekend closures planned for pavement reconstruction at intersection.</i>
3.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Are you using Rubberized Hot-Mix Asphalt (RHMA) in this project? If not, justify:
4.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Was Life Cycle Analysis performed? Provide Life Cycle Analysis and results. <i>Life Cycle Analysis has not yet been performed.</i>
5.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Does existing pavement have a settlement problem? Explain: <i>No settlement detected</i>
6.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	a) Is this project (or part of project) maintaining the grade profile? Minor profile increase may take place in isolated areas where increase in structural section is required. b) If not, explain how the profile change affects the pavement strategy choice (cut v. fill):
7.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Will there be a new barrier?
8.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Is the proposed structural section on cut or fill or both? Provide limits of both, if applicable.
9.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Are highly expansive basement soils present?

	Yes	No	Question
10.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<p>Are as-builts (including structural section information regarding edge drains, under drains, lime treatment, permeable blanket, etc.) available?</p> <p>If no, did you check map files and online?</p> <p>If yes, existing structural section was based on (check one): <input checked="" type="checkbox"/> as-built <input type="checkbox"/> actual boring <input type="checkbox"/></p>
11.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<p>Do the project limits have problems with groundwater (e.g., high water table, flow requirements, etc.)? If yes, explain: <i>Cuts made deeper than six or seven feet are anticipated to encounter permanent groundwater. The as-built soils data shows the unconsolidated fill material underlain by soft Bay Muds with high ground water.</i></p>
12.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<p>Has the availability of pavement materials (i.e., long haul distances from plants) been considered?</p> <p>If yes, how does material availability affect pavement type selection?</p> <p><i>There are 3 plants that range from 21 and 37 miles away from the project site. Since there are multiple options to choose from that are close by to the site, type selection was not affected by material availability.</i></p>
13.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<p>Will the existing pavement be rehabilitated?</p> <p>What are the age and condition of the existing adjacent lanes? Explain: <i>Existing pavement will either be replaced or rehabilitated based on recommendations from the Materials Report. Existing pavement was constructed in 2013. Visual Pavement Condition Survey reveals incidents of raveling, rutting, alligator cracking, circular cracking, longitudinal cracking, transverse cracking, patching, and potholes.</i></p>
14.			<p>What is the type of pavement/structural section (corridor pavement type/structural section continuity) on upstream/downstream roadway? Explain if several: <i>It is consistent with the proposed pavement section. See the Preliminary Materials Report for a full description of the existing pavement sections.</i></p>
15.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<p>Is TMP data (lane closure charts) available and was it considered?</p> <p><input checked="" type="checkbox"/> <input type="checkbox"/></p>
	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<p>Will there be nighttime paving? If so, provide lane closure hours: _____ TBD _____.</p>
16.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<p>Was field Maintenance input considered?</p>
17.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<p>Were climate conditions (extreme temperature, rainfall, etc.) considered? If so, which ones do you anticipate affecting the pavement job? <i>Climate condition will not have major impact on paving operation.</i></p>
18.			<p>Which stage construction requirements (matching adjacent sections, temporary paving, etc.) were considered? <i>Matching adjacent sections</i></p>

	Yes	No	Question
19.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Is this a large-scale project? Explain all quantity take-off: <i>No, it is an interchange improvement job. See Preliminary Cost estimate for quantity take off.</i>
20.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Is there Open-Graded Hot-Mix Asphalt (OGHMA) on the existing pavement?
21.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Was environmental impact considered? Explain: <i>Yes, see IS/EA</i>
22.			What is the proposed pavement design life? <i>20 years</i>
23.			What is the final lane line configuration? <i>See Layout Plans</i>
24.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Are there vertical clearance issues? If yes, explain: <i>Gilman Street runs under I-80 mainline. Vehicles must be able to clear the undercrossing. POC will be constructed over I-80 ramps. Clearance must be maintained from ramps to POC.</i>
25.			What is the traffic index? <i>20 year TI = 10 to 11 depending on location in the project</i>
26.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Are there existing retrofit edge drains?
27.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Will shoulders be used as detours?
28.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Is there settlement at bridge approaches? <i>N/A</i>
	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Are bridge approach slabs being replaced? Does such replacement include shoulders? <i>N/A</i>
			Consulted with structures maintenance representative on <u><i>N/A</i></u> .
29.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Is there a minimum standard (2% or 1.5%) cross-slope? <i>2% minimum</i> If not standard, provide date of design exception approval: _____
30.			Provide the pavement condition report. <i>See Preliminary Materials Report.</i>
31.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Other factors? Explain:

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ATTACHMENT H

**TRANSPORTATION MANAGEMENT PLAN
DATA SHEET**

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TRANSPORTATION MANAGEMENT PLAN DATA SHEET

For Consultant TMP Projects

PROJECT MANAGER (Name) Jack Siau	(Phone #) 510-715-9574
PROJECT ENGINEER (Name) Rodney Pimentel	(Phone #) 510-907-2172
DIST-EA/PROJ ID: 04-0A770 PROGRAM (HB1, HE11, etc.):	
PROJECT COMMON NAME I-80/Gilman Interchange Improvement Project	
CO-RTE-PM (KP): ALA-80-PM 6.38/6.95	
LEGAL DESCRIPTION: I-80/Gilman Interchange Improvement Project	
DETAILED WORK DESCRIPTION: Reconfigure the I-80 ramps and intersections at Gilman street to form a roundabout intersection on each side of I-80. Construct pedestrian and bicycle improvements.	
CONSTRUCTION COST ESTIMATE: \$39.5M	
PROJECT PHASE: PSR <input type="checkbox"/> PR <input checked="" type="checkbox"/> PS&E <input type="checkbox"/> _____ %	

Traffic Impact Descriptions

A) Does the proposed project includes long term closures (> 24 hours) Yes___ No X
 [If "No", Continue to Item D (Preliminary TMP Elements and Costs.). If "Yes", Check Applicable Facilities.]

- Freeway Lanes
- Freeway Shoulder
- Freeway Connectors
- Freeway Off-ramps
- Freeway On-ramps
- Local Streets
- Full Freeway Closures

B) Are there any construction strategies that can restore existing number of lanes?
 (Check Applicable Strategies)

- Temporary Roadway Widening Structure Involvement? Yes___ No___
 (If yes, notify Project Manager)
- Lane Restriping (Temporary Narrow Lane Widths) Yes___ No___
- Roadway Realignment (Detour Around Work Area)
- Median and/or Right Shoulder Utilization
- Use of an HOV lane as a Temporary Mixed Flow Lane
- Staging Alternatives (Explain Below)

Notes:

C) Calculated Delays (To be performed if construction strategies in Item B do not mitigate congestion resulting from Item A)

- | | | |
|--|-------------|---------------|
| 1. Estimated Maximum Individual Vehicle Delay | _____ | Minutes |
| 2. Existing or Acceptable Individual Vehicle Delay | _____ | Minutes |
| 3. Estimated Individual Vehicle Delay Requiring Mitigation | | |
| | [(1) - (2)] | _____ Minutes |
| 4. Estimated Delay Cost (Most Applicable) | | |
| <input type="checkbox"/> Extended Weekend Closure | \$ _____ | |
| <input type="checkbox"/> Weekly (7 days) | \$ _____ | |
| 5. Estimated Duration of Project Related Delays | _____ | |
| 6. Cost of Construction Related Delays [(4 x 5)] | \$ _____ | |

D) Preliminary TMP Elements and Cost

1. Public Information

- | | | |
|---|-----------|-------|
| <input checked="" type="checkbox"/> a. Brochures and Mailers | \$ 7,500 | _____ |
| <input type="checkbox"/> b. Press Release | \$ _____ | |
| <input type="checkbox"/> c. Paid Advertising | \$ _____ | |
| <input type="checkbox"/> d. Public Information Center/Kiosk | \$ _____ | |
| <input type="checkbox"/> e. Public Meeting/Speakers Bureau | \$ _____ | |
| <input checked="" type="checkbox"/> f. Telephone Hotline | \$ 0 | _____ |
| <input checked="" type="checkbox"/> g. Internet | \$ 7,000 | _____ |
| <input checked="" type="checkbox"/> h. Notification to impacted groups
(Bicycle users, Pedestrians with disability, others.) | \$ 5,000 | _____ |
| <input checked="" type="checkbox"/> i. Others <u>Detour Maps & Bicycle Community information</u> | \$ 10,500 | _____ |

SUB TOTAL \$ 30,000 _____

2. Motorists Information strategies

- | | | |
|--|-----------|-------|
| <input type="checkbox"/> a. Changeable Message Signs (Fixed) | \$ _____ | |
| <input checked="" type="checkbox"/> b. Changeable Message Signs (Portable) | \$ 8,000 | _____ |
| <input checked="" type="checkbox"/> c. Ground Mounted Signs | \$ 30,000 | _____ |
| <input type="checkbox"/> d. Highway Advisory Radio | \$ _____ | |
| <input type="checkbox"/> e. Caltrans Highway Information Network (CHIN) | \$ _____ | |
| <input type="checkbox"/> f. Revised Transit Schedules/Maps | \$ _____ | |
| <input type="checkbox"/> g. Others _____ | \$ _____ | |

SUB TOTAL \$ 38,000 _____

3. Incident Management

- | | | |
|--|-----------|-------|
| <input checked="" type="checkbox"/> a. Construction or Maintenance Zone Enhanced Enforcement
Program (COZEEP or MAZEEP) | \$ 25,000 | _____ |
| <input checked="" type="checkbox"/> b. Freeway Service Patrol | \$ 30,000 | _____ |
| <input type="checkbox"/> c. Traffic Management Team | \$ _____ | |
| <input type="checkbox"/> d. New CCTVs and Detectors | \$ _____ | |
| <input type="checkbox"/> e. Others _____ | \$ _____ | |

SUB TOTAL \$ 55,000 _____

4. Construction Strategies (In Addition to Elements Identified on Item B)

<input checked="" type="checkbox"/>	a. Lane Requirement Chart	\$ 0
<input type="checkbox"/>	b. Reversible Lanes	\$ _____
<input type="checkbox"/>	c. Total Facility Closure	\$ _____
<input type="checkbox"/>	d. Contra Flow	\$ _____
<input type="checkbox"/>	e. Truck Traffic Restrictions	\$ _____
<input checked="" type="checkbox"/>	f. Reduced Speed Zone	\$ 278,000
<input type="checkbox"/>	g. Connector and Ramp Closures	\$ _____
<input type="checkbox"/>	h. Incentive and Disincentive	\$ _____
<input checked="" type="checkbox"/>	i. Moveable Barrier	\$ 240,000
<input checked="" type="checkbox"/>	j. Others <u>Maintain Traffic</u>	\$ 368,000
	<u>Temp. Crash Cushion</u>	\$ 20,000

SUB TOTAL \$ 906,000

5. Demand Management

<input type="checkbox"/>	a. HOV Lanes/Ramps (New or Convert)	\$ _____
<input type="checkbox"/>	b. Park and Ride Lots	\$ _____
<input type="checkbox"/>	c. Rideshare Incentives	\$ _____
<input type="checkbox"/>	d. Variable Work Hours	\$ _____
<input type="checkbox"/>	e. Telecommute	\$ _____
<input type="checkbox"/>	f. Ramp Metering (New Installation)	\$ _____
<input type="checkbox"/>	g. Ramp Metering (Maintain Existing)	\$ _____
<input type="checkbox"/>	h. Others _____	\$ _____

SUB TOTAL \$ _____

6. Alternate Route Strategies

<input type="checkbox"/>	a. Add Capacity to Freeway Connector	\$ _____
<input type="checkbox"/>	b. Street Improvement (widening, traffic signal, etc)	\$ _____
<input type="checkbox"/>	c. Traffic Control Officers	\$ _____
<input type="checkbox"/>	d. Parking Restrictions	\$ _____
<input type="checkbox"/>	e. Others _____	\$ _____

SUB TOTAL \$ _____

7. Other Strategies

<input type="checkbox"/>	a. Application of New Technology	\$ _____
<input type="checkbox"/>	b. Others	\$ _____

SUB TOTAL \$ _____

8. The Project includes the following: (Check applicable type of facility closures)

<input checked="" type="checkbox"/>	a. Highway or Freeway Lanes
<input checked="" type="checkbox"/>	b. Highway or Freeway Shoulders
<input checked="" type="checkbox"/>	c. Full Freeway Closure
<input checked="" type="checkbox"/>	d. Freeway On/Off-Ramps
<input type="checkbox"/>	e. Freeway Connectors
<input checked="" type="checkbox"/>	f. Local Streets
<input type="checkbox"/>	g. Prolonged Ramp Closures


g. Prolonged Ramp Closures

9. Major operations requiring traffic control and working days for each


<u>Operation</u>	<u># of Working Days</u>	<u># of Traffic Control Days</u>
<input checked="" type="checkbox"/> a. Clearing and Grubbing	30	4
<input checked="" type="checkbox"/> b. Existing Feature Removal	138	50
<input type="checkbox"/> c. Excavation of Embankments Construction		
<input checked="" type="checkbox"/> d. Structural Section Construction	229	50
<input checked="" type="checkbox"/> e. Drainage Feature Construction	60	60
<input checked="" type="checkbox"/> f. Structures Construction (falsework)	35	2
<input checked="" type="checkbox"/> g. MBGR/Barrier Construction	3	3
<input checked="" type="checkbox"/> h. Striping	20	20
<input checked="" type="checkbox"/> i. Electrical Component Construction	10	5
<input type="checkbox"/> j. Other		
Total days	525	194

TOTAL ESTIMATED COST OF TMP ELEMENTS = \$ 1,029,000

Notes : Extensive TMP may be required for the significant impacts.

PREPARED BY (Consultant)  DATE 11/27/18

APPROVAL RECOMMENDED BY
(Caltrans Oversight Engineer)  DATE _____

APPROVED BY (TMP Office)  DATE 12/7/2018
Seyed Noorbakhsh for: J. Gumm

ATTACHMENT I

RISK REGISTER

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LEVEL 2 - RISK REGISTER				Project Name:	I-80 Gilman Street Interchange Project			DIST- EA	04-0A770	Project Manager	Rodney Pimentel, Parsons	
Risk Identification							Risk Rating		Risk Response			
Status	ID #	Type	Category	Title	Risk Statement	Current status/assumptions	Priority Rating	Rationale for Rating	Strategy	Response Actions	Risk Owner	Updated
Active	113	Threat	ROW	Utility Relocation	Existing overhead utilities will be in conflict with construction.	Meetings have been held with PG&E regarding overhead lines. A fully underground option as well as a partial underground and partial overhead option have been prepared along with cost estimates. Caltrans to make final decision.	Medium	Caltrans has not officially stated which option will be chosen. Overhead option would cross high voltage lines over POC, which is undesirable	Mitigate	Maintain correspondence with Caltrans regarding issue and reach a decision during design phase	ACTC	10/11/2018
Active	113	Threat	ROW	Utility Relocation	EBMUD has expressed interest in extending their recycled water line within project limits	Meetings have been held with EBMUD. They will provide design plans by end of 2018.	Medium	If utility relocation requires more time than planned, it will affect construction schedule.	Mitigate	Begin utility coordination with utility owners early on	ACTC	10/11/2018
Active	115	Threat	ROW	Land Transfer	The roundabout alternative require right-of-way from the City of Berkeley go to Caltrans. Caltrans give R/W to the City and EBRPD give R/W to the City. If the land transfer process takes longer than anticipated, it may affect the project schedule.	All Parties have agreed verbally to the land transfers. Exact R/W transfers have been identified.	Medium	All parties are agreeable to the ROW transfers; however, an MOU has not yet been signed, so if EBRPD decides to not agree to the terms, schedule will be delayed.	Avoid	Request right-of-way assessment early on. Address right-of-way need in co-op agreement	City of Berkeley	10/11/2018
Active	118	Threat	Construction	Roadway closures	The project will cause temporary street and ramp closure during stage construction. If the subject closure are not well coordinated with local community and business owners, distribution of accurate and timely information to the public may be jeopardized resulting in traffic delay.		Medium		Avoid	A Traffic Management Plan will be developed during the PAED phase to identify preliminary traffic impacts and mitigation, and to inform local community and business about the temporary changes to roadway access and road/ramp closures. Community outreach to impacted parties should also be performed.	City of Berkeley	12/26/2013
Active	125	Threat	ROW	Driveway in Conflict with Access Control	Existing Golden Gate Fields driveway will be in conflict with future access control for roundabout intersection and its operation. FHWA and Caltrans will not allow.	Meetings were held with Golden Gate Fields to discuss impacts to entrance. They are a supporter of the project and have agreed to modify access by connecting their current gate with their access road in exchange for improvements to their property	Low	Golden Gate Fields is agreeable to access changes	Mitigate	Continue with meetings; Sign a letter of understanding; Start appraisals at the end of 2017; Make offer as soon as PA/ED approved.	Caltrans	10/11/2018
Active	126	Threat	ROW	Private property ROW Take	The roundabout alternative require additional right-of-way from Golden Gate Field. If right-of-way acquisition takes longer than anticipated, it may affect the project schedule.	Meetings were held with Golden gate fields to discuss impacts to entrance. They are a supporter of the project and have agreed to relocate security shed.	Low	It is anticipated that right-of-way assessment will take place during the PAED phase to avoid delay.	Mitigate	Start appraisals at the end of 2017, Make offer as soon as PA/ED approved	ACTC	10/11/2018
Active	132	Threat	Design	UPRR Crossing	Required crossing improvements at UPRR crossing of Gilman could increase project costs significantly. Additionally, UPRR is asking for crossing modifications which would require additional studies outside the project limits. This would delay schedule 6 months or more and require technical studies to be re-done.	Meetings are being held with UPRR to come to a resolution that does not require expanding the project study area. Traffic counts are being taken at the driveways on Gilman and Camelia to evaluate necessity of additional lighting on Camelia.	High	UPRR crossing could significantly delay schedule	Avoid	Come to a consensus on crossing improvements that would not require additional studies or project improvements to be implemented on Camelia St.	ACTC	10/11/2018
Active	134	Threat	Design	I-80 EBON Ramp	Capacity of the on-ramp does not meet Caltrans standards of storing 7% of peak hour traffic volume	Meeting with Caltrans to discuss	Medium	Existing ramp does not meet standards. Project may not be able to increase capacity to meet standards		Met with Caltrans and reached concurrence that metering traffic on west frontage road was acceptable to City	ACTC	4/17/2019

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ATTACHMENT J

EXECUTED COOPERATIVE AGREEMENT

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COOPERATIVE AGREEMENT

This AGREEMENT, effective on January 29, 2016, is between the State of California, acting through its Department of Transportation, referred to as CALTRANS, and:

Alameda County Transportation Commission, a joint powers agency, referred to hereinafter as ALAMEDA CTC.

RECITALS

1. PARTNERS are authorized to enter into a cooperative agreement for improvements to the state highway system (SHS) per the California Streets and Highways Code sections 114 and 130.
2. For the purpose of this AGREEMENT, *Gilman Street Interchange Improvements* will be referred to hereinafter as PROJECT. The project scope of work is defined in the PROJECT initiation and approval documents (e.g., Project Study Report, Permit Engineering Evaluation Report, or Project Report).
3. All responsibilities assigned in this AGREEMENT to complete the following PROJECT COMPONENTS will be referred to hereinafter as OBLIGATIONS:
 - Project Approval and Environmental Document (PA&ED)
4. This AGREEMENT is separate from and does not modify or replace any other cooperative agreement or memorandum of understanding between PARTNERS regarding the PROJECT.
5. The following work associated with this PROJECT has been completed or is in progress:
 - ALAMEDA CTC completed the Project Initiation Document on September 2, 2014.
6. In this AGREEMENT capitalized words represent defined terms, initialisms, or acronyms.
7. PARTNERS hereby set forth the terms, covenants, and conditions of this AGREEMENT, under which they will accomplish OBLIGATIONS.

RESPONSIBILITIES

Sponsorship

8. ALAMEDA CTC is the SPONSOR for the PROJECT COMPONENT in this AGREEMENT.

Funding

9. FUNDING PARTNERS, funding sources, funding limits, spending limits, and invoicing/payment details are documented in the FUNDING SUMMARY. The FUNDING SUMMARY is incorporated and made an express part of this AGREEMENT.
10. PARTNERS will not incur costs beyond the funding commitments in this AGREEMENT.
11. Unless otherwise documented in the FUNDING SUMMARY, all fund types contributed to a PROJECT COMPONENT will be spent proportionately within that PROJECT COMPONENT.
12. Unless otherwise documented in the FUNDING SUMMARY, any savings recognized within a PROJECT COMPONENT will be credited or reimbursed, when allowed by policy or law, in proportion to the amount contributed to that PROJECT COMPONENT by each fund type.
13. All costs incurred for WORK except those that are specifically excluded in this AGREEMENT are OBLIGATIONS COSTS. OBLIGATIONS COSTS are to be paid from the funds shown in the FUNDING SUMMARY. Costs that are not OBLIGATIONS COSTS are to be paid by the PARTNER incurring the costs from funds that are outside the scope of this AGREEMENT.

Implementing Agency

14. ALAMEDA CTC is the IMPLEMENTING AGENCY for PA&ED.
15. The IMPLEMENTING AGENCY for a PROJECT COMPONENT will provide a Quality Management Plan (QMP) for that component as part of the PROJECT MANAGEMENT PLAN. The Quality Management Plan describes the IMPLEMENTING AGENCY's quality policy and how it will be used. The Quality Management Plan is subject to CALTRANS review and approval.
16. Any PARTNER responsible for completing WORK shall make its personnel and consultants that prepare WORK available to help resolve WORK-related problems and changes for the entire duration of the PROJECT including PROJECT COMPONENT work that may occur under separate agreements.

Independent Quality Assurance

17. CALTRANS will provide Independent Quality Assurance for the portions of WORK within the existing and proposed SHS right-of-way.

CALTRANS' Independent Quality Assurance efforts are to ensure that ALAMEDA CTC's quality assurance activities result in WORK being developed in accordance with the applicable standards and within an established Quality Management Plan. Independent Quality Assurance does not include any efforts necessary to develop or deliver WORK or any validation by verifying or rechecking work performed by another party.

When CALTRANS performs Independent Quality Assurance it does so for its own benefit. No one can assign liability to CALTRANS due to its Independent Quality Assurance.

The cost of CALTRANS' Independent Quality Assurance is not an OBLIGATIONS COST.

Environmental Document Quality Control (EDQC) Program

18. Per NEPA assignment and CEQA statutes, CALTRANS will perform Environmental Document Quality Control and NEPA Assignment Review Procedures for environmental documentation. CALTRANS quality control and quality assurance procedures for all environmental documents are described in the Jay Norvell Memos dated October 1, 2012 (available at http://www.dot.ca.gov/ser/memos.htm#LinkTarget_705). This also includes the independent judgment analysis and determination under CEQA that the environmental documentation meets CEQA requirements.

The cost of CALTRANS' Environment Document Quality Control is not an OBLIGATIONS COST.

CEQA/NEPA Lead Agency

19. CALTRANS is the CEQA Lead Agency for the PROJECT.
20. CALTRANS is the NEPA Lead Agency for the PROJECT.

Environmental Permits, Approvals and Agreements

21. PARTNERS will comply with the commitments and conditions set forth in the environmental documentation, environmental permits, approvals, and applicable agreements as those commitments and conditions apply to each PARTNER's responsibilities in this AGREEMENT.

22. Unless otherwise assigned in this AGREEMENT, the IMPLEMENTING AGENCY for a PROJECT COMPONENT is responsible for all PROJECT COMPONENT WORK associated with coordinating, obtaining, implementing, renewing, and amending the PROJECT permits, agreements, and approvals whether they are identified in the planned project scope of work or become necessary in the course of completing the PROJECT.
23. The PROJECT requires the following environmental requirements/approvals:

ENVIRONMENTAL PERMITS/REQUIREMENTS
404, US Army Corps Of Engineers
401, Regional Water Quality Control Board
1602 California Department of Fish and Wildlife
2080.1 California Department of Fish and Wildlife
FESA Section 7 USFWS
FESA Section 7 NOAA/NMFS
BCDC Permit

Project Approval and Environmental Document (PA&ED)

24. As IMPLEMENTING AGENCY for PA&ED, ALAMEDA CTC is responsible for all PA&ED WORK except those PA&ED activities and responsibilities that are assigned to another PARTNER in this AGREEMENT and those activities that may be specifically excluded.
25. CALTRANS will be responsible for completing the following PA&ED activities:

CALTRANS Work Breakdown Structure Identifier (If Applicable)	OBLIGATION COST
Independent Quality Assurance	No
165.15.15.xx Section 7 Consultation	No
165.25.25 Approval to Circulate Resolution	No
175.20 Project Preferred Alternative	No
180.10.05.05.xx CEQA Lead Final Env. Doc QA/QC and Approval	No
180.15.05 Record of Decision (NEPA)	No
180.15.10 Notice of Determination (CEQA)	No

26. Any PARTNER preparing environmental documentation, including studies and reports, will ensure that qualified personnel remain available to help resolve environmental issues and perform any necessary work to ensure that the PROJECT remains in environmental compliance.

California Environmental Quality Act (CEQA)

27. CALTRANS will determine the type of CEQA documentation and will cause that documentation to be prepared in accordance with CEQA requirements.
28. Any PARTNER involved in the preparation of CEQA environmental documentation will prepare the documentation to meet CEQA requirements and follow CALTRANS' standards that apply to the CEQA process.
29. Any PARTNER preparing any portion of the CEQA environmental documentation, including any studies and reports, will submit that portion of the documentation to the CEQA Lead Agency for review, comment, and approval at appropriate stages of development prior to public availability.
30. ALAMEDA CTC will submit CEQA-related public notices to CALTRANS for review, comment, and approval prior to publication and circulation.
31. ALAMEDA CTC will submit all CEQA-related public meeting materials to CALTRANS for review, comment, and approval at least ten (10) working days prior to the public meeting date. If CALTRANS makes any changes to the materials, then CALTRANS will allow ALAMEDA CTC to review, comment, and concur on those changes at least three (3) working days prior to the public meeting date.
32. CALTRANS will attend all CEQA-related public meetings.
33. If a PARTNER who is not the CEQA lead agency holds a public meeting about the PROJECT, that PARTNER must clearly state its role in the PROJECT and the identity of the CEQA lead agency on all meeting publications. All meeting publications must also inform the attendees that public comments collected at the meetings are not part of the CEQA public review process.

That PARTNER will submit all meeting advertisements, agendas, exhibits, handouts, and materials to the CEQA lead agency for review, comment, and approval at least ten (10) working days prior to publication or use. If that PARTNER makes any changes to the materials, it will allow the CEQA lead agency to review, comment on, and approve those changes at least three (3) working days prior to the public meeting date.

The CEQA lead agency maintains final editorial control with respect to text or graphics that could lead to public confusion over CEQA-related roles and responsibilities.

National Environmental Policy Act (NEPA)

34. Pursuant to Chapter 3 of Title 23, United States Code (23 U.S.C. 326) and 23 U.S.C. 327, CALTRANS is the NEPA lead agency for the PROJECT. CALTRANS is responsible for NEPA compliance, will determine the type of NEPA documentation, and will cause that documentation to be prepared in accordance with NEPA requirements.

CALTRANS, as the NEPA lead agency for PROJECT, will review, comment, and approve all environmental documentation (including, but not limited to, studies, reports, public notices, and public meeting materials, determinations, administrative drafts, and final environmental documents) at appropriate stages of development prior to approval and public availability.

When required as NEPA lead agency, CALTRANS will conduct consultation and coordination and obtain, renew, or amend approvals pursuant to the Federal Endangered Species Act, and Essential Fish Habitat.

When required as NEPA lead agency, CALTRANS will conduct consultation and coordination approvals pursuant to Section 106 of the National Historic Preservation Act.

35. Any PARTNER involved in the preparation of NEPA environmental documentation will follow FHWA and CALTRANS STANDARDS that apply to the NEPA process including, but not limited to, the guidance provided in the FHWA Environmental Guidebook (available at www.fhwa.dot.gov/hep/index.htm) and the CALTRANS Standard Environmental Reference.
36. Any PARTNER preparing any portion of the NEPA environmental documentation (including, but not limited to, studies, reports, public notices, and public meeting materials, determinations, administrative drafts, and final environmental documents) will submit that portion of the documentation to CALTRANS for CALTRANS' review, comment, and approval prior to public availability.
37. ALAMEDA CTC will prepare, publicize, and circulate all NEPA-related public notices, except Federal Register notices. ALAMEDA CTC will submit all notices to CALTRANS for CALTRANS' review, comment, and approval prior to publication and circulation.

CALTRANS will work with the appropriate federal agency to publish notices in the Federal Register.

38. CALTRANS will attend all NEPA-related public meetings.

39. ALAMEDA CTC will submit all NEPA-related public meeting materials to CALTRANS for CALTRANS' review, comment, and approval at least ten (10) working days prior to the public meeting date.
40. If a PARTNER who is not the NEPA lead agency holds a public meeting about the PROJECT, that PARTNER must clearly state its role in the PROJECT and the identity of the NEPA lead agency on all meeting publications. All meeting publications must also inform the attendees that public comments collected at the meetings are not part of the NEPA public review process.

That PARTNER will submit all meeting advertisements, agendas, exhibits, handouts, and materials to the NEPA lead agency for review, comment, and approval at least ten (10) working days prior to publication or use. If that PARTNER makes any changes to the materials, it will allow the NEPA lead agency to review, comment on, and approve those changes at least three (3) working days prior to the public meeting date.

The NEPA lead agency has final approval authority with respect to text or graphics that could lead to public confusion over NEPA-related roles and responsibilities.

Schedule

41. PARTNERS will manage the schedule for OBLIGATIONS through the work plan included in the PROJECT MANAGEMENT PLAN.

Additional Provisions

42. PARTNERS will perform all OBLIGATIONS in accordance with federal and California laws, regulations, and standards; FHWA STANDARDS; and CALTRANS STANDARDS.
43. CALTRANS retains the right to reject noncompliant WORK, protect public safety, preserve property rights, and ensure that all WORK is in the best interest of the SHS.
44. Each PARTNER will ensure that personnel participating in OBLIGATIONS are appropriately qualified or licensed to perform the tasks assigned to them.
45. PARTNERS will invite each other to participate in the selection of any consultants who participate in OBLIGATIONS.
46. CALTRANS will issue, upon proper application, the encroachment permits required for WORK within SHS right-of-way. Contractors and/or agents, and utility owners will not work within the SHS right-of-way without an encroachment permit issued in their name. CALTRANS will provide encroachment permits to PARTNERS, their contractors, consultants and agents, and utility owners at no cost. If the encroachment permit and this AGREEMENT conflict, the requirements of this AGREEMENT shall prevail.

47. The IMPLEMENTING AGENCY for a PROJECT COMPONENT will coordinate, prepare, obtain, implement, renew, and amend any encroachment permits needed to complete the PROJECT COMPONENT WORK.
48. If any PARTNER discovers unanticipated cultural, archaeological, paleontological, or other protected resources during WORK, all WORK in that area will stop and that PARTNER will notify all PARTNERS within twenty-four (24) hours of discovery. WORK may only resume after a qualified professional has evaluated the nature and significance of the discovery and a plan is approved for its removal or protection.
49. PARTNERS will hold all administrative drafts and administrative final reports, studies, materials, and documentation relied upon, produced, created, or utilized for the PROJECT in confidence to the extent permitted by law and where applicable, the provisions of California Government Code section 6254.5(e) shall protect the confidentiality of such documents in the event that said documents are shared between PARTNERS.

PARTNERS will not distribute, release, or share said documents with anyone other than employees, agents, and consultants who require access to complete the PROJECT without the written consent of the PARTNER authorized to release them, unless required or authorized to do so by law.

50. If a PARTNER receives a public records request pertaining to OBLIGATIONS, that PARTNER will notify PARTNERS within five (5) working days of receipt and make PARTNERS aware of any disclosed public documents. PARTNERS will consult with each other prior to the release of any public documents related to the PROJECT.
51. If HM-1 or HM-2 is found during a PROJECT COMPONENT, the IMPLEMENTING AGENCY for that PROJECT COMPONENT will immediately notify PARTNERS.
52. CALTRANS, independent of the PROJECT, is responsible for any HM-1 found within the existing SHS right-of-way. CALTRANS will undertake, or cause to be undertaken, HM MANAGEMENT ACTIVITIES related to HM-1 with minimum impact to the PROJECT schedule.

The cost for HM MANAGEMENT ACTIVITIES related to HM-1 found within the existing SHS right-of-way is not an OBLIGATIONS COST and CALTRANS will pay, or cause to be paid, all costs for HM-1 ACTIVITIES.

53. If HM-1 is found within the PROJECT limits and outside the existing SHS right-of-way, responsibility for such HM-1 rests with the owner(s) of the parcel(s) on which the HM-1 is found. ALAMEDA CTC, in concert with the local agency having land use jurisdiction over the parcel(s), will ensure that HM MANAGEMENT ACTIVITIES related to HM-1 are undertaken with minimum impact to PROJECT schedule.

The costs for HM MANAGEMENT ACTIVITIES related to HM-1 found within the PROJECT limits and outside the existing SHS right-of-way are not an OBLIGATIONS COST and will be the responsibility of the owner(s) of the parcel(s) where the HM-1 is located.

54. If HM-2 is found within the PROJECT limits, the public agency responsible for the advertisement, award, and administration (AAA) of the PROJECT construction contract will be responsible for HM MANAGEMENT ACTIVITIES related to HM-2.
55. CALTRANS' acquisition or acceptance of title to any property on which any HM-1 or HM-2 is found will proceed in accordance with CALTRANS' policy on such acquisition.
56. The IMPLEMENTING AGENCY for each PROJECT COMPONENT will furnish PARTNERS with written monthly progress reports during the implementation of OBLIGATIONS in that component.
57. Any PARTNER that is responsible for completing OBLIGATIONS will accept, reject, compromise, settle, or litigate claims arising from those OBLIGATIONS.
58. PARTNERS will confer on any claim that may affect OBLIGATIONS or PARTNERS' liability or responsibility under this AGREEMENT in order to retain resolution possibilities for potential future claims. No PARTNER will prejudice the rights of another PARTNER until after PARTNERS confer on the claim.
59. If the PROJECT expends state or federal funds, each PARTNER will comply with the federal Uniform Administrative Requirements, Cost Principles, and Audit Requirements for Federal Awards of 2 CFR, Part 200. PARTNERS will ensure that any for-profit party hired to participate in the OBLIGATIONS will comply with the requirements in 48 CFR, Chapter 1, Part 31. When state or federal funds are expended on the PROJECT these principles and requirements apply to all funding types included in this AGREEMENT.
60. PARTNERS will maintain, and will ensure that any party hired by PARTNERS to participate in OBLIGATIONS will maintain, a financial management system that conforms to Generally Accepted Accounting Principles (GAAP), and that can properly accumulate and segregate incurred PROJECT costs and billings.
61. PARTNERS will maintain and make available to each other all OBLIGATIONS-related documents, including financial data, during the term of this AGREEMENT.

PARTNERS will retain all OBLIGATIONS-related records for three (3) years after the final voucher.
62. PARTNERS have the right to audit each other in accordance with generally accepted governmental audit standards.

CALTRANS, the state auditor, FHWA (if the PROJECT utilizes federal funds), and ALAMEDA CTC will have access to all OBLIGATIONS-related records of each PARTNER, and any party hired by a PARTNER to participate in OBLIGATIONS, for audit, examination, excerpt, or transcription.

The examination of any records will take place in the offices and locations where said records are generated and/or stored and will be accomplished during reasonable hours of operation. The auditing PARTNER will be permitted to make copies of any OBLIGATIONS-related records needed for the audit.

The audited PARTNER will review the draft audit, findings, and recommendations, and provide written comments within thirty (30) calendar days of receipt.

Upon completion of the final audit, PARTNERS have thirty (30) calendar days to refund or invoice as necessary in order to satisfy the obligation of the audit.

Any audit dispute not resolved by PARTNERS is subject to mediation. Mediation will follow the process described in the General Conditions section of this AGREEMENT.

63. If the PROJECT expends state or federal funds, each PARTNER will undergo an annual audit in accordance with the Single Audit Act and the federal Office of Management and Budget (OMB) Circular A-133.
64. If the PROJECT expends federal funds, any PARTNER that hires an A&E consultant to perform WORK on any part of the PROJECT will ensure that the procurement of the consultant and the consultant overhead costs are in accordance with Chapter 10 of the *Local Assistance Procedures Manual*.
65. If WORK stops for any reason, IMPLEMENTING AGENCY will place the PROJECT right-of-way in a safe and operable condition acceptable to CALTRANS.
66. If WORK stops for any reason, each PARTNER will continue to implement all of its applicable commitments and conditions included in the PROJECT environmental documentation, permits, agreements, or approvals that are in effect at the time that WORK stops, as they apply to each PARTNER's responsibilities in this AGREEMENT, in order to keep the PROJECT in environmental compliance until WORK resumes.
67. The cost of awards, judgments, or settlements generated by OBLIGATIONS is an OBLIGATIONS COST.
68. The cost of legal challenges to the environmental process or documentation is an OBLIGATIONS COSTS.

69. Fines, interest, or penalties levied against a PARTNER are not an OBLIGATIONS COST and will be paid, independent of OBLIGATIONS COST, by the PARTNER whose action or lack of action caused the levy.
70. The cost of any engineering support performed by CALTRANS includes all direct and applicable indirect costs. CALTRANS calculates indirect costs based solely on the type of funds used to pay support costs. State and federal funds administered by CALTRANS are subject to the current Program Functional Rate. All other funds are subject to the current Program Functional Rate and the current Administration Rate. The Program Functional Rate and Administration Rate are adjusted periodically.
71. Travel, per diem, and third-party contract reimbursements are an OBLIGATIONS COST only after those hired by PARTNERS to participate in OBLIGATIONS incur and pay those costs.
- Payments for travel and per diem will not exceed the rates paid rank and file state employees under current California Department of Personnel Administration (DPA) rules current at the effective date of this AGREEMENT.
- If ALAMEDA CTC invoices for rates in excess of DPA rates, ALAMEDA CTC will fund the cost difference and reimburse CALTRANS for any overpayment.
72. If there are insufficient funds available in this AGREEMENT to place PROJECT right-of-way in a safe and operable condition, the appropriate IMPLEMENTING AGENCY will fund these activities until such time as PARTNERS amend this AGREEMENT.
- That IMPLEMENTING AGENCY may request reimbursement for these costs during the amendment process.
73. ALAMEDA CTC will furnish CALTRANS with the Project History Files related to the PROJECT facilities on SHS within sixty (60) days following the completion of each PROJECT COMPONENT. ALAMEDA CTC will prepare the Project History File in accordance with the Project Development Procedures Manual, Chapter 7. All material will be submitted neatly in a three-ring binder and on a CD ROM in PDF format.

GENERAL CONDITIONS

74. PARTNERS understand that this AGREEMENT is in accordance with and governed by the Constitution and laws of the State of California. This AGREEMENT will be enforceable in the State of California. Any PARTNER initiating legal action arising from this AGREEMENT will file and maintain that legal action in the Superior Court of the county in which the CALTRANS district office that is signatory to this AGREEMENT resides, or in the Superior Court of the county in which the PROJECT is physically located.

75. All CALTRANS' OBLIGATIONS under this AGREEMENT are subject to the appropriation of resources by the Legislature, the State Budget Act authority, and the allocation of funds by the California Transportation Commission.
76. Neither ALAMEDA CTC nor any officer or employee thereof is responsible for any injury, damage or liability occurring by reason of anything done or omitted to be done by CALTRANS, its contractors, sub-contractors, and/or its agents under or in connection with any work, authority, or jurisdiction conferred upon CALTRANS under this AGREEMENT. It is understood and agreed that CALTRANS, to the extent permitted by law, will defend, indemnify, and save harmless ALAMEDA CTC and all of its officers and employees from all claims, suits, or actions of every name, kind, and description brought forth under, but not limited to, tortious, contractual, inverse condemnation, or other theories and assertions of liability occurring by reason of anything done or omitted to be done by CALTRANS, its contractors, sub-contractors, and/or its agents under this AGREEMENT.
77. Neither CALTRANS nor any officer or employee thereof is responsible for any injury, damage, or liability occurring by reason of anything done or omitted to be done by ALAMEDA CTC, its contractors, sub-contractors, and/or its agents under or in connection with any work, authority, or jurisdiction conferred upon ALAMEDA CTC under this AGREEMENT. It is understood and agreed that ALAMEDA CTC, to the extent permitted by law, will defend, indemnify, and save harmless CALTRANS and all of its officers and employees from all claims, suits, or actions of every name, kind, and description brought forth under, but not limited to, tortious, contractual, inverse condemnation, or other theories and assertions of liability occurring by reason of anything done or omitted to be done by ALAMEDA CTC, its contractors, sub-contractors, and/or its agents under this AGREEMENT.
78. PARTNERS do not intend this AGREEMENT to create a third party beneficiary or define duties, obligations, or rights in parties not signatory to this AGREEMENT. PARTNERS do not intend this AGREEMENT to affect their legal liability by imposing any standard of care for fulfilling OBLIGATIONS different from the standards imposed by law.
79. PARTNERS will not assign or attempt to assign OBLIGATIONS to parties not signatory to this AGREEMENT without an amendment to this AGREEMENT.
80. ALAMEDA CTC will not interpret any ambiguity contained in this AGREEMENT against CALTRANS. ALAMEDA CTC waives the provisions of California Civil Code section 1654.

A waiver of a PARTNER's performance under this AGREEMENT will not constitute a continuous waiver of any other provision.
81. A delay or omission to exercise a right or power due to a default does not negate the use of that right or power in the future when deemed necessary.

82. If any PARTNER defaults in its OBLIGATIONS, a non-defaulting PARTNER will request in writing that the default be remedied within thirty (30) calendar days. If the defaulting PARTNER fails to do so, the non-defaulting PARTNER may initiate dispute resolution.
83. PARTNERS will first attempt to resolve AGREEMENT disputes at the PROJECT team level. If they cannot resolve the dispute themselves, the CALTRANS district director and the executive officer of ALAMEDA CTC will attempt to negotiate a resolution. If PARTNERS do not reach a resolution, PARTNERS' legal counsel will initiate mediation. PARTNERS agree to participate in mediation in good faith and will share equally in its costs.

Neither the dispute nor the mediation process relieves PARTNERS from full and timely performance of OBLIGATIONS in accordance with the terms of this AGREEMENT. However, if any PARTNER stops fulfilling OBLIGATIONS, any other PARTNER may seek equitable relief to ensure that OBLIGATIONS continue.

Except for equitable relief, no PARTNER may file a civil complaint until after mediation, or forty-five (45) calendar days after filing the written mediation request, whichever occurs first.

PARTNERS will file any civil complaints in the Superior Court of the county in which the CALTRANS district office signatory to this AGREEMENT resides or in the Superior Court of the county in which the PROJECT is physically located. The prevailing PARTNER will be entitled to an award of all costs, fees, and expenses, including reasonable attorney fees as a result of litigating a dispute under this AGREEMENT or to enforce the provisions of this article including equitable relief.

84. PARTNERS maintain the ability to pursue alternative or additional dispute remedies if a previously selected remedy does not achieve resolution.
85. If any provisions in this AGREEMENT are found by a court of competent jurisdiction to be, or are in fact, illegal, inoperative, or unenforceable, those provisions do not render any or all other AGREEMENT provisions invalid, inoperative, or unenforceable, and those provisions will be automatically severed from this AGREEMENT.
86. If during performance of WORK additional activities or environmental documentation is necessary to keep the PROJECT in environmental compliance, PARTNERS will amend this AGREEMENT to include completion of those additional tasks.
87. Except as otherwise provided in the AGREEMENT, PARTNERS will execute a formal written amendment if there are any changes to OBLIGATIONS.

88. When WORK performed on the PROJECT is done under contract and falls within the Labor Code section 1720(a)(1) definition of "public works" in that it is construction, alteration, demolition, installation, or repair; or maintenance work under Labor Code section 1771, PARTNERS shall conform to the provisions of Labor Code sections 1720 through 1815, and all applicable provisions of California Code of Regulations found in Title 8, Division 1, Chapter 8, Subchapter 3, Articles 1-7. PARTNERS shall include prevailing wage requirements in contracts for public work and require contractors to include the same prevailing wage requirements in all subcontracts. WORK performed by a PARTNER's own employees is exempt from the Labor Code's Prevailing Wage requirements.
89. If WORK is paid for, in whole or part, with federal funds and is of the type of work subject to federal prevailing wage requirements, PARTNERS shall conform to the provisions of the Davis-Bacon and Related Acts, 40 U.S.C. § 276(a).

When applicable, PARTNERS shall include federal prevailing wage requirements in contracts for public work. WORK performed by a PARTNER's employees is exempt from federal prevailing wage requirements.

90. PARTNERS agree to sign a CLOSURE STATEMENT to terminate this AGREEMENT. However, all indemnification, document retention, audit, claims, environmental commitment, legal challenge, maintenance and ownership articles will remain in effect until terminated or modified in writing by mutual agreement or expire by the statute of limitations.
91. PARTNERS intend this AGREEMENT to be their final expression that supersedes any oral understanding or writings pertaining to the OBLIGATIONS. The requirements of this AGREEMENT shall preside over any conflicting requirements in any documents that are made an express part of this AGREEMENT.

DEFINITIONS

AGREEMENT – This agreement, including any attachments, exhibits, and amendments.

CALTRANS STANDARDS – CALTRANS policies and procedures, including, but not limited to, the guidance provided in the Project Development Procedures Manual (PDPM) and the CALTRANS Workplan Standards Guide for the Delivery of Capital Projects (WSG) [which contains the CALTRANS Work Breakdown Structure (WBS) and was previously known as the WBS Guide] and is available at <http://www.dot.ca.gov/hq/projmgmt/guidance.htm>.

CEQA (California Environmental Quality Act) – The act (California Public Resources Code, sections 21000 et seq.) that requires state and local agencies to identify the significant environmental impacts of their actions and to avoid or mitigate those significant impacts, if feasible.

CFR (Code of Federal Regulations) – The general and permanent rules published in the Federal Register by the executive departments and agencies of the federal government.

CLOSURE STATEMENT – A document signed by PARTNERS that verifies the completion of all OBLIGATIONS included in this AGREEMENT and in all amendments to this AGREEMENT.

EDQC (Environmental Document Quality Control) - CALTRANS quality control and quality assurance procedures for all environmental documents as described in the Jay Norvell Memos dated October 1, 2012 (available at http://www.dot.ca.gov/ser/memos.htm#LinkTarget_705). This also includes the independent judgment analysis and determination under CEQA that the environmental documentation meets CEQA requirements.

FHWA – Federal Highway Administration.

FHWA STANDARDS – FHWA regulations, policies and procedures, including, but not limited to, the guidance provided at www.fhwa.dot.gov/topics.htm.

FUNDING PARTNER – A PARTNER that commits funds in this AGREEMENT to fulfill OBLIGATIONS. A FUNDING PARTNER accepts the responsibility to provide the funds it commits in this Agreement.

FUNDING SUMMARY – An executed document that names FUNDING PARTNER(S), includes a FUNDING TABLE, SPENDING SUMMARY, deposit amounts, and invoicing and payment methods.

FUNDING TABLE – The table that designates funding sources, types of funds, and the PROJECT COMPONENT in which the funds are to be spent. Funds listed on the FUNDING TABLE are “not-to-exceed” amounts for each FUNDING PARTNER.

GAAP (Generally Accepted Accounting Principles) – Uniform minimum standards and guidelines for financial accounting and reporting issued by the Federal Accounting Standards Advisory Board that serve to achieve some level of standardization. See <http://www.fasab.gov/accepted.html>.

HM-1 – Hazardous material (including, but not limited to, hazardous waste) that may require removal and disposal pursuant to federal or state law whether it is disturbed by the PROJECT or not.

HM-2 – Hazardous material (including, but not limited to, hazardous waste) that may require removal and disposal pursuant to federal or state law only if disturbed by the PROJECT.

HM MANAGEMENT ACTIVITIES – Management activities related to either HM-1 or HM-2 including, without limitation, any necessary manifest requirements and disposal facility designations.

IMPLEMENTING AGENCY – The PARTNER responsible for managing the scope, cost, and schedule of a PROJECT COMPONENT to ensure the completion of that component.

IQA (Independent Quality Assurance) – CALTRANS' efforts to ensure that another PARTNER's quality assurance activities are in accordance with the applicable standards and the PROJECT's Quality Management Plan (QMP). When CALTRANS performs Independent Quality Assurance it does not develop, produce, validate, verify, re-check, or quality control another PARTNER's work products.

NEPA (National Environmental Policy Act of 1969) – This federal act establishes a national policy for the environment and a process to disclose the adverse impacts of projects with a federal nexus.

OBLIGATIONS – All WORK responsibilities and their associated costs.

OBLIGATION COMPLETION – PARTNERS have fulfilled all OBLIGATIONS included in this AGREEMENT and have signed a COOPERATIVE AGREEMENT CLOSURE STATEMENT.

OBLIGATIONS COST(S) – The cost(s) to complete the responsibilities assigned in this AGREEMENT. Costs that are specifically excluded in this AGREEMENT or that are not incurred in the performance of the responsibilities in this AGREEMENT are not OBLIGATIONS COSTS.

OBLIGATIONS COSTS are to be paid from the funds shown in the FUNDING SUMMARY. Costs that are not OBLIGATIONS COSTS are to be paid by the party that incurs the cost from funds that are outside the scope of this AGREEMENT.

PA&ED (Project Approval and Environmental Document) – See PROJECT COMPONENT

PARTNER – Any individual signatory party to this AGREEMENT.

PARTNERS – The term that collectively references all of the signatory agencies to this AGREEMENT. This term only describes the relationship between these agencies to work together to achieve a mutually beneficial goal. It is not used in the traditional legal sense in which one PARTNER's individual actions legally bind the other PARTNER.

PROJECT COMPONENT – A distinct portion of the planning and project development process of a capital project as outlined in California Government Code, section 14529(b).

- PID (Project Initiation Document) – The work required to deliver the project initiation document for the PROJECT in accordance with CALTRANS STANDARDS.
- PA&ED (Project Approval and Environmental Document) – The work required to deliver the project approval and environmental documentation for the PROJECT in accordance with CALTRANS STANDARDS.
- PS&E (Plans, Specifications, and Estimate) – The work required to deliver the plans, specifications, and estimate for the PROJECT in accordance with CALTRANS STANDARDS.
- R/W (Right of Way) – The project components for the purpose of acquiring real property interests for the PROJECT in accordance with CALTRANS STANDARDS.
 - R/W (Right of Way) SUPPORT – The work required to obtain all property interests for the PROJECT.
 - R/W (Right of Way) CAPITAL – The funds for acquisition of property rights for the PROJECT.
- CONSTRUCTION – The project components for the purpose of completing the construction of the PROJECT in accordance with CALTRANS STANDARDS.
 - CONSTRUCTION SUPPORT – The work required for the administration, acceptance, and final documentation of the construction contract for the PROJECT.
 - CONSTRUCTION CAPITAL – The funds for the construction contract.

PROJECT MANAGEMENT PLAN – A group of documents used to guide the PROJECT's execution and control throughout that project's lifecycle.

QMP (Quality Management Plan) – An integral part of the PROJECT MANAGEMENT PLAN that describes IMPLEMENTING AGENCY's quality policy and how it will be used.

SHS (State Highway System) – All highways, right-of-way, and related facilities acquired, laid out, constructed, improved, or maintained as a state highway pursuant to constitutional or legislative authorization.

SPENDING SUMMARY – A table that identifies the funds available for expenditure by each PARTNER. The table shows the maximum reimbursable expenditure for each PARTNER in each PROJECT COMPONENT.

SPONSOR – Any PARTNER that accepts the responsibility to establish scope of the PROJECT and the obligation to secure financial resources to fund the PROJECT COMPONENTS in this AGREEMENT. A SPONSOR is responsible for adjusting the PROJECT scope to match committed funds or securing additional funds to fully fund the PROJECT COMPONENTS in this AGREEMENT. If this AGREEMENT has more than one SPONSOR, funding adjustments will be made by percentage (as outlined in Responsibilities). Scope adjustments must be developed through the project development process and must be approved by CALTRANS as the owner/operator of the SHS.

WORK – All efforts to complete the OBLIGATIONS included in this AGREEMENT as described by the activities in the CALTRANS Workplan Standards Guide for the Delivery of Capital Projects (WSG).

SIGNATURES

PARTNERS are empowered by California Streets and Highways Code sections 114 and 130 to enter into this AGREEMENT and have delegated to the undersigned the authority to execute this AGREEMENT on behalf of the respective agencies and covenants to have followed all the necessary legal requirements to validly execute this AGREEMENT.

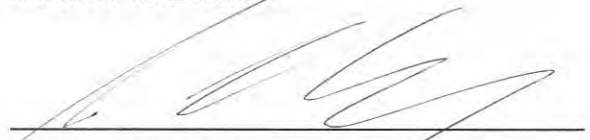
Signatories may execute this AGREEMENT through individual signature pages provided that each signature is an original. This AGREEMENT is not fully executed until all original signatures are attached.

**STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION**



Helena (Lenka) Culik-Caro
Deputy District Director, Design

Certified as to funds:



Jeffrey Armstrong
District Budget Manager



HQ Accounting




Attorney

**ALAMEDA COUNTY
TRANSPORTATION COMMISSION**



Arthur L. Dao
Executive Director

Attest:



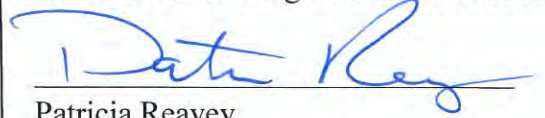
Deputy Director of Programming and Projects

Approved as to form and procedure:



Wendel, Rosen, Black & Dean LLP
Alameda CTC Legal Counsel

Reviewed as to budget/financial controls:



Patricia Reavey
Director of Finance and Administration

COOPERATIVE AGREEMENT

This AGREEMENT, effective on September 28, 2018, is between the State of California, acting through its Department of Transportation, referred to as CALTRANS, and:

Alameda County Transportation Commission, a California joint powers authority, referred to hereinafter as ALAMEDA CTC.

RECITALS

1. PARTIES are authorized to enter into a cooperative agreement for improvements to the State Highway System per the California Streets and Highways Code, Sections 114 and 130.
2. For the purpose of this AGREEMENT, *reconfigure Interstate 80/Gilman Interchange and construction of the Gilman Pedestrian Overcrossing, located in northwest Berkeley near its boundary with the City of Albany*, will be referred to hereinafter as PROJECT. The PROJECT scope of work is defined in the project initiation and approval documents (e.g. Project Study Report, Permit Engineering Evaluation Report, or Project Report).
3. All obligations and responsibilities assigned in this AGREEMENT to complete the following PROJECT COMPONENTS will be referred to hereinafter as WORK:
 - PLANS, SPECIFICATIONS, AND ESTIMATE (PS&E)
 - RIGHT-OF-WAY

Each PROJECT COMPONENT is defined in the CALTRANS Workplan Standards Guide as a distinct group of activities/products in the project planning and development process.

4. The term AGREEMENT, as used herein, includes this document and any attachments, exhibits, and amendments.

This AGREEMENT is separate from and does not modify or replace any other cooperative agreement or memorandum of understanding between the PARTIES regarding the PROJECT.

PARTIES intend this AGREEMENT to be their final expression that supersedes any oral understanding or writings pertaining to the WORK. The requirements of this AGREEMENT will preside over any conflicting requirements in any documents that are made an express part of this AGREEMENT.

If any provisions in this AGREEMENT are found by a court of competent jurisdiction to be, or are in fact, illegal, inoperative, or unenforceable, those provisions do not render any or all other AGREEMENT provisions invalid, inoperative, or unenforceable, and those provisions will be automatically severed from this AGREEMENT.

Except as otherwise provided in the AGREEMENT, PARTIES will execute a written amendment if there are any changes to the terms of this AGREEMENT.

PARTIES agree to sign a CLOSURE STATEMENT to terminate this AGREEMENT. However, all indemnification, document retention, audit, claims, environmental commitment, legal challenge, maintenance and ownership articles will remain in effect until terminated or modified in writing by mutual agreement or expire by the statute of limitations.

5. The following work associated with this PROJECT has been completed or is in progress:
 - ALAMEDA CTC is developing the Environmental Impact Report (Cooperative Agreement No. 04-2529).
6. In this AGREEMENT capitalized words represent defined terms, initialisms, or acronyms.
7. PARTIES hereby set forth the terms, covenants, and conditions of this AGREEMENT.

RESPONSIBILITIES

Sponsorship

8. A SPONSOR is responsible for establishing the scope of the PROJECT and securing the financial resources to fund the WORK. A SPONSOR is responsible for securing additional funds when necessary or implementing PROJECT changes to ensure the WORK can be completed with the funds obligated in this AGREEMENT.

PROJECT changes, as described in the CALTRANS Project Development Procedures Manual, will be approved by CALTRANS as the owner/operator of the State Highway System.

9. ALAMEDA CTC is the SPONSOR for the WORK in this AGREEMENT.

Implementing Agency

10. The IMPLEMENTING AGENCY is the PARTY responsible for managing the scope, cost, schedule, and quality of the work activities and products of a PROJECT COMPONENT.

- ALAMEDA CTC is the Plans, Specifications, and Estimate (PS&E) IMPLEMENTING AGENCY.

PS&E includes the development of the plans, specifications, and estimate; obtaining any resource agency permits; and the advertisement/award of the construction contract.

- ALAMEDA CTC is the RIGHT OF WAY IMPLEMENTING AGENCY

RIGHT OF WAY includes coordination with utility owners for the protection, removal, or relocation of utilities; the acquisition of right-of-way interests; and post-construction work such as right-of-way monumentation/recordation, relinquishments/vacations, and excess land transactions. The RIGHT OF WAY component budget identifies the capital costs of right-of-way acquisition (RIGHT-OF-WAY CAPITAL) and the cost of the staff work in support of the acquisition (RIGHT-OF-WAY SUPPORT).

11. The IMPLEMENTING AGENCY for a PROJECT COMPONENT will provide a Quality Management Plan (QMP) for the WORK in that component. The Quality Management Plan describes the IMPLEMENTING AGENCY's quality policy and how it will be used. The Quality Management Plan will include a process for resolving disputes between the PARTIES at the team level. The Quality Management Plan is subject to CALTRANS review and approval.

12. Any PARTY responsible for completing WORK will make its personnel and consultants that prepare WORK available to help resolve WORK-related problems and changes for the entire duration of the PROJECT including PROJECT work that may occur under separate agreements.

Funding

13. The WORK does not use funds administered by CALTRANS. PARTIES will amend this AGREEMENT should this condition change.
14. Each PARTY is responsible for the costs they incur in performing the WORK unless otherwise stated in this AGREEMENT.

CALTRANS' Quality Management

15. CALTRANS, as the owner/operator of the State Highway System (SHS), will perform quality management work including Independent Quality Assurance (IQA) and owner/operator approvals for the portions of WORK within the existing and proposed SHS right-of-way.
16. CALTRANS' independent quality assurance (IQA) efforts are to ensure that ALAMEDA CTC's quality assurance results in WORK that is in accordance with the applicable standards and the PROJECT's quality management plan (QMP). An IQA does not include any efforts necessary to develop or deliver WORK or any validation by verifying or rechecking WORK.

When CALTRANS performs IQA it does so for its own benefit. No one can assign liability to CALTRANS due to its IQA.

17. CALTRANS, as the owner/operator of the State Highway System, will approve WORK products in accordance with CALTRANS policies and guidance and as indicated in this AGREEMENT.
18. ALAMEDA CTC will provide WORK-related products and supporting documentation upon CALTRANS' request for the purpose of CALTRANS' quality management work.
19. The cost of CALTRANS' quality management work is to be borne by CALTRANS.

CEQA Lead Agency

20. CALTRANS is the CEQA Lead Agency for the PROJECT.

Environmental Permits, Approvals and Agreements

21. ALAMEDA CTC will comply with the commitments and conditions set forth in the environmental documentation, environmental permits, approvals, and applicable agreements as those commitments and conditions apply to ALAMEDA CTC's responsibilities in this AGREEMENT.
22. Unless otherwise assigned in this AGREEMENT, the IMPLEMENTING AGENCY for a PROJECT COMPONENT is responsible for all PROJECT COMPONENT WORK associated with coordinating, obtaining, implementing, renewing, and amending the PROJECT permits, agreements, and approvals whether they are identified in the planned project scope of work or become necessary in the course of completing the PROJECT.
23. The PROJECT requires the following environmental permits/approvals:

ENVIRONMENTAL PERMITS/REQUIREMENTS
FESA Section 7 USFWS
BO Section 7 USFWS
FESA Section 7, NOAA/NMFS
BO Section 7 NOAA/NMFS
EFH- NOAA/NMFS
Federal Coastal Zone Mgmt. Act Consistency Determination CCC
Federal Coastal Zone Mgmt. Act Consistency Determination, BCDC

Plans, Specifications, and Estimate (PS&E)

24. As the PS&E IMPLEMENTING AGENCY, ALAMEDA CTC is responsible for all PS&E WORK except those activities and responsibilities that are assigned to another PARTY and those activities that are excluded under this AGREEMENT.
25. CALTRANS will be responsible for completing the following PS&E activities:

CALTRANS Work Breakdown Structure Identifier (If Applicable)
100.15.10.xx Quality Management

26. ALAMEDA CTC will prepare Utility Conflict Maps identifying the accommodation, protection, relocation, or removal of any existing utility facilities that conflict with construction of the PROJECT or that violate CALTRANS' encroachment policy.

ALAMEDA CTC will provide CALTRANS a copy of Utility Conflict Maps for CALTRANS' concurrence prior to issuing the Notices to Owner and executing the utility agreement. All utility conflicts will be addressed in the PROJECT plans, specifications, and estimate.

27. ALAMEDA CTC will determine the cost to positively identify and locate, accommodate, protect, relocate, or remove any utility facilities whether inside or outside the State Highway System right-of-way in accordance with federal and California laws and regulations, and CALTRANS' policies, procedures, standards, practices, and applicable agreements including but not limited to Freeway Master Contracts.
28. CALTRANS and ALAMEDA CTC will develop a new maintenance agreement which will be executed prior to PROJECT construction.

RIGHT-OF-WAY

29. As the RIGHT-OF-WAY IMPLEMENTING AGENCY, ALAMEDA CTC is responsible for all RIGHT-OF-WAY WORK except those activities and responsibilities that are assigned to another PARTY and those activities that are excluded under this AGREEMENT.
30. CALTRANS will be responsible for completing the following RIGHT-OF-WAY activities:

CALTRANS Work Breakdown Structure Identifier (If Applicable)
100.25.10.xx Quality Management

31. The selection of personnel performing RIGHT-OF-WAY WORK will be in accordance with federal and California laws and regulations, and CALTRANS' policies, procedures, standards, practices, and applicable agreements.
32. ALAMEDA CTC will make all necessary arrangements with utility owners for the timely accommodation, protection, relocation, or removal of any existing utility facilities that conflict with construction of the PROJECT or that violate CALTRANS' encroachment policy.
33. ALAMEDA CTC will provide CALTRANS a copy of conflict maps, relocation plans, proposed notices to owner, reports of investigation, and utility agreements (if applicable) for CALTRANS' concurrence prior to issuing the notices to owner and executing the utility agreement. All utility conflicts will be fully addressed prior to Right-of-Way Certification and all arrangements for the protection, relocation, or removal of all conflicting facilities will be completed prior to construction contract award and included in the PROJECT plans, specifications, and estimate.

34. ALAMEDA CTC will provide a land surveyor licensed in the State of California to be responsible for surveying and right-of-way engineering. All survey and right-of-way engineering documents will bear the professional seal, certificate number, registration classification, expiration date of certificate, and signature of the responsible surveyor.
35. Acquisition of right-of-way will not occur prior to the approval of the environmental document without written approval from the CEQA Lead Agency.
36. ALAMEDA CTC will hear and adopt Resolutions of Necessity when authorized to do so by law or will work with local agencies having jurisdiction and authorized under the law to hear and adopt Resolutions of Necessity.

ALAMEDA CTC will conduct and document Condemnation Evaluation and Condemnation Panel Review meetings as required in accordance with CALTRANS policy and guidance. CALTRANS will be notified in advance of any Condemnation Panel Review meetings.

37. If ALAMEDA CTC acquires any right-of-way to be incorporated into the State Highway System, ALAMEDA CTC will first acquire in its own name.

If CALTRANS acquires any right-of-way, CALTRANS will first acquire in ALAMEDA CTC's name.

Title to the State Highway System right-of-way will ultimately be vested in the State. CALTRANS' acceptance of title will occur after the Right-of-Way Closeout activities are complete.

38. ALAMEDA CTC will utilize a public agency currently qualified by CALTRANS or a properly licensed consultant for all RIGHT-OF-WAY activities. A qualified right-of-way agent will administer all right-of-way consultant contracts.

ALAMEDA CTC will submit a draft Right-of-Way Certification to CALTRANS six weeks prior to the scheduled Right-of-Way Certification milestone date for review.

ALAMEDA CTC will submit a final Right-of-Way Certification to CALTRANS for approval prior to the advertising the construction contract.

39. Physical and legal possession of the right-of-way must be completed prior to advertising the construction contract, unless PARTIES mutually agree to other arrangements in writing.
40. CALTRANS' acceptance of right-of-way title is subject to review of an Updated Preliminary Title Report provided by ALAMEDA CTC verifying that the title is free of all encumbrances and liens. Upon acceptance, ALAMEDA CTC will provide CALTRANS with a Policy of Title Insurance in CALTRANS' name.

41. Right-of-way conveyances must be completed prior to WORK completion unless PARTIES mutually agree to other arrangements in writing.

Schedule

42. PARTIES will manage the WORK schedule to ensure the timely use of obligated funds and to ensure compliance with any environmental permits, right-of-way agreements, construction contracts, and any other commitments. PARTIES will communicate schedule risks or changes as soon as they are identified and will actively manage and mitigate schedule risks.

Additional Provisions

Standards

43. PARTIES will perform all WORK in accordance with federal and California laws, regulations, and standards; FHWA standards; and CALTRANS standards. CALTRANS standards include, but are not limited to, the guidance provided in the:
- CALTRANS CADD Users Manual
 - CALTRANS policies and directives
 - CALTRANS Plans Preparation Manual
 - CALTRANS Project Development Procedures Manual
 - CALTRANS Workplan Standards Guide
 - CALTRANS Standard Environmental Reference
 - CALTRANS Highway Design Manual
 - CALTRANS Right of Way Manual

Qualifications

44. Each PARTY will ensure that personnel participating in WORK are appropriately qualified or licensed to perform the tasks assigned to them.

Consultant Selection

45. ALAMEDA CTC will invite CALTRANS to participate in the selection of any consultants that participate in the WORK.

Encroachment Permits

46. CALTRANS will issue, upon proper application, the encroachment permits required for WORK within State Highway System (SHS) right-of-way. ALAMEDA CTC, their contractors, consultants, agents and utility owners will not work within the SHS right-of-way without an encroachment permit issued in their name. CALTRANS will provide encroachment permits to ALAMEDA CTC, their contractors, consultants, agents, and utility owners at no cost. If the encroachment permit and this AGREEMENT conflict, the requirements of this AGREEMENT will prevail.
47. The IMPLEMENTING AGENCY for a PROJECT COMPONENT will coordinate, prepare, obtain, implement, renew, and amend any encroachment permits needed to complete the WORK.

Protected Resources

48. If any PARTY discovers unanticipated cultural, archaeological, paleontological, or other protected resources during WORK, all WORK in that area will stop and that PARTY will notify all PARTIES within 24 hours of discovery. WORK may only resume after a qualified professional has evaluated the nature and significance of the discovery and CALTRANS approves a plan for its removal or protection.

Disclosures

49. PARTIES will hold all administrative drafts and administrative final reports, studies, materials, and documentation relied upon, produced, created, or utilized for the WORK in confidence to the extent permitted by law and where applicable, the provisions of California Government Code, Section 6254.5(e) will protect the confidentiality of such documents in the event that said documents are shared between PARTIES.

PARTIES will not distribute, release, or share said documents with anyone other than employees, agents, and consultants who require access to complete the WORK without the written consent of the PARTY authorized to release them, unless required or authorized to do so by law.

50. If a PARTY receives a public records request pertaining to the WORK, that PARTY will notify PARTIES within five (5) working days of receipt and make PARTIES aware of any disclosed public documents. PARTIES will consult with each other prior to the release of any public documents related to the WORK.

Hazardous Materials

51. HM-1 is hazardous material (including, but not limited to, hazardous waste) that may require removal and disposal pursuant to federal or state law, irrespective of whether it is disturbed by the PROJECT or not.

HM-2 is hazardous material (including, but not limited to, hazardous waste) that may require removal and disposal pursuant to federal or state law only if disturbed by the PROJECT.

The management activities related to HM-1 and HM-2, including and without limitation, any necessary manifest requirements and disposal facility designations are referred to herein as HM-1 MANAGEMENT and HM-2 MANAGEMENT respectively.

52. If HM-1 or HM-2 is found the discovering PARTY will immediately notify all other PARTIES.
53. CALTRANS, independent of the PROJECT, is responsible for any HM-1 found within the existing State Highway System right-of-way. CALTRANS will undertake, or cause to be undertaken, HM-1 MANAGEMENT with minimum impact to the PROJECT schedule.

CALTRANS, independent of the PROJECT will pay, or cause to be paid, the cost of HM-1 MANAGEMENT related to HM-1 found within the existing State Highway System right-of-way.

54. If HM-1 is found within the PROJECT limits and outside the existing State Highway System right-of-way, responsibility for such HM-1 rests with the owner(s) of the parcel(s) on which the HM-1 is found. ALAMEDA CTC, in concert with the local agency having land use jurisdiction, will ensure that HM-1 MANAGEMENT is undertaken with minimum impact to PROJECT schedule.

The cost of HM-1 MANAGEMENT for HM-1 found within the PROJECT limits and outside the existing State Highway System right-of-way will be the responsibility of the owner(s) of the parcel(s) where the HM-1 is located.

55. The CONSTRUCTION IMPLEMENTING AGENCY is responsible for HM-2 MANAGEMENT within the PROJECT limits.
56. CALTRANS' acquisition or acceptance of title to any property on which any HM-1 or HM-2 is found will proceed in accordance with CALTRANS' policy on such acquisition.

Claims

57. ALAMEDA CTC may accept, reject, compromise, settle, or litigate claims of any consultants or contractors hired to complete WORK without concurrence from the other PARTY.
58. PARTIES will confer on any claim that may affect the WORK or PARTIES' liability or responsibility under this AGREEMENT in order to retain resolution possibilities for potential future claims. No PARTY will prejudice the rights of another PARTY until after PARTIES confer on the claim.
59. If the WORK expends state or federal funds, each PARTY will comply with the Federal Uniform Administrative Requirements, Cost Principles, and Audit Requirements for Federal Awards of 2 CFR, Part 200. PARTIES will ensure that any for-profit consultant hired to participate in the WORK will comply with the requirements in 48 CFR, Chapter 1, Part 31. When state or federal funds are expended on the WORK these principles and requirements apply to all funding types included in this AGREEMENT.
60. If the WORK expends state or federal funds, each PARTY will undergo an annual audit in accordance with the Single Audit Act in the Federal Uniform Administrative Requirements, Cost Principles, and Audit Requirements for Federal Awards as defined in 2 CFR, Part 200.
61. When a PARTY reimburses a consultant for WORK with state or federal funds, the procurement of the consultant and the consultant overhead costs will be in accordance with the Local Assistance Procedures Manual, Chapter 10.

Interruption of Work

62. If WORK stops for any reason, each PARTY will continue to implement the obligations of this AGREEMENT, including the commitments and conditions included in the environmental documentation, permits, agreements, or approvals that are in effect at the time that WORK stops, and will keep the PROJECT in environmental compliance until WORK resumes.

Penalties, Judgements and Settlements

63. Any PARTY whose action or lack of action causes the levy of fines, interest, or penalties will indemnify and hold all other PARTIES harmless per the terms of this AGREEMENT.

Environmental Compliance

64. If during performance of WORK additional activities or environmental documentation is necessary to keep the PROJECT in environmental compliance, PARTIES will amend this AGREEMENT to include completion of those additional tasks.

GENERAL CONDITIONS

Venue

65. PARTIES understand that this AGREEMENT is in accordance with and governed by the Constitution and laws of the State of California. This AGREEMENT will be enforceable in the State of California. Any PARTY initiating legal action arising from this AGREEMENT will file and maintain that legal action in the Superior Court of the county in which the CALTRANS district office that is signatory to this AGREEMENT resides, or in the Superior Court of the county in which the PROJECT is physically located.

Exemptions

66. All CALTRANS' obligations under this AGREEMENT are subject to the appropriation of resources by the Legislature, the State Budget Act authority, programming of funds by the California Transportation Commission (CTC) and the allocation thereof by the CTC.

Indemnification

67. Neither CALTRANS nor any of their officers and employees, are responsible for any injury, damage, or liability occurring by reason of anything done or omitted to be done by ALAMEDA CTC, its contractors, sub-contractors, and/or its agents under or in connection with any work, authority, or jurisdiction conferred upon ALAMEDA CTC under this AGREEMENT. It is understood and agreed that ALAMEDA CTC, to the extent permitted by law, will defend, indemnify, and save harmless CALTRANS and all of their officers and employees from all claims, suits, or actions of every name, kind, and description brought forth under, but not limited to, tortious, contractual, inverse condemnation, or other theories and assertions of liability occurring by reason of anything done or omitted to be done by ALAMEDA CTC, its contractors, sub-contractors, and/or its agents under this AGREEMENT.
68. Neither ALAMEDA CTC nor any of their officers and employees, are responsible for any injury, damage, or liability occurring by reason of anything done or omitted to be done by CALTRANS, its contractors, sub-contractors, and/or its agents under or in connection with any work, authority, or jurisdiction conferred upon CALTRANS under this AGREEMENT. It is understood and agreed that CALTRANS, to the extent permitted by law, will defend, indemnify, and save harmless ALAMEDA CTC and all of their officers and employees from all claims, suits, or actions of every name, kind, and description brought forth under, but not limited to, tortious, contractual, inverse condemnation, or other theories and assertions of liability occurring by reason of anything done or omitted to be done by CALTRANS, its contractors, sub-contractors, and/or its agents under this AGREEMENT.

Non-parties

69. PARTIES do not intend this AGREEMENT to create a third party beneficiary or define duties, obligations, or rights for entities not signatory to this AGREEMENT. PARTIES do not intend this AGREEMENT to affect their legal liability by imposing any standard of care for fulfilling the WORK different from the standards imposed by law.
70. PARTIES will not assign or attempt to assign obligations to entities not signatory to this AGREEMENT without an amendment to this AGREEMENT.

Ambiguity and Performance

71. ALAMEDA CTC will not interpret any ambiguity contained in this AGREEMENT against CALTRANS. ALAMEDA CTC waives the provisions of California Civil Code, Section 1654.

A waiver of a PARTY's performance under this AGREEMENT will not constitute a continuous waiver of any other provision.

72. A delay or omission to exercise a right or power due to a default does not negate the use of that right or power in the future when deemed necessary.

Defaults

73. If any PARTY defaults in its performance of the WORK, a non-defaulting PARTY will request in writing that the default be remedied within thirty (30) calendar days. If the defaulting PARTY fails to do so, the non-defaulting PARTY may initiate dispute resolution.

Dispute Resolution

74. PARTIES will first attempt to resolve AGREEMENT disputes at the PROJECT team level as described in the Quality Management Plan. If they cannot resolve the dispute themselves, the CALTRANS district director and the executive officer of ALAMEDA CTC will attempt to negotiate a resolution. If PARTIES do not reach a resolution, PARTIES' legal counsel will initiate mediation. PARTIES agree to participate in mediation in good faith and will share equally in its costs.

Neither the dispute nor the mediation process relieves PARTIES from full and timely performance of the WORK in accordance with the terms of this AGREEMENT. However, if any PARTY stops fulfilling its obligations, any other PARTY may seek equitable relief to ensure that the WORK continues.

Except for equitable relief, no PARTY may file a civil complaint until after mediation, or forty-five (45) calendar days after filing the written mediation request, whichever occurs first.

PARTIES will file any civil complaints in the Superior Court of the county in which the CALTRANS district office signatory to this AGREEMENT resides or in the Superior Court of the county in which the PROJECT is physically located.

75. PARTIES maintain the ability to pursue alternative or additional dispute remedies if a previously selected remedy does not achieve resolution.

Prevailing Wage

76. When WORK falls within the Labor Code § 1720(a)(1) definition of "public works" in that it is construction, alteration, demolition, installation, or repair; or maintenance work under Labor Code § 1771, PARTIES will conform to the provisions of Labor Code §§ 1720-1815, and all applicable provisions of California Code of Regulations, Title 8, Division 1, Chapter 8, Subchapter 3, Articles 1-7. PARTIES will include prevailing wage requirements in contracts for public work and require contractors to include the same prevailing wage requirements in all subcontracts.

Work performed by a PARTY's own employees is exempt from the Labor Code's Prevailing Wage requirements.

If WORK is paid for, in whole or part, with federal funds and is of the type of work subject to federal prevailing wage requirements, PARTIES will conform to the provisions of the Davis-Bacon and Related Acts, 40 U.S.C. §§ 3141-3148.

When applicable, PARTIES will include federal prevailing wage requirements in contracts for public works. WORK performed by a PARTY's employees is exempt from federal prevailing wage requirements.

DEFINITIONS

PARTY – Any individual signatory party to this AGREEMENT.

PARTIES – The term that collectively references all of the signatory agencies to this AGREEMENT.

WORK BREAKDOWN STRUCTURE (WBS) – A WBS is a standardized hierarchical listing of project work activities/products in increasing levels of detail. The CALTRANS WBS defines each PROJECT COMPONENT as a group of work activities/products. The CALTRANS Work Breakdown Structure is defined in the CALTRANS Workplan Standards Guide.

Contact Information

CALTRANS

Jack Siau, Project Manager
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Oakland, CA 94612
Office Phone: (510) 715-9574
Email: Jack_Siau@dot.ca.gov

ALAMEDA COUNTY TRANSPORTATION COMMISSION

Susan Chang, Project Manager
1111 Broadway, Suite 800
Oakland, CA 94607
Office Phone: (510) 208-7491
Email: schang@alamedactc.org

SIGNATURES

PARTIES are empowered by California Streets and Highways Code to enter into this AGREEMENT and have delegated to the undersigned the authority to execute this AGREEMENT on behalf of the respective agencies and covenants to have followed all the necessary legal requirements to validly execute this AGREEMENT.

Signatories may execute this AGREEMENT through individual signature pages provided that each signature is an original. This AGREEMENT is not fully executed until all original signatures are attached.

**STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION**




Helena (Lenka) Culik-Caro
Deputy District Director, Design

**VERIFICATION OF FUNDS AND
AUTHORITY:**



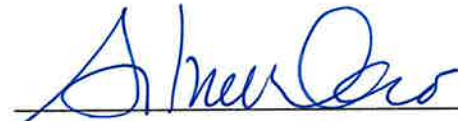
Jeffrey Armstrong
District Budget Manager

**CERTIFIED AS TO FINANCIAL TERMS
AND POLICIES:**



Tamara Warren
HQ Accounting Supervisor

**ALAMEDA COUNTY
TRANSPORTATION COMMISSION**



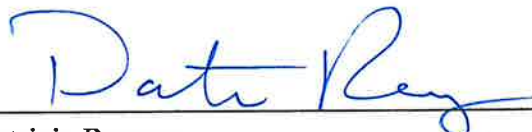
Arthur L. Dao
Executive Director

Recommended for approval:




Trinity Nguyen
Director of Project Delivery

Attest:



Patricia Reavey
Deputy Executive Director of
Finance and Administration

Approved as to form and procedure:



Wendel, Rosen, Black & Dean LLP
Legal Counsel for Alameda CTC

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ATTACHMENT K

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ATTACHMENT L

LIFE-CYCLE COST ANALYSIS

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Life Cycle Cost Analysis for Pavement Structural Section

**EA 04-0A7700
Project ID 0400020155
PM 6.3/7.0
Alameda County
On Interstate 80 (I-80)
At Gilman Street Interchange**

Submitted to



Prepared by

PARSONS

June 2019

This Preliminary Life Cycle Cost Analysis Report has been prepared under the direction of the following registered civil engineer. The registered civil engineer attests to the technical information contained herein and the engineering data upon which recommendations, conclusions, and decisions are based.



06/06/2019

Sohila Bemanian, Registered Civil Engineer

Date

Concurred By:



06/06/2019

Rodney Pimentel, Registered Civil Engineer

Date

Table of Contents

- 1. Introduction 4
- 2. Existing Facility..... 5
- 3. Traffic 5
- 4. Pavement Alternatives 6
- 5. Analysis 8
 - 5.1 Ramp Reconstruction- 20-year HMA with RHMA-G..... 8
 - 5.2 Ramp Rehabilitation 20-year HMA with RHMA-G Overlay 9
 - 5.3 Gilman Street Reconstruction- 20-year HMA with RHMA-G 10
 - 5.4 Roundabout Reconstruction- 20-year HMA with RHMA-G..... 10
- 6. Recommendations and Conclusions 11
- Attachment 1: LCCA Form 13
- Attachment 2: Pavement Thickness Design 17
- Attachment 3: Traffic Data 21
- Attachment 4: Cost Related Items 32
- Attachment 5: Procedures, Assumptions, and Input Data File Preparation..... 35
- Attachment 6: RealCost Report 42
 - Ramp Reconstruction..... 42
 - Ramp Rehabilitation 51
 - Gilman Street 61
 - Roundabout 72
- Attachment 7: Electronic Data (provided separately)..... 82

1. Introduction

The I-80 Gilman Street Interchange Improvement Project (Project) is located in Alameda County at the Interstate 80 (I-80)/Gilman Street interchange in the cities of Berkeley and Albany (Post Miles [PM] 6.3 to 7.0). This project proposes to reconfigure the I-80 ramps and intersections at Gilman Street. The I-80 ramps and frontage road intersections at each ramp intersection would be combined to form a single roundabout intersection on each side of I-80. The project location is shown Figure 1. This project is in the Central Coast Climate Region.

This report provides the approach, assumptions, and supporting information used to conduct life-cycle cost analysis (LCCA) and provide recommendations for the pavement type and selected strategies based on the lowest LCCA results. LCCA was conducted for the reconstruction of the ramps, rehabilitation of the ramps, reconstruction of Gilman Street, and the construction of the roundabout within the Caltrans right-of-way.

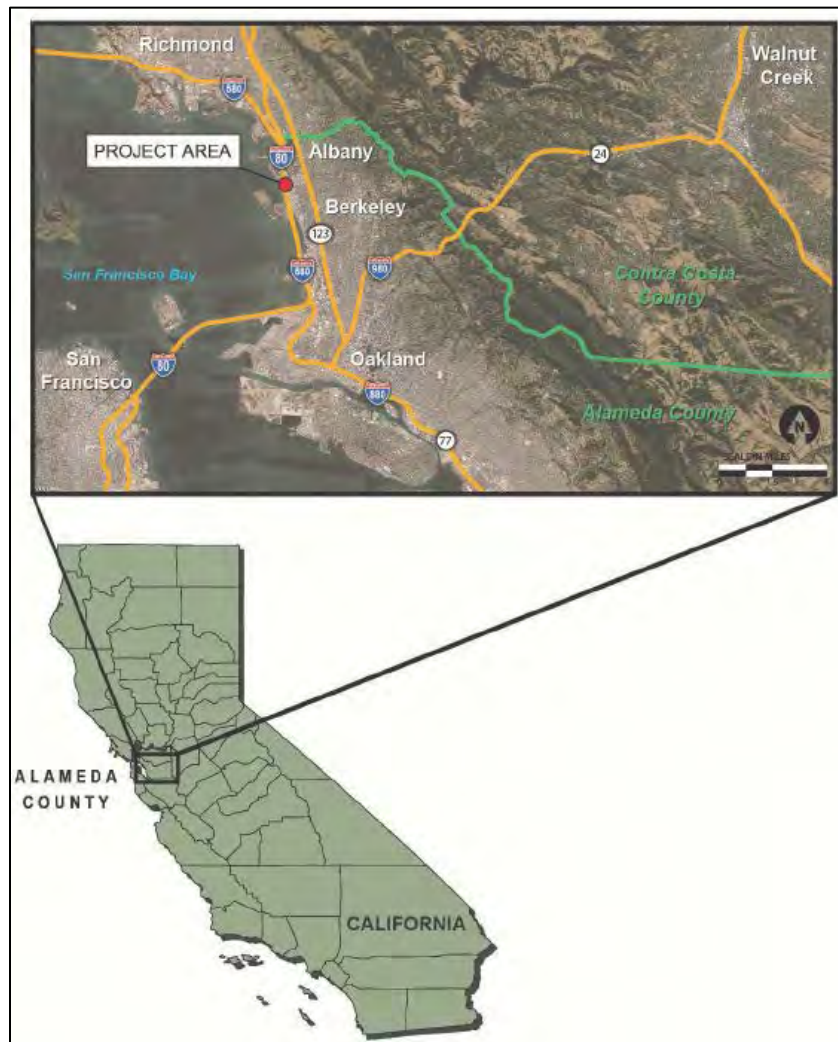


Figure 1: Project Location Map

2. Existing Facility

Within the limits of the proposed project, I-80 is a 10-lane freeway with 12-foot lanes and 11-foot shoulders. Gilman Street is a four-lane major arterial with 11-foot lanes and six-foot shoulders that passes underneath I-80. The I-80/Gilman Street interchange is a four-lane arterial roadway with two lanes in the east/west direction that are intersected with four ramps that connect to and from I-80, West Frontage Road, and Eastshore Highway.

The existing pavement thicknesses are summarized in Table 1. The existing pavement comprises of asphalt concrete (AC) over aggregate base (AB). The AC thicknesses for the ramps vary from 5-11 inches and the AB thicknesses for the ramps vary from 3-6 inches.

Table 1: Existing Pavement Thicknesses

Roadway	Asphalt Concrete	Aggregate Base
I-80 Westbound Off-Ramp	8-11 inches	3-inches
I-80 Eastbound Off-Ramp	10-inches	5-inches
I-80 Westbound On-Ramp	8-inches	3-inches
I-80 Eastbound Off-Ramp	5-inches	6-inches
Gilman Street from Eastshore Hwy to W. Frontage Road	3-inches	5-inches

This project is identified as a Maintenance Service Level (MSL) 1.

3. Traffic

The westbound off-ramp traffic has the highest traffic index and was used to conduct the ramp and roundabout LCCAs. The traffic information used for the LCCA is summarized in Table 2. See Attachment 3 for the detailed traffic data.

Table 2: I-80 Westbound Off-Ramp Traffic Information used for the LCCA

	I-80 Westbound Off-Ramp and Roundabout	Gilman Street from Eastshore Hwy to W. Frontage Road
20-year Traffic Index	11.0	10.5
40-year Traffic Index	12.0	11.5
2014 ADT	21,160+272,000*(mainline)	21,434
2020 ADT	21,160+272,000*(mainline)	21,434
2040 ADT	21,160+272,000*(mainline)	21,434
Percent Trucks	5.17%	3.29%
Single Unit Trucks	2.18	1.73
Combination Trucks	2.99	1.56
Annual Growth Rate	0%	0%
*based on Caltrans 2016 ADT for I-80 at Gilman Street		

The current level of services (LOS) are as follows:

- Westbound Ramps F and F (am and pm)
- Eastbound Ramps C and F (am and pm)
- Gilman Street F and F (am and pm).

4. Pavement Alternatives

With the exception of the westbound on-ramp, the proposed reconfiguration of the interchange at I-80 and Gilman Street will result in approximately 14-35 percent realignment and reconstruction of the ramps. The remaining portion of the ramps and the westbound on-ramp will require rehabilitation. The west roundabout and the portion of Gilman Street within the Caltrans right-of-way will be reconstructed to meet the new geometrics. Based on the proposed reconfiguration of the interchange, the following four LCCAs were conducted:

- Ramp Reconstruction
 - 20-year flexible, 40-year flexible, and 40-year JPCP
- Ramp Rehabilitation
 - 20-year flexible overlay, 40-year flexible reconstruction, 40-year JPCP reconstruction
 - Per LCCA Manual Figure 2-6, LCCA is not required for WB on-ramp and EB off-ramp because ADT is less than 15,000. A 20-year flexible rehabilitation alternative is recommended.
- Gilman Street Reconstruction
 - 20-year flexible, 40-year flexible, and 40-year JPCP
- Roundabout Reconstruction
 - 20-year flexible, 40-year flexible, and 40-year JPCP

Figure 2-1 of the LCCA Manual, shown in Attachment 5, was used to select the pavement alternatives for the ramp reconstruction, roundabout reconstruction, and Gilman Street reconstruction LCCAs. Figure 2-6 of the LCCA Manual, shown in Attachment 5, was used to select the pavement alternatives for the ramp rehabilitation LCCA. The ramp LCCA alternatives are summarized in Table 3. The pavement structural section information used for the LCCA is summarized in Table 4.

Table 3: Ramp Pavement Alternatives used for LCCA

ROADWAYS IN CALTRANS ROW		LCCA 1: Ramp Reconstruction			LCCA 2: Ramp Rehabilitation		
No.	Description	20-year Flexible	40-Year Flexible	40-year JPCP	20-year Flexible Overlay	40-year Flexible Rehab	40-year Concrete Overlay
1	I-80 WB Off-ramp	✓	✓	✓	✓	✓	✓
2	I-80 EB On-ramp	✓	✓	✓	✓	✓	✓
3	I-80 WB On-ramp	N/A	N/A	N/A	LCCA Not required. 20-year rehab.		
4	I-80 EB Off-ramp	✓	✓	✓	LCCA Not required. 20-year rehab.		

Table 4: Pavement Thicknesses

	TI	Climate Region	Subgrade Type	Pavement Structural Section
RAMP RECONSTRUCTION				
Alternative 1: 20-year HMA w/ RHMA-G	11.0	Central Coast	R-value 40	0.20ft RHMA-G 0.50ft HMA-A 0.75ft AB- C12 Total Depth: 1.45 ft
Alternative 2: 40-year HMA with RHMA-G and RHMA-O	12.0	Central Coast	R-value 40	0.10ft HMA-O 0.20ft RHMA-G 0.95ft HMA-A 0.50ft AB- C12 Total Depth:1.75 ft
Alternative 3: 40-year JPCP	12.0	Central Coast	Type I	0.80ft JPCP 0.25ft HMA Total Depth: 1.05ft
RAMP REHABILITATION				
Alternative 1: 20-year Flexible Rehab	11.0	Central Coast	R-value 40	0.20ft RHMA-G 0.15ft HMA-A 0.35ft Mill
Alternative 2: 40-year HMA w/ RHMA-G and RHMA-O	12.0	Central Coast	R-value 40	0.10ft HMA-O 0.20ft RHMA-G 0.95ft HMA-A 0.50ft AB- C12 Over excavation 1.75 ft
Alternative 3: 40-year JPCP	12.0	Central Coast	Type I	0.80ft JPCP 0.25ft HMA Over excavation 1.05ft
GILMAN STREET FROM EASTSHORE HWY TO W. FRONTAGE ROAD				
Alternative 1: 20-year HMA w/ RHMA-G	10.5	Central Coast	R-value 30	0.20ft RHMA-G 0.35ft HMA-A 1.30ft AB- C12 Total Depth: 1.85 ft
Alternative 2: 40-year HMA w/ RHMA-G	11.5	Central Coast	R-value 30	0.10ft HMA-O 0.20ft RHMA-G 1.00ft HMA-A 0.50ft AB- C12 SEGT Total Depth:1.80 ft
Alternative 3: 40-year JPCP	11.5	Central Coast	Type II	0.80ft JPCP 0.25ft HMA 0.60ft AS Total Depth: 1.65ft
ROUNDBOUT RECONSTRUCTION				
Alternative 1: 20-year HMA w/ RHMA-G	11.0	Central Coast	R-value 30	0.20ft RHMA-G 0.50ft HMA-A 1.20ft AB- C12 Total Depth: 1.90 ft
Alternative 2: 40-year HMA w/ RHMA-G	12.0	Central Coast	R-value 30	0.10ft HMA-O 0.20ft RHMA-G 1.05ft HMA-A 0.50ft AB- C12 SEGT Total Depth:1.85 ft
Alternative 3: 40-year JPCP	12.0	Central Coast	Type II	0.80ft JPCP 0.25ft HMA 0.60ft AS Total Depth: 1.65ft

5. Analysis

Four LCCAs were performed for the ramp reconstruction, ramp rehabilitation, Gilman Street reconstruction, and roundabout reconstruction using RealCost software V 2.5.4.CA and the LCCA Procedure Manual dated August 2013. Procedures, assumptions, input data, and LCCA manual screen shots are provided in Attachments 4 and 5.

The initial construction costs, future Maintenance and Rehabilitation (M&R) costs, total agency cost, user cost, and total life cycle costs for the LCCAs are summarized in Table 5 through Table 8. The 20-year HMA with RHMA alternatives provided the lowest agency life cycle cost for ramp reconstruction, ramp rehabilitation, Gilman Street reconstruction, and roundabout reconstruction.

5.1 Ramp Reconstruction- 20-year HMA with RHMA-G

The 20-year HMA with RHMA provides the lowest LCCA for the portion of the ramp that will be reconstructed as part of the reconfiguration of the interchange. Table 5 shows the result of the LCCA for the ramp reconstruction. The initial cost of 40-year HMA with RHMA and 40-year JPCP were considerably higher than the 20-year HMA with RHMA alternative, which resulted in the 20-year flexible alternative having the lowest LCCA. The user cost is slightly higher for the 20-year flexible alternative; however, the total user cost is insignificant due to short work zone duration.

Table 5: Summary of LCCA for Ramp Reconstruction

	20-year HMA w/ RHMA	40-year HMA w/ RHMA	40-year JPCP
Initial Construction Cost (\$)	\$ 28,456	\$44,749	\$ 70,454
Future Maintenance & Rehabilitation Cost(\$)	\$20,544	\$8,251	\$1,546
Total Agency Cost	\$49,000	\$53,000	\$72,000
User Cost (\$)	\$1,000	\$0	\$0
Grand Total Cost (\$)	\$50,000	\$53,000	\$72,000
Ranking by Lowest Initial Cost	1	2	3
Ranking by Lowest Future M&R Cost (\$)	3	2	1
Ranking by Total Agency Cost (\$)	1	2	3
Ranking by Lowest User Cost (\$)	3	2	1
Ranking by Lowest Grand Total Cost (\$)	1	2	3
Agency Cost Difference (\$)	-	\$4,000	\$23,000
Percentage Difference- Agency Cost (%)	-	8%	47%
Cost Difference- Total (\$)	-	\$3,000	\$22,000
Percentage Difference- Grand Total (%)	-	6%	44%

5.2 Ramp Rehabilitation 20-year HMA with RHMA-G Overlay

The 20-year flexible overlay was compared with 40-year flexible and rigid reconstruction. The 20-year HMA with RHMA overlay provides the lowest LCCA for the portion of the ramp that will be rehabilitated as part of the project. Table 6 shows the result of the LCCA for the ramp rehabilitation. The initial cost of 40-year HMA with RHMA and 40-year JPCP were considerably higher than the 20-year HMA with RHMA alternative, which resulted in the 20-year flexible overlay having the lowest LCCA. The user cost is slightly higher for the 20-year flexible alternative; however, the total user cost is insignificant due to short work zone duration.

Table 6: Summary of LCCA for Ramp Rehabilitation

	20-year HMA w/ RHMA Overlay	40-year HMA w/ RHMA Reconstruction	40-year JPCP Reconstruction
Initial Construction Cost (\$)	\$26,385	\$111,964	\$ 145,546
Future Maintenance & Rehabilitation Cost (\$)	\$33,615	\$13,036	\$2,454
Total Agency Cost	\$60,000	\$125,000	\$148,000
User Cost (\$)	\$1,000	\$0	\$0
Grand Total Cost (\$)	\$61,000	\$125,000	\$148,000
Ranking by Lowest Initial Cost	1	2	3
Ranking by Lowest Future M&R Cost (\$)	3	2	1
Ranking by Total Agency Cost (\$)	1	2	3
Ranking by Lowest User Cost (\$)	3	2	1
Ranking by Lowest Grand Total Cost (\$)	1	2	3
Agency Cost Difference (\$)	-	\$65,000	\$88,000
Percentage Difference- Agency Cost (%)	-	108%	147%
Cost Difference- Total (\$)	-	\$64,000	\$87,000
Percentage Difference- Grand Total (%)	-	105%	143%

5.3 Gilman Street Reconstruction- 20-year HMA with RHMA-G

The 20-year HMA with RHMA provides the lowest LCCA for the portion of Gilman that will be reconstructed as part of the reconfiguration of the interchange. Table 7 shows the result of the LCCA for the Gilman Street reconstruction. The initial cost of 40-year HMA with RHMA and 40-year JPCP were considerably higher than the 20-year HMA with RHMA alternative, which resulted in the 20-year flexible alternative having the lowest LCCA. The user cost for all alternatives is negligible due to low traffic and no queues caused during future interventions.

Table 7: Summary of Gilman Street

	20-year HMA w/ RHMA	40-year HMA w/ RHMA	40-year JPCP
Initial Construction Cost (\$)	\$51,165	\$87,791	\$ 135,963
Future Maintenance & Rehabilitation Cost (\$)	\$30,835	\$12,209	\$3,037
Total Agency Cost	\$82,000	\$100,000	\$139,000
User Cost (\$)	\$0	\$0	\$0
Grand Total Cost (\$)	\$82,000	\$100,000	\$139,000
Ranking by Lowest Initial Cost	1	2	3
Ranking by Lowest Future M&R Cost (\$)	3	2	1
Ranking by Total Agency Cost (\$)	1	2	3
Ranking by Lowest User Cost (\$)	3	2	1
Ranking by Lowest Grand Total Cost (\$)	1	2	3
Agency Cost Difference (\$)	-	\$18,000	\$57,000
Percentage Difference- Agency Cost (%)	-	22%	70%
Cost Difference- Total (\$)	-	\$18,000	\$57,000
Percentage Difference- Grand Total (%)	-	22%	70%

5.4 Roundabout Reconstruction- 20-year HMA with RHMA-G

The 20-year HMA with RHMA provides the lowest LCCA for the roundabout that will be reconstructed as part of the reconfiguration of the interchange. Table 8 shows the result of the LCCA for the roundabout reconstruction. The area analyzed included the roundabout travel lanes and truck apron. The initial cost of 40-year HMA with RHMA and 40-year JPCP were considerably higher than the 20-year HMA with RHMA alternative, which resulted in the 20-year flexible alternative having the lowest LCCA. The user cost is slightly higher for the 20-year flexible alternative; however, the total user cost is insignificant due to short work zone duration.

Table 8: Summary of Roundabout Reconstruction

	20-year HMA w/ RHMA	40-year HMA w/ RHMA	40-year JPCP
Initial Construction Cost (\$)	\$152,098	\$260,974	\$ 404,175
Future Maintenance & Rehabilitation Cost (\$)	\$47,902	\$23,026	\$5,825
Total Agency Cost	\$200,000	\$284,000	\$410,000
User Cost (\$)	\$1,000	\$0	\$0
Grand Total Cost (\$)	\$201,000	\$284,000	\$410,000
Ranking by Lowest Initial Cost	1	2	3
Ranking by Lowest Future M&R Cost (\$)	3	2	1
Ranking by Total Agency Cost (\$)	1	2	3
Ranking by Lowest User Cost (\$)	3	2	1
Ranking by Lowest Grand Total Cost (\$)	1	2	3
Agency Cost Difference (\$)	-	\$84,000	\$210,000
Percentage Difference- Agency Cost (%)	-	42%	105%
Cost Difference- Total (\$)	-	\$83,000	\$209,000
Percentage Difference- Grand Total (%)	-	41%	104%

6. Recommendations and Conclusions

The 20-year HMA with RHMA is recommended for the ramp rehabilitation and reconstruction, Gilman Street reconstruction, and roundabout reconstruction. This recommendation will provide a uniform pavement type and design life for the I-80/Gilman Interchange project. Due to small areas of reconstruction, the 20-year flexible alternative will minimize impact to the users while providing the lowest LCCA. Table 9, Table 10, Table 11, and Table 12 show the LCCA tables.

Table 9: Ramp Reconstruction LCCA

Total Cost						
Total Cost	Alternative 1: 20-yr HMA with RHMA-G		Alternative 2: 40-yr HMA with RHMA-G		Alternative 3: 40-yr JPCP	
	Agency Cost (\$1000)	User Cost (\$1000)	Agency Cost (\$1000)	User Cost (\$1000)	Agency Cost (\$1000)	User Cost (\$1000)
<i>Undiscounted Sum</i>	\$92	\$3	\$79	\$2	\$81	\$2
Present Value	\$49	\$1	\$53	\$0	\$72	\$0
EUAC	\$2	\$0	\$2	\$0	\$3	\$0
Lowest Present Value Agency Cost	Alternative 1: 20-yr HMA with RHMA-G					
Lowest Present Value User Cost	Alternative 3: 40-yr JPCP					

Table 10: Ramp Rehabilitation LCCA

Total Cost						
Total Cost	Alternative 1: 20-yr HMA with RHMA-G		Alternative 2: 40-yr HMA with RHMA-G		Alternative 3: 40-yr JPCP	
	Agency Cost (\$1000)	User Cost (\$1000)	Agency Cost (\$1000)	User Cost (\$1000)	Agency Cost (\$1000)	User Cost (\$1000)
<i>Undiscounted Sum</i>	\$130	\$3	\$167	\$2	\$158	\$2
Present Value	\$60	\$1	\$125	\$0	\$148	\$0
EUAC	\$3	\$0	\$6	\$0	\$7	\$0
Lowest Present Value Agency Cost	Alternative 1: 20-yr HMA with RHMA-G					
Lowest Present Value User Cost	Alternative 3: 40-yr JPCP					

Table 11: Gilman Street Reconstruction LCCA

Total Cost						
Total Cost	Alternative 1: 20-yr HMA with RHMA-G		Alternative 2: 40-yr HMA with RHMA-G		Alternative 3: 40-yr JPCP	
	Agency Cost (\$1000)	User Cost (\$1000)	Agency Cost (\$1000)	User Cost (\$1000)	Agency Cost (\$1000)	User Cost (\$1000)
<i>Undiscounted Sum</i>	\$143	\$0	\$139	\$0	\$151	\$0
Present Value	\$82	\$0	\$100	\$0	\$139	\$0
EUAC	\$4	\$0	\$5	\$0	\$6	\$0
Lowest Present Value Agency Cost	Alternative 1: 20-yr HMA with RHMA-G					
Lowest Present Value User Cost	Alternative 3: 40-yr JPCP					

Table 12: Roundabout New Construction LCCA

Total Cost						
Total Cost	Alternative 1: 20-yr HMA with RHMA-G		Alternative 2: 40-yr HMA with RHMA-G		Alternative 3: 40-yr JPCP	
	Agency Cost (\$1000)	User Cost (\$1000)	Agency Cost (\$1000)	User Cost (\$1000)	Agency Cost (\$1000)	User Cost (\$1000)
<i>Undiscounted Sum</i>	\$304	\$2	\$342	\$1	\$434	\$2
Present Value	\$200	\$1	\$284	\$0	\$410	\$0
EUAC	\$9	\$0	\$13	\$0	\$19	\$0
Lowest Present Value Agency Cost	Alternative 1: 20-yr HMA with RHMA-G					
Lowest Present Value User Cost	Alternative 3: 40-yr JPCP					

Attachment 1: LCCA Form

RAMP RECONSTRUCTION				
Option 1: 20-year HMA with RHMA-G				
<i>0.20ft RHMA-G over 0.50ft HMA-A over 0.75ft AB- CI2</i>				
	Pavement Design Life:	20 Years	PW Agency Cost	PW Agency and User Cost
	Initial Construction Costs:		\$28,456	
	Future Maintenance & Rehabilitation Costs:		\$20,544	
	Total Agency Costs:			\$49,000
	User Costs:			\$1,000
	Total Life Cycle Costs:			\$50,000
Option 2: 40-year HMA with RHMA-G				
<i>0.10ft HMA-O over 0.20ft RHMA-G over 0.95ft HMA-A over 0.50ft AB- CI2</i>				
	Pavement Design Life:	40 Years	PW Agency Cost	PW Agency and User Cost
	Initial Construction Costs:		\$44,749	
	Future Maintenance & Rehabilitation Costs:		\$8,251	
	Total Agency Costs:			\$53,000
	User Costs:			\$0
	Total Life Cycle Costs:			\$53,000
Option 3: 40-year JPCP				
<i>0.80ft JPCP over 0.25ft HMA</i>				
	Pavement Design Life:	40 Years	PW Agency Cost	PW Agency and User Cost
	Initial Construction Costs:		\$70,454	
	Future Maintenance & Rehabilitation Costs:		\$1,546	
	Total Agency Costs:			\$72,000
	User Costs:			\$0
	Total Life Cycle Costs:			\$72,000

RAMP REHABILITATION				
Option 1: 20-year HMA with RHMA-G				
	Pavement Design Life:	20 Years	PW Agency Cost	PW Agency and User Cost
	Initial Construction Costs:		\$26,385	
	Future Maintenance & Rehabilitation Costs:		\$33,615	
	Total Agency Costs:			\$60,000
	User Costs:			\$1,000
	Total Life Cycle Costs:			\$61,000
Option 2: 40-year HMA with RHMA-G				
	Pavement Design Life:	40 Years	PW Agency Cost	PW Agency and User Cost
	Initial Construction Costs:		\$111,964	
	Future Maintenance & Rehabilitation Costs:		\$13,036	
	Total Agency Costs:			\$125,000
	User Costs:			\$0
	Total Life Cycle Costs:			\$125,000
Option 3: 40-year JPCP				
	Pavement Design Life:	40 Years	PW Agency Cost	PW Agency and User Cost
	Initial Construction Costs:		\$145,546	
	Future Maintenance & Rehabilitation Costs:		\$2,454	
	Total Agency Costs:			\$148,000
	User Costs:			\$0
	Total Life Cycle Costs:			\$148,000

GILMAN STREET RECONSTRUCTION				
Option 1: 20-year HMA with RHMA-G				
	Pavement Design Life:	20 Years	PW Agency Cost	PW Agency and User Cost
	Initial Construction Costs:		\$51,165	
	Future Maintenance & Rehabilitation Costs:		\$30,835	
	Total Agency Costs:			\$82,000
	User Costs:			\$0
	Total Life Cycle Costs:			\$82,000
Option 2: 40-year HMA with RHMA-G				
	Pavement Design Life:	40 Years	PW Agency Cost	PW Agency and User Cost
	Initial Construction Costs:		\$87,791	
	Future Maintenance & Rehabilitation Costs:		\$12,209	
	Total Agency Costs:			\$100,000
	User Costs:			\$0
	Total Life Cycle Costs:			\$100,000
Option 3: 40-year JPCP				
	Pavement Design Life:	40 Years	PW Agency Cost	PW Agency and User Cost
	Initial Construction Costs:		\$135,963	
	Future Maintenance & Rehabilitation Costs:		\$3,037	
	Total Agency Costs:			\$139,000
	User Costs:			\$0
	Total Life Cycle Costs:			\$139,000

ROUNABOUT RECONSTRUCTION				
Option 1: 20-year HMA with RHMA-G				
	Pavement Design Life:	20 Years	PW Agency Cost	PW Agency and User Cost
	Initial Construction Costs:		\$152,098	
	Future Maintenance & Rehabilitation Costs:		\$47,902	
	Total Agency Costs:			\$200,000
	User Costs:			\$1,000
	Total Life Cycle Costs:			\$201,000
Option 2: 40-year HMA with RHMA-G				
	Pavement Design Life:	40 Years	PW Agency Cost	PW Agency and User Cost
	Initial Construction Costs:		\$260,974	
	Future Maintenance & Rehabilitation Costs:		\$23,026	
	Total Agency Costs:			\$284,000
	User Costs:			\$0
	Total Life Cycle Costs:			\$284,000
Option 3: 40-year JPCP				
	Pavement Design Life:	40 Years	PW Agency Cost	PW Agency and User Cost
	Initial Construction Costs:		\$404,175	
	Future Maintenance & Rehabilitation Costs:		\$5,825	
	Total Agency Costs:			\$410,000
	User Costs:			\$0
	Total Life Cycle Costs:			\$410,000

Attachment 2: Pavement Thickness Design

20-yr Flexible Pavement Sections

Alignment	Design TI	Assumed Design R-value	Existing AC (in)	Existing AB (in)	Mill and Overlay			Reconstruction				
					RHMA Thick-ness (ft)	Level Course HMA (ft)	Mill Depth (ft)	RHMA-G Thickness (ft)	HMA (Type A) Thickness (ft)	Class 2 AB Thick-ness (ft)	Other	
I-80 Westbound Exit Ramp	11.0	40	8-11*	3*	0.2	0.15	0.35	0.2	0.50	0.75	N/A	
West Roundabout		30	N/A	N/A	N/A	N/A	N/A	0.2	0.50	1.20	N/A	
West Roundabout Truck Apron			N/A	N/A	N/A	N/A	N/A	0.70	1.20	Textured HMA with color coating		
West Frontage Road	10.5	30	4-7	0-10	N/A	0.35	0.00	N/A	0.55	1.30	N/A	
Gilman Street from W. Frontage Rd to N terminus			3	5								
Gilman Street from Eastshore Hwy to W. Frontage Rd			3	5	N/A	N/A	N/A	0.2	0.35	1.30		
Gilman Street from 4 th St to Eastshore Hwy		3	5	0.2	0.15	0.15						
I-80 Eastbound Entrance Ramp		40	10*	5*	0.2	0.15	0.35	0.2	0.50	0.60		N/A
I-80 Westbound Entrance Ramp			8*	3*								
East Roundabout	30	N/A	N/A	N/A	N/A	N/A	0.2	0.50	1.05	N/A		
East Roundabout Truck Apron		N/A	N/A	N/A	N/A	N/A	0.70	1.05	Textured HMA with color coating			
I-80 Eastbound Exit Ramp	10.0	40	5*	6*	0.2	0.15	0.35	0.2	0.50	0.50	N/A	
2 nd Street north of Gilman	9.5	30	6	0	N/A	0.35	0.15	N/A	0.5	1.15	N/A	
Eastshore Highway south of Gilman			2	7								
Eastshore Highway north of Gilman			6	0								
Page Street			6	8								
Harrison Street			3	6								
Gilman Extension			3	6-8								N/A
2 nd Street south of Gilman	9.5	20	6	0	N/A	N/A	N/A	N/A	0.5	1.35	N/A	
Golden Gate Fields Parking Lot Entry	N/A	N/A	N/A	N/A	N/A	0.35	N/A	0.00	N/A	N/A	Textured HMA with color coating	
Gravel Access Road	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.6	Geotextile C12	
Bay Trail	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.35	0.5	0.7' CI 3 AB	

Notes: * = From As-builts; TI = Traffic Index; AC = Asphalt Concrete; AB = Aggregate Base; HMA = Hot Mix Asphalt; RHMA = Rubberized Hot Mix Asphalt.

40-yr Flexible Pavement Sections

Alignment	Design TI	Assumed Design R-value	Existing AC (in)	Existing AB (in)	Reconstruction				
					HMA-O Thickness (ft)	RHMA-G Thickness (ft)	HMA (Type A) Thickness (ft)	Class 2 AB Thickness (ft)	Other
I-80 Westbound Exit Ramp	12.0	40	8-11*	3*	0.1	0.2	0.95	0.50	N/A
West Roundabout		30	N/A	N/A	0.1	0.2	1.05	0.50	SEGT
West Roundabout Truck Apron		30	N/A	N/A	N/A	N/A	1.05	0.50	Textured HMA with color coating
Gilman Street from Eastshore Hwy to W. Frontage Rd	11.5	30	3	5	0.1	0.2	1.00	0.50	SEGT
I-80 Eastbound Entrance Ramp		40	10*	5*	0.10	0.2	0.60	0.50	N/A
I-80 Westbound Entrance Ramp		40	8*	3*	0.1				
East Roundabout		30	N/A	N/A	0.1	0.2	1.00	0.50	SEGT
East Roundabout Truck Apron		30	N/A	N/A	N/A	N/A	1.00	0.50	Textured HMA with color coating
I-80 Eastbound Exit Ramp	11.0	40	5*	6*	0.1	0.2	0.85	0.50	N/A

40-yr Rigid Pavement Sections

Rigid Pavement Catalog	TI	Pavement Sections	
		With lateral support	Without lateral support
Central Coast and Type I Subgrade Soil (R=40)	11.0	0.75' JPCP / 0.35' LCB, or 0.75' JPCP / 0.25' HMA-A, or 0.80' JPCP / 0.70' AB	0.80' JPCP / 0.35' LCB, or 0.80' JPCP / 0.25' HMA-A, or 0.85' JPCP / 0.70' AB
Central Coast and Type I Subgrade Soil (R=40)	11.5 to 12.0	0.80' JPCP / 0.35' LCB, or 0.80' JPCP / 0.25' HMA-A, or 0.80' CRCP / 0.25' HMA-A	0.85' JPCP / 0.35' LCB, or 0.85' JPCP / 0.25' HMA-A, or 0.80' CRCP / 0.25' HMA-A
Central Coast and Type II Subgrade Soil (R=30)	11.0	0.75' JPCP / 0.35' LCB / 0.60' AS, or 0.75' JPCP / 0.25' HMA-A / 0.60' AS, or 0.80' JPCP / 1.30' AB	0.80' JPCP / 0.35' LCB / 0.60' AS, or 0.80' JPCP / 0.25' HMA-A / 0.60' AS, or 0.85' JPCP / 1.30' AB

Rigid Pavement Catalog	TI	Pavement Sections	
		With lateral support	Without lateral support
Central Coast and Type II Subgrade Soil (R=30)	11.5 to 12.0	0.80' JPCP / 0.35' LCB / 0.60' AS, or 0.80' JPCP / 0.25' HMA-A / 0.60' AS, or 0.80' CRCP / 0.25' HMA-A / 0.60' AS	0.85' JPCP / 0.35' LCB / 0.60' AS, or 0.85' JPCP / 0.25' HMA-A / 0.60' AS, or 0.80' CRCP / 0.25' HMA-A / 0.60' AS

Notes:

1. JPCP = Jointed Plain Concrete Pavement; LCB = Lean Concrete Base; HMA-A = Hot-Mix Asphalt (Type A); AB = Aggregate Base (Class 2); CRCP = Continuously Reinforced Concrete Pavement; AS = Aggregate Subbase (Class 2).
2. Thicknesses shown for JPCP are for doweled pavement only.
3. Refer to Topic 626 of the Caltrans HDM (2012) for additional recommendations for ramps.

CALTRANS DISTRICT 04
Alameda County
04-ALA-80-6.3/7.0
EA 04-0A7700

Attachment 3: Traffic Data

The 2016 Caltrans ADT was used for the I-80 mainline traffic to determine the user cost for the ramps.

Dist	Route	County	Postmile	Description	Back Peak Hour	Back Peak Month	Back AADT	Ahead Peak Hour	Ahead Peak Month	Ahead AADT
04	080	ALA	3.786	EMERYVILLE, POWELL STREET	17800	278000	270000	18100	283000	275000
04	080	ALA	4.582	BERKELEY, JCT. RTE. 13 EAST	18100	283000	275000	17600	275000	267000
04	080	ALA	5.823	BERKELEY, UNIVERSITY AVENUE	17800	275000	267000	17500	273000	265000
04	080	ALA	6.62	BERKELEY, GILMAN STREET	17500	273000	265000	17900	280000	272000
04	080	ALA R	7.3	ALBANY, JCT. RTE. 580	17900	280000	272000	11900	185000	180000
04	080	ALA	8.036	ALAMEDA/CONTRA COSTA COUNTY LINE	11900	185000	180000			
04	080	CC	0	ALAMEDA/CONTRA COSTA COUNTY LINE				11900	185000	180000
04	080	CC	.216	RICHMOND, CENTRAL AVENUE	11900	185000	180000	12100	188000	183000
04	080	CC	1	RICHMOND, CARLSON BOULEVARD	12100	188000	183000	12600	197000	191000
04	080	CC	1.671	EL CERRITO, POTRERO AVENUE	12600	197000	191000	11600	181000	176000
04	080	CC	2.04	RICHMOND, JCT. RTE. 123 SOUTH	11600	181000	176000	13700	210000	204000
04	080	CC	2.619	RICHMOND, MAC DONALD AVENUE	13700	210000	204000	13500	207000	201000
04	080	CC	2.961	RICHMOND, SAN PABLO AVENUE	13500	207000	201000	13900	213000	207000
04	080	CC	3.411	RICHMOND, SOLANO AVENUE	13900	213000	207000	13200	203000	197000
04	080	CC	3.795	RICHMOND, MC BRYDE AVENUE	13200	203000	197000	13700	210000	204000
04	080	CC	4.341	SAN PABLO, SAN PABLO DAM ROAD	13700	210000	204000	13100	202000	195000
04	080	CC	5.246	EL PORTAL DRIVE	13100	202000	195000	13200	205000	197000
04	080	CC	5.983	RICHMOND, HILLTOP DRIVE	13200	205000	197000	12300	188000	181000
04	080	CC	6.6	RICHMOND PARKWAY	12300	188000	181000	12900	196000	189000
04	080	CC	7.597	PINOLE, APPIAN WAY	12900	196000	189000	13100	200000	192000
04	080	CC	8.508	PINOLE, PINOLE VALLEY ROAD	13100	200000	192000	12100	180000	173000
04	080	CC	10.059	HERCULES, JCT. RTE. 4 EAST	12400	180000	173000	9400	139000	131000
04	080	CC	10.685	HERCULES, WILLOW AVENUE	9400	139000	131000	8300	123000	116000
04	080	CC	12.753	CUMMINGS SKYWAY	8300	123000	116000	8600	127000	120000
04	080	CC	13.489	CROCKETT	8600	127000	120000	8500	125000	118000
04	080	CC	14.139	CARQUINEZ BRIDGE, CC/SOL COUNTY LINE	8500	125000	118000			
04	080	SOL	0	CARQUINEZ BRIDGE, CC/SOL COUNTY LINE				8500	125000	118000
04	080	SOL	1.144	VALLEJO, JCT. RTE. 29 NORTHWEST	8500	125000	118000	7900	119000	111000
04	080	SOL	1.776	VALLEJO, MAGAZINE STREET	7900	119000	111000	8700	129000	121000
04	080	SOL	2.22	VALLEJO, JCT. RTE. 780 SOUTHEAST	8700	129000	121000	10300	159000	147000
04	080	SOL	2.881	VALLEJO, GEORGIA STREET	10300	159000	147000	10600	164000	152000
04	080	SOL	3.233	VALLEJO, SPRINGS ROAD	10600	164000	152000	10600	164000	152000
04	080	SOL	3.494	VALLEJO, TENNESSEE STREET	10600	164000	152000	10800	167000	155000
04	080	SOL	4.432	VALLEJO, REDWOOD STREET	10800	167000	155000	9700	150000	139000
04	080	SOL	5.634	VALLEJO, JCT. RTE. 37 WEST	9700	150000	139000	9500	138000	127000
04	080	SOL	6.814	SOLANO/NAPA COUNTY LINE	9500	138000	127000			
04	080	NAP	6.814	SOLANO/NAPA COUNTY LINE				9500	138000	127000

The traffic indices (TI) used in the LCCA are summarized in this section. The I-80 westbound off-ramp traffic was assumed for the roundabout.

	I-80 Westbound Off-Ramp and Roundabout	Gilman Street from Eastshore Hwy to W. Frontage Road
20-year Traffic Index	11.0	10.5
40-year Traffic Index	12.0	11.5
2014 ADT	21,160+272,000*(mainline)	21,434
2020 ADT	21,160+272,000*(mainline)	21,434
2040 ADT	21,160+272,000*(mainline)	21,434
Percent Trucks	5.17%	3.29%
Single Unit Trucks	2.18	1.73
Combination Trucks	2.99	1.56
Annual Growth Rate	0%	0%
*based on Caltrans 2016 ADT for I-80 at Gilman Street		

It was assumed there is no growth rate for this section over the next 40-years due to LOS of F for most of the interchange.

I-80 Gilman Street Interchange Improvements
 Determine ADTT truck classification percentages from counts

Made by: C. Yickert Date: 6/19/2016
 Checked by: J. New Date: 6/19/2019

Source: Appendix A ADT Counts
 File(s): Tech Memo_I-80 Gilman Existing Data Appendixes reduced.pdf

use only Tuesday, Wednesday, Thursday counts per count environment on 6/12/15

Gilman between I-80 Ramps

CLASSIFICATION	AUTO	Eastbound					VOLUME	Westbound					VOLUME	Two-way	
		2-AXLE	3-AXLE	4-AXLE	5-AXLE	>5-AXLE		AUTO	2-AXLE	3-AXLE	4-AXLE	5-AXLE			>5-AXLE
Friday 1/22/15						0							0	0	
Saturday 1/23/15						0							0	0	
Sunday 1/24/15						0							0	0	
Tuesday 1/26/15	8,798	284	87	63	140	14	9,386	7234	82	160	14	44	2	7,336	15,522
Wednesday 1/27/15	6,117	111	57	80	97	22	6,476	7204	82	167	20	18	0	7,511	17,167
Thursday 1/28/15	8,014	293	74	79	94	13	8,567	7378	68	237	21	33	3	7,740	17,307
T, W, Th total	26,839	850	218	212	311	49	28,429	21,821	232	364	55	115	5	22,792	47,160 ADT
Average daily	8,946	283	73	67	104	16	9,343	7,274	77	121	18	38	2	7,597	
truck classification percentage	94.1%	3.1%	0.8%	0.7%	1.2%	0.2%		95.7%	1.0%	2.0%	0.1%	0.5%	0.0%		
bold values go into T1 cell:									29.9%	58.1%	6.7%	11.8%		WB percentage of two-way	44.3%
sum of all trucks EB							363							114	
percentage EB trucks							3.9%							4.2%	
sum of all trucks WB														363	863 ADTT
percentage WB trucks														5.17%	

	COMBINED VOLUMES						
	AUTO	2-AXLE	3-AXLE	4-AXLE	5-AXLE	>5-AXLE	VOLUME
T, W, Th	16253	374	251	85	149	16	17,140
Percentage	94.3%	2.2%	1.5%	0.5%	0.9%	0.1%	
truck classification percentage		42.2%	29.4%	9.7%	18.8%		
sum of all trucks	887						
percentage trucks	5.17%						

2040 Forecast

Two-Way ADT 21,434 see F10 board tab.
 Assume forecast ADT for total ADT
 Assume same directional proportions as existing
 Assume a 54.1% increase from existing ADT, as a placeholder
 EB Gilman 2040 ADT 11934
 WB Gilman 2040 ADT 9500

	AUTO	Eastbound					VOLUME	Westbound					VOLUME	Two-way	
		2-AXLE	3-AXLE	4-AXLE	5-AXLE	>5-AXLE		AUTO	2-AXLE	3-AXLE	4-AXLE	5-AXLE			>5-AXLE
percentage same as existing	94.1%	3.1%	0.8%	0.7%	1.2%	0.2%		95.7%	1.0%	2.0%	0.1%	0.5%	0.0%		
volume	11230	371	91	84	138	20	11934	9095	97	233	23	48	2	9500	21434

	COMBINED VOLUMES						
	AUTO	2-AXLE	3-AXLE	4-AXLE	5-AXLE	>5-AXLE	VOLUME
2040 Forecast	20425	468	326	107	186	22	21,434
Same as Existing Dir.	94.3%	2.2%	1.5%	0.5%	0.9%	0.1%	
truck classification percentage		42.2%	29.4%	9.7%	18.8%		
sum of all trucks	1109						
percentage trucks	5.17%						

*I-80 & Gilman Street Interchange
20-YEAR TRAFFIC INDEX CALCULATION
Per Parsons using T, W, Th counts between Ramps*

Made by: C. Vincent Date: 9/12/2016
Checked by: D. Phan Date: 9/12/2016

ADT for ramps from
Summary of I-80 Gilman Existing and 2040 ADT Forecast.pdf
and 9/9/16 email from Nayan Amin, TJKM

Assume ADT forecast on ramps = AADT forecast

Truck percentage and truck classification percentages for ramps based on same for
Gilman between I-80 Ramps using Tuesday, Wednesday, Thursday counts only.

I-80 Eastbound On Ramp at Gilman Street

vehicle type	truck %	ESAL 20-yr constant	Eastbound AADT= 15300	
			1-way AADTT = 791	expanded total 20-yr 1-way ESAL
2-axle trucks	42.2%	1380	334	460,920
3-axle trucks	29.4%	3680	233	857,440
4-axle trucks	9.7%	5880	77	452,760
5-axle trucks	18.8%	13780	148	2,039,440
TOTAL	Traveled Way		792	3,810,560
	Table 613.3C =>		Traffic Index =	10.5
	Table 613.5A =>		Traffic Index =	12.0

I-80 Eastbound Off Ramp at Gilman Street

vehicle type	truck %	ESAL 20-yr constant	Eastbound AADT= 12094	
			1-way AADTT = 625	expanded total 20-yr 1-way ESAL
2-axle trucks	42.2%	1380	264	364,320
3-axle trucks	29.4%	3680	184	677,120
4-axle trucks	9.7%	5880	61	358,680
5-axle trucks	18.8%	13780	117	1,612,260
TOTAL	Traveled Way		626	3,012,380
	Table 613.3C =>		Traffic Index =	10.0
	Table 613.5A =>		Traffic Index =	12.0

I-80 Westbound On Ramp at Gilman Street

		Westbound AADT = 13300		
% Trucks		5.17%		
		1-way AADTT = 688		
vehicle type	truck %	ESAL 20-yr constant	ESAL expanded avg daily trucks	total 20-yr 1-way ESAL
2-axle trucks	42.2%	1380	290	400,200
3-axle trucks	29.4%	3680	202	743,360
4-axle trucks	9.7%	5880	67	393,960
5-axle trucks	18.8%	13780	129	1,777,620
TOTAL	Traveled Way		688	3,315,140
	Table 613.3C =>		Traffic Index =	10.5
	Table 613.5A =>		Traffic Index =	12.0

I-80 Westbound Off Ramp at Gilman Street

		Westbound AADT= 21160		
% Trucks		5.17%		
		1-way AADTT = 1,094		
vehicle type	truck %	ESAL 20-yr constant	ESAL expanded avg daily trucks	total 20-yr 1-way ESAL
2-axle trucks	42.2%	1380	462	637,560
3-axle trucks	29.4%	3680	322	1,184,960
4-axle trucks	9.7%	5880	106	623,280
5-axle trucks	18.8%	13780	205	2,824,900
TOTAL	Traveled Way		1,095	5,270,700
	Table 613.3C =>		Traffic Index =	11.0
	Table 613.5A =>		Traffic Index =	12.0

I-80 Gilman Street Interchange Improvements
 Determined truck classification percentages from Tuesday, Wednesday, Thursday counts

Made by: C. Yirinec Date: 8/15/2016
 Checked by: P. Patel Date: 8/18/2016

Source: Appendix A ADT Counts
 Filename: Tech Memo_I-80 Gilman Existing Data Appendices reduced.pdf

Gilman between 2nd and 4th

CLASSIFICATION	Eastbound						Westbound						Two way		
	AUTO	2-AXLE	3-AXLE	4-AXLE	5-AXLE	>5-AXLE	VOLUME	AUTO	2-AXLE	3-AXLE	4-AXLE	5-AXLE		>5-AXLE	VOLUME
Tuesday 1/26/16	7,679	233	354	6	54	2	8,328	10,967	430	2	0	36	8	11,644	19,372
Wednesday 1/27/16	7,727	248	414	6	50	2	8,447	10,918	474	2	1	30	7	11,452	19,869
Thursday 1/28/16	7,800	240	373	7	54	2	8,566	10,440	437	4	0	48	11	10,940	19,515
3-day Average	7,765	240	380	6	53	2	8,447	10,651	447	3	0	38	9	11,148	19,565
Percentage	91.9%	2.8%	4.5%	0.1%	0.6%	0.0%		95.5%	4.0%	0.0%	0.0%	0.3%	0.1%		
Truck classification percentage		35.3%	55.8%	0.0%	8.0%			89.8%	0.5%	0.1%	9.5%				

Bold values go into TI calc				EB percentage of two-way	43.1%					WB percentage of two-way	56.9%				
sum of all trucks EB	682					sum of all trucks WB	497							1,179	TOT
percentage EB trucks	8.07%					percentage WB trucks	4.46%							percentage trucks	8.02%

Avg of T, W, Th	COMBINED VOLUMES						
	AUTO	2-AXLE	3-AXLE	4-AXLE	5-AXLE	>5-AXLE	VOLUME
Percentage	94.0%	3.5%	2.0%	0.0%	0.5%	0.1%	19,393
truck classification percentage		58.3%	32.5%	0.6%	8.6%		
sum of all trucks	11,779						
percentage trucks	6.02%						

2040 Forecast
 Two-Way ADT: **27,312** from Summary of I-80 Gilman Existing and 2040 ADT Forecast.pdf

Assume forecast ADT = forecast AADT
 Assume same classification percentages as existing

2040 Forecast	COMBINED VOLUMES						
	AUTO	2-AXLE	3-AXLE	4-AXLE	5-AXLE	>5-AXLE	VOLUME
Same % as Combined Count	19,617	987	554	7	91	11	27,312
truck classification percentage	94.0%	3.5%	2.0%	0.0%	0.5%	0.1%	
sum of all trucks	19,643						
percentage trucks	6.02%						

Gilman between 7th and 9th

CLASSIFICATION	Eastbound						Westbound						Two way		
	AUTO	2-AXLE	3-AXLE	4-AXLE	5-AXLE	>5-AXLE	VOLUME	AUTO	2-AXLE	3-AXLE	4-AXLE	5-AXLE		>5-AXLE	VOLUME
Tuesday 1/26/16	6,813	125	185	10	31	0	7,164	7730	107	51	0	22	0	7,920	15,084
Wednesday 1/27/16	7,046	165	186	12	30	2	7,441	7803	92	59	3	10	0	7,967	15,408
Thursday 1/28/16	7,046	158	173	13	29	0	7,415	7740	135	74	0	15	0	7,954	15,369
3-day Average	6,968	149	183	12	30	1	7,343	7,728	111	65	1	16	0	7,950	15,234
Truck classification percentage	34.9%	2.0%	2.5%	0.2%	0.4%	0.0%		37.6%	1.4%	0.8%	0.0%	0.2%	0.0%		
Truck classification percentage		39.8%	48.9%	3.1%	8.2%			57.8%	33.6%	0.5%	8.1%				

sum of all trucks EB	375						sum of all trucks WB	193							sum of all trucks	568 DTT
percentage EB trucks	5.11%						percentage WB trucks	2.42%							percentage trucks	8.71%

CLASSIFICATION	COMBINED VOLUMES						
	AUTO	2-AXLE	3-AXLE	4-AXLE	5-AXLE	>5-AXLE	VOLUME
Avg of T, W, Th	1472.6	263	248	15	46	1	15,294
percentage	36.3%	1.7%	1.6%	0.1%	0.3%	0.0%	
truck classification percentage		45.9%	43.7%	2.2%	8.2%		
sum of all trucks	968						
percentage trucks	3.7%						

2040 Forecast
 Two-Way ADT: **18,972** from Summary of I-80 Gilman Existing and 2040 ADT Forecast.pdf
 Assume forecast ADT= forecast AADT
 Assume same classification percentages as existing

CLASSIFICATION	COMBINED VOLUMES						
	AUTO	2-AXLE	3-AXLE	4-AXLE	5-AXLE	>5-AXLE	VOLUME
2040 Forecast	1820.8	323	308	16	57	1	18,972
Same % as Combined Exist	36.3%	1.7%	1.6%	0.1%	0.3%	0.0%	
truck classification percentage		45.9%	43.7%	2.2%	8.2%		
sum of all trucks	704						
percentage trucks	3.71%						

Gilman between I-80 Ramps

CLASSIFICATION	Eastbound						Westbound						Two way		
	AUTO	2-AXLE	3-AXLE	4-AXLE	5-AXLE	>5-AXLE	VOLUME	AUTO	2-AXLE	3-AXLE	4-AXLE	5-AXLE		>5-AXLE	VOLUME
Tuesday 1/26/16	8,798	284	87	93	140	14	9,386	7234	82	160	14	44	2	7,536	16,922
Wednesday 1/27/16	9,127	313	97	80	97	22	9,676	7209	82	157	20	38	0	7,516	17,192
Thursday 1/28/16	9,014	308	74	79	84	13	9,567	7378	88	237	11	33	3	7,740	17,317
3-day Average	8,980	297	73	57	110	16	9,543	7,274	77	198	18	38	2	7,597	17,140
Percentage	94.1%	3.1%	0.8%	0.7%	1.2%	0.2%		85.7%	1.0%	2.6%	0.2%	0.5%	0.0%		
Truck classification percentage		52.7%	12.9%	12.0%	22.3%			23.9%	58.1%	5.7%	12.4%				

Build values go into TI calc

	EB percentage of two-way	WB percentage of two-way	44.3%
sum of all trucks EB	563	sum of all trucks WB	324
percentage EB trucks	5.60%	percentage WB trucks	4.26%
		sum of all trucks	887 DIT
		percentage trucks	5.17%

COMBINED VOLUMES							
	AUTO	2-AXLE	3-AXLE	4-AXLE	5-AXLE	>5-AXLE	VOLUME
Avg of T, W, Th	16293	374	261	96	140	18	17,140
Percentage	94.8%	2.2%	1.5%	0.5%	0.8%	0.1%	
truck classification percentage		42.2%	29.4%	9.7%	18.8%		
sum of all trucks	887						
percentage trucks	5.17%						

2040 Forecast

Two-Way ADT **21,434** See Est Forecast tab

Assume forecast ADT= forecast AADT

Assume same classification percentages as existing

COMBINED VOLUMES							
	AUTO	2-AXLE	3-AXLE	4-AXLE	5-AXLE	>5-AXLE	VOLUME
2040 Forecast	20325	468	326	107	180	23	21,434
Same % as Combined Exist	94.8%	2.2%	1.5%	0.5%	0.8%	0.1%	
truck classification percentage		42.2%	29.4%	9.7%	18.8%		
sum of all trucks	1100						
percentage trucks	5.17%						

*I-80 & Gilman Street Interchange
20-YEAR TRAFFIC INDEX CALCULATION
Per Parsons using T, W, Th counts at Gilman between 2nd and 4th*

Made by: C. Vincent Date: 8/15/2016
Checked by: R. Patel Date: 8/18/2016

Assume ADT forecast = AADT forecast

ADT forecast from *Summary of I-80 Gilman Existing and 2040 ADT Forecast.pdf*.

Truck Classification percentages based on Gilman counts between 2nd and 4th using Tuesday, Wednesday, Thursday counts only.

Gilman Street, EB between 2nd Street and 4th Street

vehicle type	truck %	ESAL 20-yr constant	Eastbound AADT = 12179	
			1-way AADTT = 983	expanded total 20-yr 1-way ESAL
2-axle trucks	35.3%	1380	347	478,860
3-axle trucks	55.8%	3680	549	2,020,320
4-axle trucks	0.9%	5880	10	58,800
5-axle trucks*	8.0%	13780	79	1,088,620
TOTAL	Traveled Way		985	3,646,600

Table 613.3C =>

Traffic Index = 10.5 no change

*includes >5-axle trucks

Gilman Street, WB between 2nd Street and 4th Street

vehicle type	truck %	ESAL 20-yr constant	Westbound AADT = 15133	
			1-way AADTT = 675	expanded total 20-yr 1-way ESAL
2-axle trucks	89.9%	1380	607	837,660
3-axle trucks	0.5%	3680	4	14,720
4-axle trucks	0.1%	5880	0	0
5-axle trucks*	9.5%	13780	64	881,920
TOTAL	Traveled Way		675	1,734,300

Table 613.3C =>

Traffic Index = 9.5 no change

*includes >5-axle trucks

*I-80 & Gilman Street Interchange
 20-YEAR TRAFFIC INDEX CALCULATION
 Per Parsons using T, W, Th counts at Gilman between 7th and 8th*

Made by: C. Vincent Date: 8/16/2016
 Checked by: R. Patel Date: 8/18/2016

Assume ADT forecast = AADT forecast

ADT forecast from *Summary of I-80 Gilman Existing and 2040 ADT Forecast.pdf*.

Truck Classification percentages based on Gilman counts between 7th and 8th using Tuesday, Wednesday, Thursday counts only.

Gilman Street, EB between 7th and 8th

vehicle type	truck %	ESAL 20-yr constant	Eastbound AADT = 9,110	
			1-way AADTT = 465	expanded total 20-yr 1-way ESAL
2-axle trucks	39.8%	1380	186	256,680
3-axle trucks	48.9%	3680	228	839,040
4-axle trucks	3.1%	5880	15	88,200
5-axle trucks*	8.2%	13780	39	537,420
TOTAL	Traveled Way		468	1,721,340

Table 613.3C => Traffic Index = 9.5

*includes >5-axle trucks

Gilman Street, WB between 7th and 8th

vehicle type	truck %	ESAL 20-yr constant	Westbound AADT = 9862	
			1-way AADTT = 239	expanded total 20-yr 1-way ESAL
2-axle trucks	57.8%	1380	138	190,440
3-axle trucks	33.6%	3680	80	294,400
4-axle trucks	0.5%	5880	1	5,880
5-axle trucks*	8.1%	13780	19	261,820
TOTAL	Traveled Way		238	752,540

Table 613.3C => Traffic Index = 8.5

*includes >5-axle trucks

*I-80 & Gilman Street Interchange
20-YEAR TRAFFIC INDEX CALCULATION
Per Parsons using T, W, Th counts at Gilman between I-80 Ramps*

Made by: C. Vincent Date: 8/16/2016
Checked by: R. Patel Date: 8/18/2016

Existing ADT from *Summary of I-80 Gilman Existing and 2040 ADT Forecast.pdf*.

ADT forecast based on average growth on Gilman of 34.1%

Truck Classification percentages based on Gilman counts between I-80 ramps using Tuesday, Wednesday, Thursday counts only.

Gilman Street, EB between I-80 Ramps

vehicle type	truck %	ESAL 20-yr constant	Eastbound AADT = 11934	
			1-way AADTT = 704	expanded total 20-yr 1-way ESAL
2-axle trucks	52.7%	1380	371	511,980
3-axle trucks	12.9%	3680	91	334,880
4-axle trucks	12.0%	5880	85	499,800
5-axle trucks*	22.5%	13780	159	2,191,020
TOTAL	Traveled Way		706	3,537,680

Table 613.3C => Traffic Index = **10.5**

*includes >5-axle trucks

Gilman Street, WB between I-80 Ramps

vehicle type	truck %	ESAL 20-yr constant	Westbound AADT = 9500	
			1-way AADTT = 405	expanded total 20-yr 1-way ESAL
2-axle trucks	4.26%	1380	106	146,280
3-axle trucks	52.3%	3680	212	780,160
4-axle trucks	4.9%	5880	20	117,600
5-axle trucks*	14.8%	13780	60	826,800
TOTAL	Traveled Way		398	1,870,840

Table 613.3C => Traffic Index = **9.5**

*includes >5-axle trucks

I-80 Gilman Street Interchange Improvements

Estimate forecast ADT for Gilman St between I-80 Ramps based on average growth rate for Gilman forecasts by TJKM

Made by: R. Oyewole Date: 8/1/2016
 Checked by: C. Vincent Date: 8/4/2016

Source: *Summary of I-80 Gilman Existing and 2040 Forecast.pdf*

	BETWEEN RAMPS	2ND & 4TH	7TH & 8TH
EXISTING	15980	19064	15178
2040 FORECAST	21434	27312	18972
	34.1%	43.3%	25.0%
		34.1%	

Attachment 4: Cost Related Items

The unit costs for this project are based on project unit prices and are summarized Table 15.

Table 13: Unit Prices used for LCCA

Item	Unit	Unit Cost
Class 3- Aggregate Base	CY	\$ 65.00
Class 2- Aggregate Base	CY	\$ 52.00
Hot Mix Asphalt (Type A)	TON	\$ 110.00
Rubberized Hot Mix Asphalt (Gap Graded)	TON	\$ 160.00
Rubberized Hot Mix Asphalt (Type O)	TON	\$ 180.00
Cold Plane Asphalt Concrete Pavement	SQYD	\$ 4.30
Jointed Plain Concrete Pavement	CY	\$ 590.00
Aggregate Subbase	CY	\$ 45.00
SEgt	SY	\$4.00
Roadway Excavation	CY	\$75

The cost of over excavation was not included for areas where reconstruction is required since the cost would be similar for all alternatives. However, the cost of over excavation was included for the rehabilitation where reconstruction was considered as an alternative. The initial construction costs for the options do not include the following items:

- Add-on costs such as minor items, supplemental work, mobilization, and contingencies
- Structure and right-of-way costs
- Project support costs for design, environmental, project management, construction administration, inspection costs, etc.
- Common cost between pavement options, ie excavation costs.

Table 16 summarizes the initial construction costs used for the LCCA.

Table 14: Initial Construction Costs for Ramp Reconstruction

Area (sf)	Type	D	Vol	Unit	Unit Cost	Cost	Total Cost
20-year HMA with RHMA-G							
1000	RHMA-G	0.20	15	TON	\$ 160	\$ 2,368	
1000	HMA-A	0.50	37	TON	\$ 110	\$ 4,070	
1000	Agg Base	0.75	28	CY	\$ 52	\$ 1,444	
Total							\$ 28,456
40-year HMA with RHMA-G							
1000	HMA-O	0.10	7	TON	\$ 180	\$ 1,332	
1000	RHMA-G	0.20	15	TON	\$ 160	\$ 2,368	
1000	HMA-A	0.95	70	TON	\$ 110	\$ 7,733	
1000	Agg Base	0.50	19	CY	\$ 52	\$ 963	
Total							\$ 44,749
40-year JPCP							
1000	JPCP	0.80	30	CY	\$ 590	\$ 17,481	
1000	HMA-A	0.25	19	TON	\$ 110	\$ 2,035	
Total							\$ 70,454

Table 15: Initial Construction Costs for Ramp Rehabilitation

Area (sf)	Type	D	Vol	Unit	Unit Cost	Cost	Total Cost
20-year HMA w/ RHMA-G Rehab							
1000	RHMA-G	0.20	15	TON	\$ 160	\$ 2,368	
1000	HMA-A	0.15	11	TON	\$ 110	\$ 1,221	
1000	Cold Plane	0.35		SY	\$ 4	\$ 3,099.82	
Total							\$ 26,385
40-year HMA with RHMA-G							
1000	HMA-O	0.10	7	TON	\$ 180	\$ 1,332	
1000	RHMA-G	0.20	15	TON	\$ 160	\$ 2,368	
1000	HMA-A	0.95	70	TON	\$ 110	\$ 7,733	
1000	Agg Base	0.50	19	CY	\$ 52	\$ 963	
1000	Roadway Excavation	1.75	65	CY	\$ 75	\$ 4,861	
Total							\$ 111,964
40-year JPCP							
1000	JPCP	0.80	30	CY	\$ 590	\$ 17,481	
1000	HMA-A	0.25	19	TON	\$ 110	\$ 2,035	
1000	Roadway Excavation	1.05	39	CY	\$ 75	\$ 2,917	
Total							\$ 145,546

Table 16: Initial Construction Costs for Roundabout Construction

Area (sf)	Type	D	Vol	Unit	Unit Cost	Cost	Total Cost
20-year HMA with RHMA-G							
1000	RHMA-G	0.20	15	TON	\$ 160	\$ 2,368	
1000	HMA-A	0.35	26	TON	\$ 110	\$ 2,849	
1000	Agg Base	1.30	48	CY	\$ 52	\$ 2,504	
Total							\$ 152,098
40-year HMA with RHMA-G							
1000	HMA-O	0.10	7	TON	\$ 180	\$ 1,332	
1000	RHMA-G	0.20	15	TON	\$ 160	\$ 2,368	
1000	HMA-A	1.00	74	TON	\$ 110	\$ 8,140	
1000	Agg Base	0.50	19	CY	\$ 52	\$ 963	
	SEGT	-	-	SY	\$ 4	\$ 8,755.56	
Total							\$ 260,974
40-year JPCP							
1000	JPCP	0.80	30	CY	\$ 590	\$ 17,481	
1000	HMA-A	0.25	19	TON	\$ 110	\$ 2,035	
1000	Agg Subbase	0.60	22	CY	\$ 45	\$ 1,000	
Total							\$ 404,175

Table 17: Initial Construction Costs for Gilman Street from Eastshore Hwy to W. Frontage Road

Area (sf)	Type	D	Vol	Unit	Unit Cost	Cost	Total Cost
20-year HMA with RHMA-G							
1000	RHMA-G	0.20	15	TON	\$ 160	\$ 2,368	
1000	HMA-A	0.35	26	TON	\$ 110	\$ 2,849	
1000	Agg Base	1.30	48	CY	\$ 52	\$ 2,504	
Total							\$ 51,165
40-year HMA with RHMA-G							
1000	HMA-O	0.10	7	TON	\$ 180	\$ 1,332	
1000	RHMA-G	0.20	15	TON	\$ 160	\$ 2,368	
1000	HMA-A	1.00	74	TON	\$ 110	\$ 8,140	
1000	Agg Base	0.50	19	CY	\$ 52	\$ 963	
	SEGT	-	-	SY	\$ 4	\$ 2,945.33	
Total							\$ 87,791
40-year JPCP							
1000	JPCP	0.80	30	CY	\$ 590	\$ 17,481	
1000	HMA-A	0.25	19	TON	\$ 110	\$ 2,035	
1000	Agg Subbase	0.60	22	CY	\$ 45	\$ 1,000	
Total							\$ 135,963

Attachment 5: Procedures, Assumptions, and Input Data File Preparation

The following LCCAs were conducted as part of the I-80/Gilman project:

1. Ramp Reconstruction per LCCA Figure 2-1 shown in Figure 2;
2. Ramp Rehabilitation per LCCA Figure 2-6 shown in Figure 3;
3. Roundabout Reconstruction per LCCA Figure 2-1 shown in Figure 2; and
4. Gilman Street Reconstruction per LCCA Figure 2-1 shown in Figure 2.

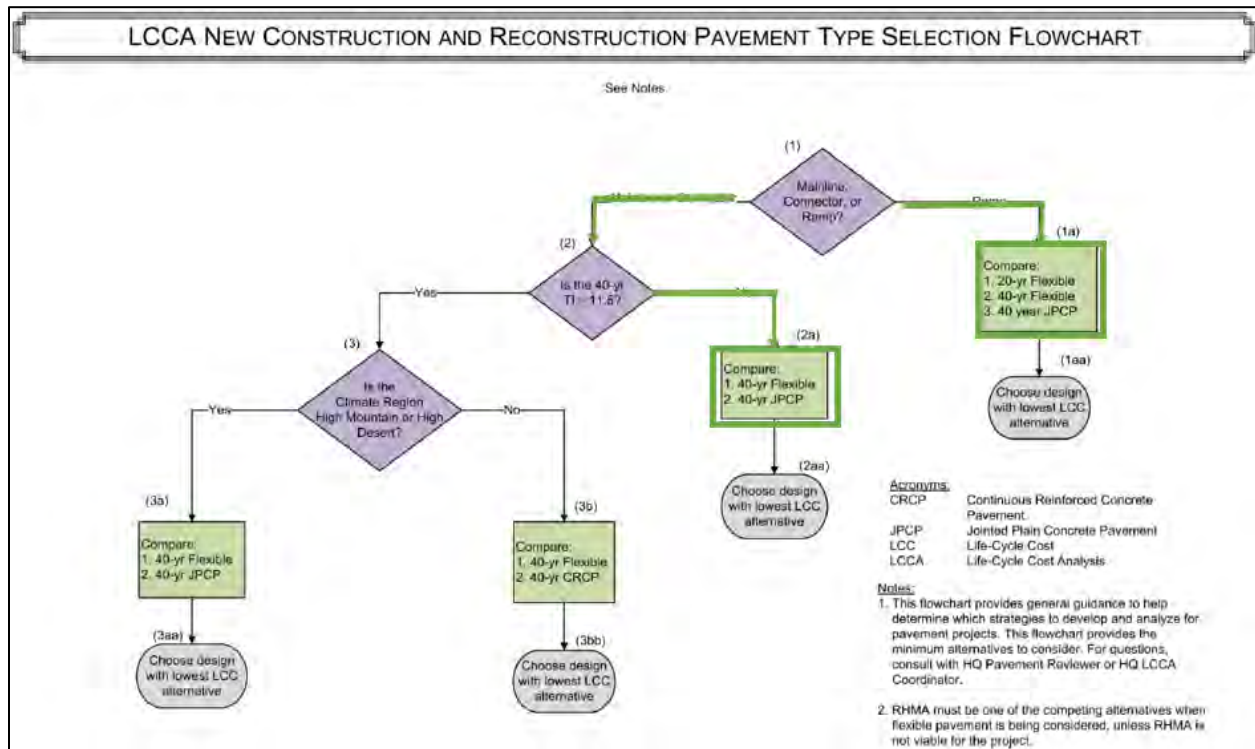


Figure 2: New Construction and Reconstruction Pavement Alternatives Selection Flowchart (Figure 2-1)

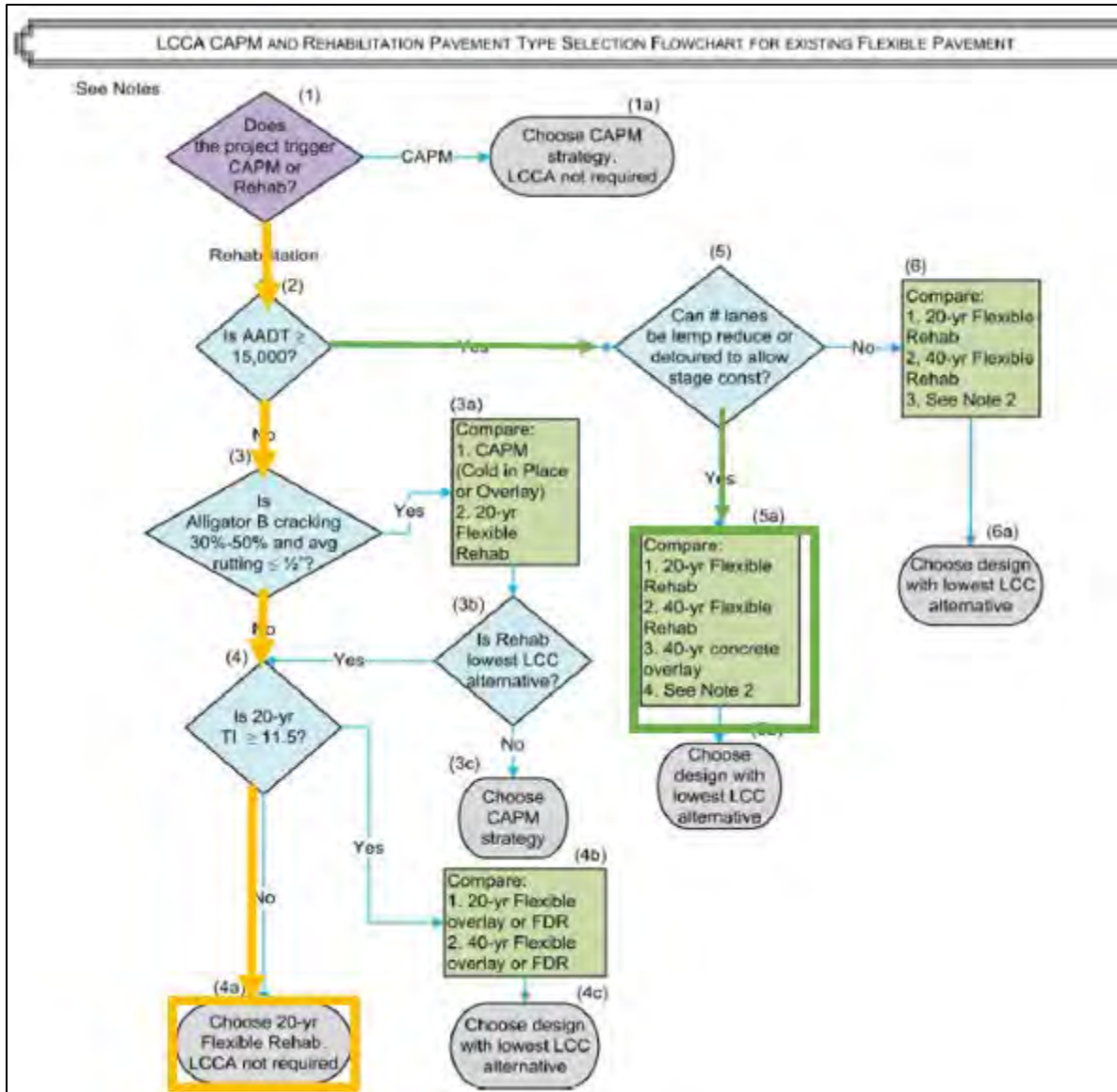


Figure 3: CAPM and Rehab for Flexible Pavement Alternatives Selection Flowchart (Figure 2-6)

Figure 2-6 of the LCCA Manual was used to select the pavement alternatives for the ramp rehabilitation. Since the ADT for the I-80 westbound on-ramp and I-80 eastbound off-ramp is less than 15,000 and the pavement is not experiencing alligator B cracking, LCCA is not required and a 20-year flexible rehabilitation alternative should be used.

The pavement alternatives for each LCCA are shown in Table 20.

Table 18: LCCA Pavement Alternatives

ROADWAYS IN CALTRANS ROW		LCCA ALTERNATIVES								
		LCCA 1: Ramp Rehabilitation			LCCA 2: Ramp Reconstruction			LCCA 3 and 4: Gilman/Roundabout Reconstruction		
No.	Description	20-year Flexible Rehab	40-year Flexible Rehab	40-year Concrete Overlay	20-year Flexible	40-Year Flexible	40-year JPCP	20-year Flexible	40-year Flexible	40-year JPCP
1	I-80 WB Off-ramp	✓	✓	✓	✓	✓	✓	N/A	N/A	N/A
2	I-80 EB On-ramp	✓	✓	✓	✓	✓	✓	N/A	N/A	N/A
3	I-80 WB On-ramp	LCCA Not required. 20-year rehab.			N/A	N/A	N/A	N/A	N/A	N/A
4	I-80 EB Off-ramp	LCCA Not required. 20-year rehab.			✓	✓	✓	N/A	N/A	N/A
5	west roundabout	N/A	N/A	N/A	N/A	N/A	N/A	✓	✓	✓
6	west roundabout truck apron	N/A	N/A	N/A	N/A	N/A	N/A	✓	✓	✓
7	Gilman Street from Eastshore Hwy to W. Frontage Road	N/A	N/A	N/A	N/A	N/A	N/A	✓	✓	✓

The areas of paving were provided by the Roadway group. Table 21 shows the lane-miles and areas which were used for the LCCA.

Table 19: LCCA Areas

LCCA No.	Description	Area ft ² (yd ²)	Width	Length ft (Lane-miles)
1	Ramp Reconstruction ¹	3,610 (401)	36ft (2- 12ft lanes and 8+4 ft shoulders)	100 (0.019)
2	Ramp Rehabilitation ¹	6,488 (720)	36ft (2- 12ft lanes and 8+4 ft shoulders)	180 (0.034)
3	Roundabout Construction ²	19,700 (2189)	32ft (2- 12 ft lanes and 1- 8ft shoulder)	615 (0.12)
4	Gilman Street frp, Eastshore Highway to W. Frontage Road	6,627 (736)	56ft (4- 11ft lanes and 6-ft shoulders)	118 (0.022)

¹Assumed area for I-80 Westbound off-ramp since it has the highest TI
²Area includes roundabout and truck apron

Agency Maintenance Cost and Work Zone Duration

Pavement maintenance and rehabilitation (M&R) type, schedule, and costs specified in the LCCA Procedure Manual Tables R-1(a) and F-1(c) were used for the M&R costs for the LCCA. The M&R schedule is dependent on pavement type, climate region, project type, final surface type, pavement design life, and maintenance service level.

The Agency Maintenance Costs were calculated by the following equation:

$$AMC = \frac{A \times L}{1,000}$$

Where:

A = Annual Maintenance Cost (Table F-1(c) and R-1(a))

L = Project Lane-Miles

Work zone duration is the estimated number of days on which lane closures are in effect for the entire project construction work. The LCCA Manual was used to determine the work zone duration for the M&R activities associated with each option. The LCCA Procedure Manual Tables 3-4 through 3-7 were used to calculate the work zone duration for the LCCAs. The initial construction work zone duration was assumed to be the same for all options. For future rehabilitation options, one lane closure was assumed.

The Work Zone Duration Days were calculated by the following equation:

$$WZD = \frac{L}{PR}$$

Where:

L = Project Lane-Miles

PR = Productivity Rates (assuming 10 p.m. – 5 a.m. lane closures) (Tables 3-4 through 3-7)

The M&R costs and work zone days used for the LCCA are summarized in Table 22 for ramp reconstruction, Table 23 for ramp rehabilitation, Table 24 for the roundabout, and Table 25 for Gilman Street.

- The M&R costs were calculated using Tables R-1(a) and F-1(c).
- Table 3-4 through 3-7 of the Caltrans LCCA Manual were used to calculate the work zone duration which was inputted into the LCCA to calculate user cost.

Table 20: M&R Costs and Work Zone Duration Days used for the Ramp Reconstruction

Activity	Annual Cost(\$/-lane-mile)	Agency Cost (\$K)	Productivity Rate	Work Zone Duration (Days)
20-year HMA with RHMA-G Alternative				
1-New/Reconstruction	\$2,700	\$51.30	-	-
2-CAPM HMA w/ RHMA	\$3,500	\$66.50	0.32	1
3-Rehab	\$3,500	\$66.50	0.08	1
40-yearHMA with RHMA-G Alternative				
1-New/Reconstruction	\$4,000	\$76.00	-	-
2-CAPM HMA w/ RHMA	\$3,500	\$66.50	0.32	1
3-Rehab	\$2,700	\$51.30	0.08	1
40-year JPCP Alternative				
1-New/Reconstruction	\$800	\$15.20	-	-
2-CAPM CPR C	\$3,000	\$57.00	0.99	1
3-CAPM CPR-B	\$1,500	\$28.50	0.4	1

Table 21: M&R Costs and Work Zone Duration Days used for the Ramp Rehabilitation

Activity	Annual Cost(\$/-lane-mile)	Agency Cost (\$K)	Productivity Rate	Work Zone Duration (Days)
20-year HMA w/ RHMA-G Overlay				
1-Rehab	\$3,500	\$119.00	0.08	1
2-CAPM HMA w/ RHMA	\$3,500	\$119.00	0.32	1
3-Rehab	\$3,500	\$119.00	0.08	1
40-yearHMA with RHMA-G				
1-New/Reconstruction	\$4,000	\$136.00	-	-
2-CAPM HMA w/ RHMA	\$3,500	\$119.00	0.32	1
3-Rehab	\$2,700	\$91.80	0.08	1
40-year JPCP				
1-New/Reconstruction	\$800	\$27.20	-	-
2-CAPM CPR C	\$3,000	\$102.00	0.99	1
3-CAPM CPR-B	\$1,500	\$51.00	0.4	1

Table 22: M&R Costs and Work Zone Duration Days used for the Roundabout

Activity	Annual Cost(\$/-lane-mile)	Agency Cost (\$K)	Productivity Rate	Work Zone Duration (Days)
20-year HMA with RHMA-G Alternative				
1-New/Reconstruction	\$2,700	\$324.00	-	-
2-CAPM HMA w/ RHMA	\$3,500	\$420.00	0.3	1
3-Rehab	\$3,500	\$420.00	0.14	1
40-yearHMA with RHMA-G Alternative				
1-New/Reconstruction	\$4,000	\$480.00	-	-
2-CAPM HMA w/ RHMA	\$3,500	\$420.00	0.3	1
3-Rehab	\$2,700	\$324.00	0.14	1
40-year JPCP Alternative				
1-New/Reconstruction	\$800	\$96.00	-	-
2-CAPM CPR C	\$3,000	\$360.00	0.99	1
3-CAPM CPR-B	\$1,500	\$180.00	0.4	1

Table 23: M&R Costs and Work Zone Duration Days used for Gilman Street

Activity	Annual Cost(\$/-lane-mile)	Agency Cost (\$K)	Productivity Rate	Work Zone Duration (Days)
20-year HMA with RHMA-G Alternative				
1-New/Reconstruction	\$2,700	\$59.40	-	-
2-CAPM HMA w/ RHMA	\$3,500	\$77.00	0.3	1
3-Rehab	\$3,500	\$77.00	0.14	1
40-yearHMA with RHMA-G Alternative				
1-New/Reconstruction	\$4,000	\$88.00	-	-
2-CAPM HMA w/ RHMA	\$3,500	\$77.00	0.3	1
3-Rehab	\$2,700	\$59.40	0.14	1
40-year JPCP Alternative				
1-New/Reconstruction	\$800	\$17.60	-	-
2-CAPM CPR C	\$3,000	\$66.00	0.99	1
3-CAPM CPR-B	\$1,500	\$33.00	0.4	1

Table 26 shows the additional inputs used for the LCCA.

Table 24: Additional Inputs used for LCCA

Design Inputs	Values/Inputs	Comments
Pavement Design Options and Subgrade Strength	Ramp Reconstruction (R-Value 40 Subgrade Strength II) 20-year HMA with RHMA 40-year HMA with RHMA 40-year JPCP	Per Flowchart 2-1.
	Ramp Rehabilitation (R-Value 40 Subgrade Strength II) 20-year Flexible Rehab 40-year Flexible Reconstruction 40-year JPCP Reconstruction	Per Flowchart 2-6.
	Gilman Street Reconstruction (R-Value 30 Subgrade Strength II) 20-year HMA with RHMA 40-year HMA with RHMA 40-year JPCP	Per Flowchart 2-1.
	Roundabout (R-Value 30 Subgrade Strength II) 20-year HMA with RHMA 40-year HMA with RHMA 40-year JPCP	Per Flowchart 2-1.
Traffic Index	Ramp and Roundabout 20-year TI: 11.0 40-year TI: 12.0	See Attachment 3. It was assumed there was 0% growth over the 40-years.
	Gilman Street 20-year TI: 10.5 40-year TI: 11.5	
Analysis Period	55 years	LCCA Procedures Manual, Table 2-1.
Discount Rate	4%	LCCA Procedures Manual, Section 2.6.
Maintenance Service Level	MSL 1	LCCA Procedures Manual, Table 2-3
Maintenance and Rehabilitation Type and Schedules	New Construction: 20-year HMA with RHMA-G Year 0: New/Reconstruct Year 23: CAPM with RHMA Year 33: Rehab HMA with RHMA (20yr)	Central Coast Region LCCA Procedures Manual F-1 (c)
	New Construction: 40-year HMA with RHMA-G Year 0: New/Reconstruct Year 40: CAPM with RHMA Year 50: Rehab HMA with RHMA (20yr)	Central Coast Region LCCA Procedures Manual F-1 (c)
	New Construction: 40-year JPCP Year 0: New/Reconstruct Year 45: CAPM (CPR-C) Year 50: CAPM (CPR-B)	Central Coast Region LCCA Procedures Manual, Table R-1(a)
	Rehabilitation: 20-yr HMA with RHMA-G Year 0: Rehab w/ 20-yr RHMA-G Year 23: CAPM with RHMA Year 33: Rehab HMA with RHMA (20yr)	Central Coast Region LCCA Procedures Manual F-1 (c)
Cost Estimates	Initial Construction Costs	Shown in Attachment 4.
	Annual Maintenance Costs	Per LCCA Procedures Manual, Tables F-1 (c) and R-1(a) shown in Table 22, Table 23, Table 24, and Table 25.
LCCA Software	Caltrans RealCost V2.5.2CA	
Production Rate	$\text{Work Zone Duration (days)} = \frac{\text{Total Project Lane} - \text{Miles}}{\text{Productivity Rate}}$	Productivity rates obtained from LCCA Procedures Manual Tables 3-4 to 3-6 shown in Table 22, Table 23, Table 24, and Table 25.
CAPM: Capital Annual Maintenance CPR-B: Concrete Pavement Rehabilitation Type B CPR-C: Concrete Pavement Rehabilitation Type C		

Attachment 6: RealCost Report

Ramp Reconstruction

RealCost Input Data

1. Economic Variables	
Value of Time for Passenger Cars (\$/hour)	\$13.00
Value of Time for Single Unit Trucks (\$/hour)	\$29.60
Value of Time for Combination Trucks (\$/hour)	\$29.60

2. Analysis Options	
Include User Costs in Analysis	Yes
Include User Cost Remaining Service Life Value	Yes
Use Differential User Costs	Yes
User Cost Computation Method	Calculated
Include Agency Cost Remaining Service Life Value	Yes
Traffic Direction	Outbound
Analysis Period (Years)	55
Beginning of Analysis Period	2020
Discount Rate (%)	4.0
Number of Alternatives	3

3. Project Details and Quantity Calculations	
State Route	I-80/Gilman
Project Type	New/Reconstruction/Widening
Project Name	I-80 Gilman Street Interchange Improvement Project
Maintenance Service Level	1
Local Region	Alameda County
County	Alameda County
Climate Region	Central Coast
Analyzed By	Parsons
Mileposts	
Begin	
End	
Length of Project (miles)	0.04
Comments	Reconstruction of a portion of the ramps. This LCCA analyzes the WB off-ramp at I-80/Gilman interchange

4. Traffic Data	
------------------------	--

AADT Construction Year (total for both directions)	293,160
Cars as Percentage of AADT (%)	94.8
Single Unit Trucks as Percentage of AADT (%)	2.2
Combination Trucks as Percentage of AADT (%)	3.0
Annual Growth Rate of Traffic (%)	0.0
Speed Limit Under Normal Operating Conditions (mph)	65
No of Lanes in Each Direction During Normal Conditions	7
Free Flow Capacity (vphpl)	2170
Queue Dissipation Capacity (vphpl)	1700
Maximum AADT (total for both directions)	645,276
Maximum Queue Length (miles)	1
5. Maintenance and Rehabilitation Sequence	
Alternative 1	
Final Pavement Surface	
Design Life	
Activity 1 Name	NEW/RECONST HMA W/RHMA (20YR)
Activity 1 Year of Action	2020
Activity 1 Annual Maintenance Cost (\$1000)	0.0513
Activity 1 Activity Service Life (Year)	23
Activity 2 Name	CAPM HMA W/ RHMA
Activity 2 Year of Action	2043
Activity 2 Annual Maintenance Cost (\$1000)	0.0665
Activity 2 Activity Service Life (Year)	10
Activity 3 Name	REHAB HMA W/ RHMA (20YR)
Activity 3 Year of Action	2053
Activity 3 Annual Maintenance Cost (\$1000)	0.0665
Activity 3 Activity Service Life (Year)	23
Activity 4 Name	CAPM HMA
Activity 4 Year of Action	2076
Activity 4 Annual Maintenance Cost (\$1000)	8.8
Activity 4 Activity Service Life (Year)	5
Activity 5 Name	REHAB HMA (20YR)
Activity 5 Year of Action	2081
Activity 5 Annual Maintenance Cost (\$1000)	23.2
Activity 5 Activity Service Life (Year)	5
Activity 6 Name	
Activity 6 Year of Action	2086
Activity 6 Annual Maintenance Cost (\$1000)	0
Activity 6 Activity Service Life (Year)	0
Alternative 2	
Final Pavement Surface	

Design Life	
Activity 1 Name	NEW/RECONST HMA W/RHMA (40YR)
Activity 1 Year of Action	2020
Activity 1 Annual Maintenance Cost (\$1000)	0.076
Activity 1 Activity Service Life (Year)	40.0
Activity 2 Name	CAPM HMW W/ RHMA
Activity 2 Year of Action	2060
Activity 2 Annual Maintenance Cost (\$1000)	0.0665
Activity 2 Activity Service Life (Year)	10.0
Activity 3 Name	REHAB HMA W/ RHMA (20YR)
Activity 3 Year of Action	2070
Activity 3 Annual Maintenance Cost (\$1000)	0.0513
Activity 3 Activity Service Life (Year)	23
Activity 4 Name	
Activity 4 Year of Action	2093
Activity 4 Annual Maintenance Cost (\$1000)	0
Activity 4 Activity Service Life (Year)	0
Activity 5 Name	
Activity 5 Year of Action	2093
Activity 5 Annual Maintenance Cost (\$1000)	1
Activity 5 Activity Service Life (Year)	0
Activity 6 Name	
Activity 6 Year of Action	2093
Activity 6 Annual Maintenance Cost (\$1000)	0
Activity 6 Activity Service Life (Year)	0
Alternative 3	
Final Pavement Surface	
Design Life	
Activity 1 Name	NEW/RECONST JPCP (40YR)
Activity 1 Year of Action	2020
Activity 1 Annual Maintenance Cost (\$1000)	0.0152
Activity 1 Activity Service Life (Year)	45
Activity 2 Name	CAPM (CPR C)
Activity 2 Year of Action	2065
Activity 2 Annual Maintenance Cost (\$1000)	0
Activity 2 Activity Service Life (Year)	5
Activity 3 Name	CAPM (CPR B)
Activity 3 Year of Action	2070
Activity 3 Annual Maintenance Cost (\$1000)	0
Activity 3 Activity Service Life (Year)	10
Activity 4 Name	CAPM (PR A)
Activity 4 Year of Action	2080

Activity 4 Annual Maintenance Cost (\$1000)	5
Activity 4 Activity Service Life (Year)	10
Activity 5 Name	
Activity 5 Year of Action	2090
Activity 5 Annual Maintenance Cost (\$1000)	0
Activity 5 Activity Service Life (Year)	0
Activity 6 Name	
Activity 6 Year of Action	2090
Activity 6 Annual Maintenance Cost (\$1000)	0
Activity 6 Activity Service Life (Year)	0
Alternative 4	
Final Pavement Surface	
Design Life	
Activity 1 Name	NEW/RECONST CRCP (20YR)
Activity 1 Year of Action	2020
Activity 1 Annual Maintenance Cost (\$1000)	0
Activity 1 Activity Service Life (Year)	30
Activity 2 Name	CAPM (PR C)
Activity 2 Year of Action	2050
Activity 2 Annual Maintenance Cost (\$1000)	0
Activity 2 Activity Service Life (Year)	5
Activity 3 Name	CAPM (PR B)
Activity 3 Year of Action	2055
Activity 3 Annual Maintenance Cost (\$1000)	0
Activity 3 Activity Service Life (Year)	10
Activity 4 Name	CAPM (PR A)
Activity 4 Year of Action	2065
Activity 4 Annual Maintenance Cost (\$1000)	0
Activity 4 Activity Service Life (Year)	10
Activity 5 Name	20
Activity 5 Year of Action	2075
Activity 5 Annual Maintenance Cost (\$1000)	0
Activity 5 Activity Service Life (Year)	0
Activity 6 Name	
Activity 6 Year of Action	2075
Activity 6 Annual Maintenance Cost (\$1000)	0
Activity 6 Activity Service Life (Year)	0

Alternative 1	20-yr HMA with RHMA-G
Number of Activities	3

Activity 1	NEW/RECONST HMA W/RHMA (20YR)
Agency Construction Cost (\$1000)	\$28.46

User Work Zone Costs (\$1000)		
Work Zone Duration (days)	0	
No of Lanes Open in Each Direction During Work Zone	6	
Activity Service Life (years)	23.0	
Activity Structural Life (years)		
Maintenance Frequency (years)	1	
Agency Maintenance Cost (\$1000)	0.0513	
Work Zone Length (miles)	0.02	
Work Zone Speed Limit (mph)	50	
Work Zone Capacity (vphpl)	1510	
Traffic Hourly Distribution	Weekday Double-Peak	
Time of Day of Lane Closures (use whole numbers based on a 24-hour clock)		
Inbound	Start	End
First period of lane closure		
Second period of lane closure		
Third period of lane closure		
Outbound	Start	End
First period of lane closure	0	5
Second period of lane closure	22	24
Third period of lane closure		

Activity 2	CAPM HMA W/ RHMA	
Agency Construction Cost (\$1000)	\$21.00	
User Work Zone Costs (\$1000)		
Work Zone Duration (days)	1	
No of Lanes Open in Each Direction During Work Zone	6	
Activity Service Life (years)	10.0	
Activity Structural Life (years)		
Maintenance Frequency (years)	1	
Agency Maintenance Cost (\$1000)	0.0665	
Work Zone Length (miles)	0.02	
Work Zone Speed Limit (mph)	50	
Work Zone Capacity (vphpl)	1510	
Traffic Hourly Distribution	Weekday Double-Peak	
Time of Day of Lane Closures (use whole numbers based on a 24-hour clock)		
Inbound	Start	End
First period of lane closure		
Second period of lane closure		
Third period of lane closure		
Outbound	Start	End
First period of lane closure	0	5
Second period of lane closure	22	24
Third period of lane closure		

Activity 3	REHAB HMA W/ RHMA (20YR)	
Agency Construction Cost (\$1000)	\$41.00	
User Work Zone Costs (\$1000)		
Work Zone Duration (days)	1	
No of Lanes Open in Each Direction During Work Zone	6	
Activity Service Life (years)	23.0	
Activity Structural Life (years)		
Maintenance Frequency (years)	1	
Agency Maintenance Cost (\$1000)	0.0665	
Work Zone Length (miles)	0.02	
Work Zone Speed Limit (mph)	50	
Work Zone Capacity (vphpl)	1510	
Traffic Hourly Distribution	Weekday Double-Peak	
Time of Day of Lane Closures (use whole numbers based on a 24-hour clock)		
Inbound	Start	End
First period of lane closure		
Second period of lane closure		
Third period of lane closure		
Outbound	Start	End
First period of lane closure	0	5
Second period of lane closure	22	24
Third period of lane closure		

Alternative 2	40-yr HMA with RHMA-G	
Number of Activities	3	

Activity 1	NEW/RECONST HMA W/RHMA (40YR)	
Agency Construction Cost (\$1000)	\$44.75	
User Work Zone Costs (\$1000)		
Work Zone Duration (days)	0	
No of Lanes Open in Each Direction During Work Zone	6	
Activity Service Life (years)	40.0	
Activity Structural Life (years)		
Maintenance Frequency (years)	1	
Agency Maintenance Cost (\$1000)	0.076	
Work Zone Length (miles)	0.02	
Work Zone Speed Limit (mph)	50	
Work Zone Capacity (vphpl)	1510	
Traffic Hourly Distribution	Weekday Double-Peak	
Time of Day of Lane Closures (use whole numbers based on a 24-hour clock)		
Inbound	Start	End

First period of lane closure		
Second period of lane closure		
Third period of lane closure		
Outbound	Start	End
First period of lane closure	0	5
Second period of lane closure	22	24
Third period of lane closure		

Activity 2	CAPM HMW W/ RHMA	
Agency Construction Cost (\$1000)	\$21.00	
User Work Zone Costs (\$1000)		
Work Zone Duration (days)	1	
No of Lanes Open in Each Direction During Work Zone	6	
Activity Service Life (years)	10.0	
Activity Structural Life (years)		
Maintenance Frequency (years)	1	
Agency Maintenance Cost (\$1000)	0.0665	
Work Zone Length (miles)	0.02	
Work Zone Speed Limit (mph)	50	
Work Zone Capacity (vphpl)	1510	
Traffic Hourly Distribution	Weekday Double-Peak	
Time of Day of Lane Closures (use whole numbers based on a 24-hour clock)		
Inbound	Start	End
First period of lane closure		
Second period of lane closure		
Third period of lane closure		
Outbound	Start	End
First period of lane closure	0	5
Second period of lane closure	22	24
Third period of lane closure		

Activity 3	REHAB HMA W/ RHMA (20YR)	
Agency Construction Cost (\$1000)	\$44.00	
User Work Zone Costs (\$1000)		
Work Zone Duration (days)	1	
No of Lanes Open in Each Direction During Work Zone	6	
Activity Service Life (years)	23.0	
Activity Structural Life (years)		
Maintenance Frequency (years)	1	
Agency Maintenance Cost (\$1000)	0.0513	
Work Zone Length (miles)	0.02	
Work Zone Speed Limit (mph)	50	

Work Zone Capacity (vphpl)	1510	
Traffic Hourly Distribution	Weekday Double-Peak	
Time of Day of Lane Closures (use whole numbers based on a 24-hour clock)		
Inbound	Start	End
First period of lane closure		
Second period of lane closure		
Third period of lane closure		
Outbound	Start	End
First period of lane closure	0	5
Second period of lane closure	22	24
Third period of lane closure		

Alternative 3	40-yr JPCP
Number of Activities	3

Activity 1	NEW/RECONST JPCP (40YR)	
Agency Construction Cost (\$1000)	\$70.45	
User Work Zone Costs (\$1000)		
Work Zone Duration (days)	0	
No of Lanes Open in Each Direction During Work Zone	6	
Activity Service Life (years)	45.0	
Activity Structural Life (years)		
Maintenance Frequency (years)	1	
Agency Maintenance Cost (\$1000)	0.0152	
Work Zone Length (miles)	0.02	
Work Zone Speed Limit (mph)	50	
Work Zone Capacity (vphpl)	1510	
Traffic Hourly Distribution	Weekday Double-Peak	
Time of Day of Lane Closures (use whole numbers based on a 24-hour clock)		
Inbound	Start	End
First period of lane closure		
Second period of lane closure		
Third period of lane closure		
Outbound	Start	End
First period of lane closure	0	5
Second period of lane closure	22	24
Third period of lane closure		

Activity 2	CAPM (CPR C)	
Agency Construction Cost (\$1000)	\$6.00	
User Work Zone Costs (\$1000)		
Work Zone Duration (days)	1	

No of Lanes Open in Each Direction During Work Zone	6	
Activity Service Life (years)	5.0	
Activity Structural Life (years)		
Maintenance Frequency (years)	1	
Agency Maintenance Cost (\$1000)	0.057	
Work Zone Length (miles)	0.02	
Work Zone Speed Limit (mph)	50	
Work Zone Capacity (vphpl)	1510	
Traffic Hourly Distribution	Weekday Double-Peak	
Time of Day of Lane Closures (use whole numbers based on a 24-hour clock)		
Inbound	Start	End
First period of lane closure		
Second period of lane closure		
Third period of lane closure		
Outbound	Start	End
First period of lane closure	0	5
Second period of lane closure	22	24
Third period of lane closure		

Activity 3	CAPM (CPR B)	
Agency Construction Cost (\$1000)	\$7.00	
User Work Zone Costs (\$1000)		
Work Zone Duration (days)	1	
No of Lanes Open in Each Direction During Work Zone	6	
Activity Service Life (years)	10.0	
Activity Structural Life (years)		
Maintenance Frequency (years)	1	
Agency Maintenance Cost (\$1000)	0.028	
Work Zone Length (miles)	0.02	
Work Zone Speed Limit (mph)	50	
Work Zone Capacity (vphpl)	1510	
Traffic Hourly Distribution	Weekday Double-Peak	
Time of Day of Lane Closures (use whole numbers based on a 24-hour clock)		
Inbound	Start	End
First period of lane closure		
Second period of lane closure		
Third period of lane closure		
Outbound	Start	End
First period of lane closure	0	5
Second period of lane closure	22	24
Third period of lane closure		

RealCost 2.5 Report

6/6/2019 10:41:26 AM

Deterministic Results

Total Cost	Alternative 1: 20-yr HMA with RHMA-G		Alternative 2: 40-yr HMA with RHMA-G		Alternative 3: 40-yr JPCP	
	Agency Cost (\$1000)	User Cost (\$1000)	Agency Cost (\$1000)	User Cost (\$1000)	Agency Cost (\$1000)	User Cost (\$1000)
Undiscounted Sum	\$92	\$3	\$79	\$2	\$81	\$2
Present Value	\$49	\$1	\$53	\$0	\$72	\$0
EUAC	\$2	\$0	\$2	\$0	\$3	\$0

Ramp Rehabilitation

RealCost Input Data

1. Economic Variables	
Value of Time for Passenger Cars (\$/hour)	\$13.00
Value of Time for Single Unit Trucks (\$/hour)	\$29.60
Value of Time for Combination Trucks (\$/hour)	\$29.60

2. Analysis Options	
Include User Costs in Analysis	Yes
Include User Cost Remaining Service Life Value	Yes
Use Differential User Costs	Yes
User Cost Computation Method	Calculated
Include Agency Cost Remaining Service Life Value	Yes
Traffic Direction	Outbound
Analysis Period (Years)	55
Beginning of Analysis Period	2020
Discount Rate (%)	4.0
Number of Alternatives	3

3. Project Details and Quantity Calculations	
State Route	I-80/Gilman
Project Type	New/Reconstruction/Wide n
Project Name	I-80 Gilman Street Interchange Improvement Project
Maintenance Service Level	1
Local Region	Alameda County
County	Alameda County
Climate Region	Central Coast
Analyzed By	Parsons
Mileposts	

RealCost 2.5 Report

6/6/2019 10:41:26 AM

Begin	
End	
Length of Project (miles)	0.03
Comments	Rehabilitation of a portion of the ramps. This LCCA analyzes the WB off-ramp at I-80/Gilman interchange

4. Traffic Data	
AADT Construction Year (total for both directions)	293,160
Cars as Percentage of AADT (%)	94.8
Single Unit Trucks as Percentage of AADT (%)	2.2
Combination Trucks as Percentage of AADT (%)	3.0
Annual Growth Rate of Traffic (%)	0.0
Speed Limit Under Normal Operating Conditions (mph)	65
No of Lanes in Each Direction During Normal Conditions	7
Free Flow Capacity (vphpl)	2170
Queue Dissipation Capacity (vphpl)	1700
Maximum AADT (total for both directions)	645,276
Maximum Queue Length (miles)	1
5. Maintenance and Rehabilitation Sequence	
Alternative 1	
Final Pavement Surface	
Design Life	
Activity 1 Name	NEW/RECONST HMA W/RHMA (20YR)
Activity 1 Year of Action	2020
Activity 1 Annual Maintenance Cost (\$1000)	0.119
Activity 1 Activity Service Life (Year)	23
Activity 2 Name	CAPM HMA W/ RHMA
Activity 2 Year of Action	2043
Activity 2 Annual Maintenance Cost (\$1000)	0.119
Activity 2 Activity Service Life (Year)	10
Activity 3 Name	REHAB HMA W/ RHMA (20YR)
Activity 3 Year of Action	2053
Activity 3 Annual Maintenance Cost (\$1000)	0.119
Activity 3 Activity Service Life (Year)	23
Activity 4 Name	CAPM HMA
Activity 4 Year of Action	2076
Activity 4 Annual Maintenance Cost (\$1000)	8.8
Activity 4 Activity Service Life (Year)	5
Activity 5 Name	REHAB HMA (20YR)

RealCost 2.5 Report

6/6/2019 10:41:26 AM

Activity 5 Year of Action	2081
Activity 5 Annual Maintenance Cost (\$1000)	23.2
Activity 5 Activity Service Life (Year)	5
Activity 6 Name	
Activity 6 Year of Action	2086
Activity 6 Annual Maintenance Cost (\$1000)	0
Activity 6 Activity Service Life (Year)	0
Alternative 2	
Final Pavement Surface	
Design Life	
Activity 1 Name	NEW/RECONST HMA W/RHMA (40YR)
Activity 1 Year of Action	2020
Activity 1 Annual Maintenance Cost (\$1000)	0.136
Activity 1 Activity Service Life (Year)	40.0
Activity 2 Name	CAPM HMW W/ RHMA
Activity 2 Year of Action	2060
Activity 2 Annual Maintenance Cost (\$1000)	0.119
Activity 2 Activity Service Life (Year)	10.0
Activity 3 Name	REHAB HMA W/ RHMA (20YR)
Activity 3 Year of Action	2070
Activity 3 Annual Maintenance Cost (\$1000)	0.0918
Activity 3 Activity Service Life (Year)	23
Activity 4 Name	
Activity 4 Year of Action	2093
Activity 4 Annual Maintenance Cost (\$1000)	0
Activity 4 Activity Service Life (Year)	0
Activity 5 Name	
Activity 5 Year of Action	2093
Activity 5 Annual Maintenance Cost (\$1000)	1
Activity 5 Activity Service Life (Year)	0
Activity 6 Name	
Activity 6 Year of Action	2093
Activity 6 Annual Maintenance Cost (\$1000)	0
Activity 6 Activity Service Life (Year)	0
Alternative 3	
Final Pavement Surface	
Design Life	
Activity 1 Name	NEW/RECONST JPCP (40YR)
Activity 1 Year of Action	2020
Activity 1 Annual Maintenance Cost (\$1000)	0.0272
Activity 1 Activity Service Life (Year)	45
Activity 2 Name	CAPM (CPR C)

RealCost 2.5 Report

6/6/2019 10:41:26 AM

Activity 2 Year of Action	2065
Activity 2 Annual Maintenance Cost (\$1000)	0
Activity 2 Activity Service Life (Year)	5
Activity 3 Name	CAPM (CPR B)
Activity 3 Year of Action	2070
Activity 3 Annual Maintenance Cost (\$1000)	0
Activity 3 Activity Service Life (Year)	10
Activity 4 Name	CAPM (PR A)
Activity 4 Year of Action	2080
Activity 4 Annual Maintenance Cost (\$1000)	5
Activity 4 Activity Service Life (Year)	10
Activity 5 Name	
Activity 5 Year of Action	2090
Activity 5 Annual Maintenance Cost (\$1000)	0
Activity 5 Activity Service Life (Year)	0
Activity 6 Name	
Activity 6 Year of Action	2090
Activity 6 Annual Maintenance Cost (\$1000)	0
Activity 6 Activity Service Life (Year)	0
Alternative 4	
Final Pavement Surface	
Design Life	
Activity 1 Name	NEW/RECONST CRCP (20YR)
Activity 1 Year of Action	2020
Activity 1 Annual Maintenance Cost (\$1000)	0
Activity 1 Activity Service Life (Year)	30
Activity 2 Name	CAPM (PR C)
Activity 2 Year of Action	2050
Activity 2 Annual Maintenance Cost (\$1000)	0
Activity 2 Activity Service Life (Year)	5
Activity 3 Name	CAPM (PR B)
Activity 3 Year of Action	2055
Activity 3 Annual Maintenance Cost (\$1000)	0
Activity 3 Activity Service Life (Year)	10
Activity 4 Name	CAPM (PR A)
Activity 4 Year of Action	2065
Activity 4 Annual Maintenance Cost (\$1000)	0
Activity 4 Activity Service Life (Year)	10
Activity 5 Name	20
Activity 5 Year of Action	2075
Activity 5 Annual Maintenance Cost (\$1000)	0
Activity 5 Activity Service Life (Year)	0
Activity 6 Name	
Activity 6 Year of Action	2075

RealCost 2.5 Report

6/6/2019 10:41:26 AM

Activity 6 Annual Maintenance Cost (\$1000)	0
Activity 6 Activity Service Life (Year)	0

Alternative 1	20-yr HMA with RHMA-G
Number of Activities	3

Activity 1	NEW/RECONST HMA W/RHMA (20YR)	
Agency Construction Cost (\$1000)	\$26.39	
User Work Zone Costs (\$1000)		
Work Zone Duration (days)	0	
No of Lanes Open in Each Direction During Work Zone	6	
Activity Service Life (years)	23.0	
Activity Structural Life (years)		
Maintenance Frequency (years)	1	
Agency Maintenance Cost (\$1000)	0.119	
Work Zone Length (miles)	0.02	
Work Zone Speed Limit (mph)	50	
Work Zone Capacity (vphpl)	1510	
Traffic Hourly Distribution	Weekday Double-Peak	
Time of Day of Lane Closures (use whole numbers based on a 24-hour clock)		
Inbound	Start	End
First period of lane closure	0	5
Second period of lane closure	22	24
Third period of lane closure		
Outbound	Start	End
First period of lane closure	0	5
Second period of lane closure	22	24
Third period of lane closure		

Activity 2	CAPM HMA W/ RHMA	
Agency Construction Cost (\$1000)	\$33.00	
User Work Zone Costs (\$1000)		
Work Zone Duration (days)	1	
No of Lanes Open in Each Direction During Work Zone	6	
Activity Service Life (years)	10.0	
Activity Structural Life (years)		
Maintenance Frequency (years)	1	
Agency Maintenance Cost (\$1000)	0.119	
Work Zone Length (miles)	0.02	
Work Zone Speed Limit (mph)	50	
Work Zone Capacity (vphpl)	1510	
Traffic Hourly Distribution	Weekday Double-Peak	
Time of Day of Lane Closures (use whole numbers based on a 24-hour clock)		

RealCost 2.5 Report

6/6/2019 10:41:26 AM

Inbound	Start	End
First period of lane closure	0	5
Second period of lane closure	22	24
Third period of lane closure		
Outbound	Start	End
First period of lane closure	0	5
Second period of lane closure	22	24
Third period of lane closure		

Activity 3	REHAB HMA W/ RHMA (20YR)	
Agency Construction Cost (\$1000)	\$67.00	
User Work Zone Costs (\$1000)		
Work Zone Duration (days)	1	
No of Lanes Open in Each Direction During Work Zone	6	
Activity Service Life (years)	23.0	
Activity Structural Life (years)		
Maintenance Frequency (years)	1	
Agency Maintenance Cost (\$1000)	0.119	
Work Zone Length (miles)	0.02	
Work Zone Speed Limit (mph)	50	
Work Zone Capacity (vphpl)	1510	
Traffic Hourly Distribution	Weekday Double-Peak	
Time of Day of Lane Closures (use whole numbers based on a 24-hour clock)		
Inbound	Start	End
First period of lane closure	0	5
Second period of lane closure	22	24
Third period of lane closure		
Outbound	Start	End
First period of lane closure	0	5
Second period of lane closure	22	24
Third period of lane closure		

Alternative 2	40-yr HMA with RHMA-G
Number of Activities	3

Activity 1	NEW/RECONST HMA W/RHMA (40YR)	
Agency Construction Cost (\$1000)	\$111.96	
User Work Zone Costs (\$1000)		
Work Zone Duration (days)	0	
No of Lanes Open in Each Direction During Work Zone	6	
Activity Service Life (years)	40.0	

RealCost 2.5 Report

6/6/2019 10:41:26 AM

Activity Structural Life (years)		
Maintenance Frequency (years)		1
Agency Maintenance Cost (\$1000)		0.136
Work Zone Length (miles)		0.02
Work Zone Speed Limit (mph)		50
Work Zone Capacity (vphpl)		1510
Traffic Hourly Distribution	Weekday Double-Peak	
Time of Day of Lane Closures (use whole numbers based on a 24-hour clock)		
Inbound	Start	End
First period of lane closure	0	5
Second period of lane closure	22	24
Third period of lane closure		
Outbound	Start	End
First period of lane closure	0	5
Second period of lane closure	22	24
Third period of lane closure		

Activity 2	CAPM HMW W/ RHMA	
Agency Construction Cost (\$1000)		\$33.00
User Work Zone Costs (\$1000)		
Work Zone Duration (days)		1
No of Lanes Open in Each Direction During Work Zone		6
Activity Service Life (years)		10.0
Activity Structural Life (years)		
Maintenance Frequency (years)		1
Agency Maintenance Cost (\$1000)		0.119
Work Zone Length (miles)		0.02
Work Zone Speed Limit (mph)		50
Work Zone Capacity (vphpl)		1510
Traffic Hourly Distribution	Weekday Double-Peak	
Time of Day of Lane Closures (use whole numbers based on a 24-hour clock)		
Inbound	Start	End
First period of lane closure	0	5
Second period of lane closure	22	24
Third period of lane closure		
Outbound	Start	End
First period of lane closure	0	5
Second period of lane closure	22	24
Third period of lane closure		

Activity 3	REHAB HMA W/ RHMA (20YR)	
Agency Construction Cost (\$1000)		\$72.00

RealCost 2.5 Report

6/6/2019 10:41:26 AM

User Work Zone Costs (\$1000)		
Work Zone Duration (days)	1	
No of Lanes Open in Each Direction During Work Zone	6	
Activity Service Life (years)	23.0	
Activity Structural Life (years)		
Maintenance Frequency (years)	1	
Agency Maintenance Cost (\$1000)	0.0918	
Work Zone Length (miles)	0.02	
Work Zone Speed Limit (mph)	50	
Work Zone Capacity (vphpl)	1510	
Traffic Hourly Distribution	Weekday Double-Peak	
Time of Day of Lane Closures (use whole numbers based on a 24-hour clock)		
Inbound	Start	End
First period of lane closure	0	5
Second period of lane closure	22	24
Third period of lane closure		
Outbound	Start	End
First period of lane closure	0	5
Second period of lane closure	22	24
Third period of lane closure		

Alternative 3	40-yr JPCP
Number of Activities	3

Activity 1	NEW/RECONST JPCP (40YR)	
Agency Construction Cost (\$1000)	\$145.55	
User Work Zone Costs (\$1000)		
Work Zone Duration (days)	0	
No of Lanes Open in Each Direction During Work Zone	6	
Activity Service Life (years)	45.0	
Activity Structural Life (years)		
Maintenance Frequency (years)	1	
Agency Maintenance Cost (\$1000)	0.0272	
Work Zone Length (miles)	0.02	
Work Zone Speed Limit (mph)	50	
Work Zone Capacity (vphpl)	1510	
Traffic Hourly Distribution	Weekday Double-Peak	
Time of Day of Lane Closures (use whole numbers based on a 24-hour clock)		
Inbound	Start	End
First period of lane closure	0	5
Second period of lane closure	22	24
Third period of lane closure		

RealCost 2.5 Report

6/6/2019 10:41:26 AM

Outbound	Start	End
First period of lane closure	0	5
Second period of lane closure	22	24
Third period of lane closure		

Activity 2	CAPM (CPR C)	
Agency Construction Cost (\$1000)	\$7.00	
User Work Zone Costs (\$1000)		
Work Zone Duration (days)	1	
No of Lanes Open in Each Direction During Work Zone	6	
Activity Service Life (years)	5.0	
Activity Structural Life (years)		
Maintenance Frequency (years)	1	
Agency Maintenance Cost (\$1000)	0.102	
Work Zone Length (miles)	0.02	
Work Zone Speed Limit (mph)	50	
Work Zone Capacity (vphpl)	1510	
Traffic Hourly Distribution	Weekday Double-Peak	
Time of Day of Lane Closures (use whole numbers based on a 24-hour clock)		
Inbound	Start	End
First period of lane closure	0	5
Second period of lane closure	22	24
Third period of lane closure		
Outbound	Start	End
First period of lane closure	0	5
Second period of lane closure	22	24
Third period of lane closure		

Activity 3	CAPM (CPR B)	
Agency Construction Cost (\$1000)	\$8.00	
User Work Zone Costs (\$1000)		
Work Zone Duration (days)	1	
No of Lanes Open in Each Direction During Work Zone	6	
Activity Service Life (years)	10.0	
Activity Structural Life (years)		
Maintenance Frequency (years)	1	
Agency Maintenance Cost (\$1000)	0.051	
Work Zone Length (miles)	0.02	
Work Zone Speed Limit (mph)	50	
Work Zone Capacity (vphpl)	1510	
Traffic Hourly Distribution	Weekday Double-Peak	
Time of Day of Lane Closures (use whole numbers based on a 24-hour clock)		
Inbound	Start	End
First period of lane closure	0	5

RealCost 2.5 Report

6/6/2019 10:41:26 AM

Second period of lane closure	22	24
Third period of lane closure		
Outbound	Start	End
First period of lane closure	0	5
Second period of lane closure	22	24
Third period of lane closure		

RealCost 2.5 Report

6/6/2019 10:49:13 AM

Deterministic Results

Total Cost	Alternative 1: 20-yr HMA with RHMA-G		Alternative 2: 40-yr HMA with RHMA-G		Alternative 3: 40-yr JPCP	
	Agency Cost (\$1000)	User Cost (\$1000)	Agency Cost (\$1000)	User Cost (\$1000)	Agency Cost (\$1000)	User Cost (\$1000)
Undiscounted Sum	\$130	\$3	\$167	\$2	\$158	\$2
Present Value	\$60	\$1	\$125	\$0	\$148	\$0
EUAC	\$3	\$0	\$6	\$0	\$7	\$0

Gilman Street

RealCost Input Data

1. Economic Variables	
Value of Time for Passenger Cars (\$/hour)	\$13.00
Value of Time for Single Unit Trucks (\$/hour)	\$29.60
Value of Time for Combination Trucks (\$/hour)	\$29.60

2. Analysis Options	
Include User Costs in Analysis	Yes
Include User Cost Remaining Service Life Value	Yes
Use Differential User Costs	Yes
User Cost Computation Method	Calculated
Include Agency Cost Remaining Service Life Value	Yes
Traffic Direction	Both
Analysis Period (Years)	55
Beginning of Analysis Period	2020
Discount Rate (%)	4.0
Number of Alternatives	3

3. Project Details and Quantity Calculations	
State Route	I-80/Gilman
Project Type	New/Reconstruction/Wide n
Project Name	I-80 Gilman Street Interchange Improvement Project
Maintenance Service Level	1
Local Region	Alameda County
County	Alameda County
Climate Region	Central Coast
Analyzed By	Parsons
Mileposts	

RealCost 2.5 Report

6/6/2019 10:49:13 AM

Begin	
End	
Length of Project (miles)	0.02
Comments	This LCCA analyzes the reconstruction of Gilman St from Eastshore Hwy to W. Frontage Road.

4. Traffic Data	
AADT Construction Year (total for both directions)	21,434
Cars as Percentage of AADT (%)	96.7
Single Unit Trucks as Percentage of AADT (%)	1.7
Combination Trucks as Percentage of AADT (%)	1.6
Annual Growth Rate of Traffic (%)	0.0
Speed Limit Under Normal Operating Conditions (mph)	40
No of Lanes in Each Direction During Normal Conditions	4
Free Flow Capacity (vphpl)	2170
Queue Dissipation Capacity (vphpl)	1700
Maximum AADT (total for both directions)	215,092
Maximum Queue Length (miles)	1
5. Maintenance and Rehabilitation Sequence	
Alternative 1	
Final Pavement Surface	
Design Life	
Activity 1 Name	NEW/RECONST HMA W/RHMA (20YR)
Activity 1 Year of Action	2020
Activity 1 Annual Maintenance Cost (\$1000)	0.0594
Activity 1 Activity Service Life (Year)	23
Activity 2 Name	CAPM HMA W/ RHMA
Activity 2 Year of Action	2043
Activity 2 Annual Maintenance Cost (\$1000)	0.077
Activity 2 Activity Service Life (Year)	10
Activity 3 Name	REHAB HMA W/ RHMA (20YR)
Activity 3 Year of Action	2053
Activity 3 Annual Maintenance Cost (\$1000)	0.077
Activity 3 Activity Service Life (Year)	23
Activity 4 Name	CAPM HMA
Activity 4 Year of Action	2076
Activity 4 Annual Maintenance Cost (\$1000)	8.8
Activity 4 Activity Service Life (Year)	5
Activity 5 Name	REHAB HMA (20YR)

RealCost 2.5 Report

6/6/2019 10:49:13 AM

Activity 5 Year of Action	2081
Activity 5 Annual Maintenance Cost (\$1000)	23.2
Activity 5 Activity Service Life (Year)	5
Activity 6 Name	
Activity 6 Year of Action	2086
Activity 6 Annual Maintenance Cost (\$1000)	0
Activity 6 Activity Service Life (Year)	0
Alternative 2	
Final Pavement Surface	
Design Life	
Activity 1 Name	NEW/RECONST HMA W/RHMA (40YR)
Activity 1 Year of Action	2020
Activity 1 Annual Maintenance Cost (\$1000)	0.088
Activity 1 Activity Service Life (Year)	40.0
Activity 2 Name	CAPM HMW W/ RHMA
Activity 2 Year of Action	2060
Activity 2 Annual Maintenance Cost (\$1000)	0.077
Activity 2 Activity Service Life (Year)	10.0
Activity 3 Name	REHAB HMA W/ RHMA (20YR)
Activity 3 Year of Action	2070
Activity 3 Annual Maintenance Cost (\$1000)	0.0594
Activity 3 Activity Service Life (Year)	23
Activity 4 Name	
Activity 4 Year of Action	2093
Activity 4 Annual Maintenance Cost (\$1000)	0
Activity 4 Activity Service Life (Year)	0
Activity 5 Name	
Activity 5 Year of Action	2093
Activity 5 Annual Maintenance Cost (\$1000)	1
Activity 5 Activity Service Life (Year)	0
Activity 6 Name	
Activity 6 Year of Action	2093
Activity 6 Annual Maintenance Cost (\$1000)	0
Activity 6 Activity Service Life (Year)	0
Alternative 3	
Final Pavement Surface	
Design Life	
Activity 1 Name	NEW/RECONST JPCP (40YR)
Activity 1 Year of Action	2020
Activity 1 Annual Maintenance Cost (\$1000)	0.0176
Activity 1 Activity Service Life (Year)	45
Activity 2 Name	CAPM (CPR C)

RealCost 2.5 Report

6/6/2019 10:49:13 AM

Activity 2 Year of Action	2065
Activity 2 Annual Maintenance Cost (\$1000)	0
Activity 2 Activity Service Life (Year)	5
Activity 3 Name	CAPM (CPR B)
Activity 3 Year of Action	2070
Activity 3 Annual Maintenance Cost (\$1000)	0
Activity 3 Activity Service Life (Year)	10
Activity 4 Name	CAPM (PR A)
Activity 4 Year of Action	2080
Activity 4 Annual Maintenance Cost (\$1000)	5
Activity 4 Activity Service Life (Year)	10
Activity 5 Name	
Activity 5 Year of Action	2090
Activity 5 Annual Maintenance Cost (\$1000)	0
Activity 5 Activity Service Life (Year)	0
Activity 6 Name	
Activity 6 Year of Action	2090
Activity 6 Annual Maintenance Cost (\$1000)	0
Activity 6 Activity Service Life (Year)	0
Alternative 4	
Final Pavement Surface	
Design Life	
Activity 1 Name	NEW/RECONST CRCP (20YR)
Activity 1 Year of Action	2020
Activity 1 Annual Maintenance Cost (\$1000)	0
Activity 1 Activity Service Life (Year)	30
Activity 2 Name	CAPM (PR C)
Activity 2 Year of Action	2050
Activity 2 Annual Maintenance Cost (\$1000)	0
Activity 2 Activity Service Life (Year)	5
Activity 3 Name	CAPM (PR B)
Activity 3 Year of Action	2055
Activity 3 Annual Maintenance Cost (\$1000)	0
Activity 3 Activity Service Life (Year)	10
Activity 4 Name	CAPM (PR A)
Activity 4 Year of Action	2065
Activity 4 Annual Maintenance Cost (\$1000)	0
Activity 4 Activity Service Life (Year)	10
Activity 5 Name	20
Activity 5 Year of Action	2075
Activity 5 Annual Maintenance Cost (\$1000)	0
Activity 5 Activity Service Life (Year)	0
Activity 6 Name	
Activity 6 Year of Action	2075

RealCost 2.5 Report

6/6/2019 10:49:13 AM

Activity 6 Annual Maintenance Cost (\$1000)	0
Activity 6 Activity Service Life (Year)	0

Alternative 1	20-yr HMA with RHMA-G
Number of Activities	3

Activity 1	NEW/RECONST HMA W/RHMA (20YR)	
Agency Construction Cost (\$1000)	\$51.17	
User Work Zone Costs (\$1000)		
Work Zone Duration (days)	0	
No of Lanes Open in Each Direction During Work Zone	3	
Activity Service Life (years)	23.0	
Activity Structural Life (years)		
Maintenance Frequency (years)	1	
Agency Maintenance Cost (\$1000)	0.0594	
Work Zone Length (miles)	0.02	
Work Zone Speed Limit (mph)	25	
Work Zone Capacity (vphpl)	1510	
Traffic Hourly Distribution	Weekday Double-Peak	
Time of Day of Lane Closures (use whole numbers based on a 24-hour clock)		
Inbound	Start	End
First period of lane closure	0	5
Second period of lane closure	22	24
Third period of lane closure		
Outbound	Start	End
First period of lane closure	0	5
Second period of lane closure	22	24
Third period of lane closure		

Activity 2	CAPM HMA W/ RHMA	
Agency Construction Cost (\$1000)	\$33.00	
User Work Zone Costs (\$1000)		
Work Zone Duration (days)	1	
No of Lanes Open in Each Direction During Work Zone	3	
Activity Service Life (years)	10.0	
Activity Structural Life (years)		
Maintenance Frequency (years)	1	
Agency Maintenance Cost (\$1000)	0.077	
Work Zone Length (miles)	0.02	
Work Zone Speed Limit (mph)	25	
Work Zone Capacity (vphpl)	1510	
Traffic Hourly Distribution	Weekday Double-Peak	
Time of Day of Lane Closures (use whole numbers based on a 24-hour clock)		

RealCost 2.5 Report

6/6/2019 10:49:13 AM

Inbound	Start	End
First period of lane closure	0	5
Second period of lane closure	22	24
Third period of lane closure		
Outbound	Start	End
First period of lane closure	0	5
Second period of lane closure	22	24
Third period of lane closure		

Activity 3	REHAB HMA W/ RHMA (20YR)	
Agency Construction Cost (\$1000)	\$58.00	
User Work Zone Costs (\$1000)		
Work Zone Duration (days)	1	
No of Lanes Open in Each Direction During Work Zone	3	
Activity Service Life (years)	23.0	
Activity Structural Life (years)		
Maintenance Frequency (years)	1	
Agency Maintenance Cost (\$1000)	0.077	
Work Zone Length (miles)	0.02	
Work Zone Speed Limit (mph)	25	
Work Zone Capacity (vphpl)	1510	
Traffic Hourly Distribution	Weekday Double-Peak	
Time of Day of Lane Closures (use whole numbers based on a 24-hour clock)		
Inbound	Start	End
First period of lane closure	0	5
Second period of lane closure	22	24
Third period of lane closure		
Outbound	Start	End
First period of lane closure	0	5
Second period of lane closure	22	24
Third period of lane closure		

Alternative 2	40-yr HMA with RHMA-G
Number of Activities	3

Activity 1	NEW/RECONST HMA W/RHMA (40YR)	
Agency Construction Cost (\$1000)	\$87.79	
User Work Zone Costs (\$1000)		
Work Zone Duration (days)	0	
No of Lanes Open in Each Direction During Work Zone	3	
Activity Service Life (years)	40.0	

RealCost 2.5 Report

6/6/2019 10:49:13 AM

Activity Structural Life (years)		
Maintenance Frequency (years)		1
Agency Maintenance Cost (\$1000)		0.088
Work Zone Length (miles)		0.02
Work Zone Speed Limit (mph)		25
Work Zone Capacity (vphpl)		1510
Traffic Hourly Distribution	Weekday Double-Peak	
Time of Day of Lane Closures (use whole numbers based on a 24-hour clock)		
Inbound	Start	End
First period of lane closure	0	5
Second period of lane closure	22	24
Third period of lane closure		
Outbound	Start	End
First period of lane closure	0	5
Second period of lane closure	22	24
Third period of lane closure		

Activity 2	CAPM HMW W/ RHMA	
Agency Construction Cost (\$1000)		\$33.00
User Work Zone Costs (\$1000)		
Work Zone Duration (days)		1
No of Lanes Open in Each Direction During Work Zone		3
Activity Service Life (years)		10.0
Activity Structural Life (years)		
Maintenance Frequency (years)		1
Agency Maintenance Cost (\$1000)		0.077
Work Zone Length (miles)		0.02
Work Zone Speed Limit (mph)		25
Work Zone Capacity (vphpl)		1510
Traffic Hourly Distribution	Weekday Double-Peak	
Time of Day of Lane Closures (use whole numbers based on a 24-hour clock)		
Inbound	Start	End
First period of lane closure	0	5
Second period of lane closure	22	24
Third period of lane closure		
Outbound	Start	End
First period of lane closure	0	5
Second period of lane closure	22	24
Third period of lane closure		

Activity 3	REHAB HMA W/ RHMA (20YR)	
Agency Construction Cost (\$1000)		\$63.00

RealCost 2.5 Report

6/6/2019 10:49:13 AM

User Work Zone Costs (\$1000)		
Work Zone Duration (days)	1	
No of Lanes Open in Each Direction During Work Zone	3	
Activity Service Life (years)	23.0	
Activity Structural Life (years)		
Maintenance Frequency (years)	1	
Agency Maintenance Cost (\$1000)	0.0594	
Work Zone Length (miles)	0.02	
Work Zone Speed Limit (mph)	25	
Work Zone Capacity (vphpl)	1510	
Traffic Hourly Distribution	Weekday Double-Peak	
Time of Day of Lane Closures (use whole numbers based on a 24-hour clock)		
Inbound	Start	End
First period of lane closure	0	5
Second period of lane closure	22	24
Third period of lane closure		
Outbound	Start	End
First period of lane closure	0	5
Second period of lane closure	22	24
Third period of lane closure		

Alternative 3	40-yr JPCP
Number of Activities	3

Activity 1	NEW/RECONST JPCP (40YR)	
Agency Construction Cost (\$1000)	\$135.96	
User Work Zone Costs (\$1000)		
Work Zone Duration (days)	0	
No of Lanes Open in Each Direction During Work Zone	3	
Activity Service Life (years)	45.0	
Activity Structural Life (years)		
Maintenance Frequency (years)	1	
Agency Maintenance Cost (\$1000)	0.0176	
Work Zone Length (miles)	0.02	
Work Zone Speed Limit (mph)	25	
Work Zone Capacity (vphpl)	1510	
Traffic Hourly Distribution	Weekday Double-Peak	
Time of Day of Lane Closures (use whole numbers based on a 24-hour clock)		
Inbound	Start	End
First period of lane closure	0	5
Second period of lane closure	22	24
Third period of lane closure		

RealCost 2.5 Report

6/6/2019 10:49:13 AM

Outbound	Start	End
First period of lane closure	0	5
Second period of lane closure	22	24
Third period of lane closure		

Activity 2	CAPM (CPR C)	
Agency Construction Cost (\$1000)	\$9.00	
User Work Zone Costs (\$1000)		
Work Zone Duration (days)	1	
No of Lanes Open in Each Direction During Work Zone	3	
Activity Service Life (years)	5.0	
Activity Structural Life (years)		
Maintenance Frequency (years)	1	
Agency Maintenance Cost (\$1000)	0.066	
Work Zone Length (miles)	0.02	
Work Zone Speed Limit (mph)	25	
Work Zone Capacity (vphpl)	1510	
Traffic Hourly Distribution	Weekday Double-Peak	
Time of Day of Lane Closures (use whole numbers based on a 24-hour clock)		
Inbound	Start	End
First period of lane closure	0	5
Second period of lane closure	22	24
Third period of lane closure		
Outbound	Start	End
First period of lane closure	0	5
Second period of lane closure	22	24
Third period of lane closure		

Activity 3	CAPM (CPR B)	
Agency Construction Cost (\$1000)	\$9.00	
User Work Zone Costs (\$1000)		
Work Zone Duration (days)	1	
No of Lanes Open in Each Direction During Work Zone	3	
Activity Service Life (years)	10.0	
Activity Structural Life (years)		
Maintenance Frequency (years)	1	
Agency Maintenance Cost (\$1000)	0.033	
Work Zone Length (miles)	0.02	
Work Zone Speed Limit (mph)	25	
Work Zone Capacity (vphpl)	1510	
Traffic Hourly Distribution	Weekday Double-Peak	
Time of Day of Lane Closures (use whole numbers based on a 24-hour clock)		
Inbound	Start	End
First period of lane closure	0	5

RealCost 2.5 Report

6/6/2019 10:49:13 AM

Second period of lane closure	22	24
Third period of lane closure		
Outbound	Start	End
First period of lane closure	0	5
Second period of lane closure	22	24
Third period of lane closure		

RealCost 2.5 Report

6/6/2019 10:52:42 AM

Deterministic Results

Total Cost	Alternative 1: 20-yr HMA with RHMA-G		Alternative 2: 40-yr HMA with RHMA-G		Alternative 3: 40-yr JPCP	
	Agency Cost (\$1000)	User Cost (\$1000)	Agency Cost (\$1000)	User Cost (\$1000)	Agency Cost (\$1000)	User Cost (\$1000)
Undiscounted Sum	\$143	\$0	\$139	\$0	\$151	\$0
Present Value	\$82	\$0	\$100	\$0	\$139	\$0
EUAC	\$4	\$0	\$5	\$0	\$6	\$0

RealCost 2.5 Report

6/6/2019 10:52:42 AM

Roundabout

RealCost Input Data

1. Economic Variables	
Value of Time for Passenger Cars (\$/hour)	\$13.00
Value of Time for Single Unit Trucks (\$/hour)	\$29.60
Value of Time for Combination Trucks (\$/hour)	\$29.60

2. Analysis Options	
Include User Costs in Analysis	Yes
Include User Cost Remaining Service Life Value	Yes
Use Differential User Costs	Yes
User Cost Computation Method	Calculated
Include Agency Cost Remaining Service Life Value	Yes
Traffic Direction	Both
Analysis Period (Years)	55
Beginning of Analysis Period	2020
Discount Rate (%)	4.0
Number of Alternatives	3

3. Project Details and Quantity Calculations	
State Route	I-80/Gilman
Project Type	New/Reconstruction/Widening
Project Name	I-80 Gilman Street Interchange Improvement Project
Maintenance Service Level	1
Local Region	Alameda County
County	Alameda County
Climate Region	Central Coast
Analyzed By	Parsons
Mileposts	
Begin	
End	
Length of Project (miles)	0.12
Comments	This LCCA analyzes the newly proposed roundabout.

4. Traffic Data	
AADT Construction Year (total for both directions)	293,160
Cars as Percentage of AADT (%)	94.8
Single Unit Trucks as Percentage of AADT (%)	2.2
Combination Trucks as Percentage of AADT (%)	3.0

RealCost 2.5 Report

6/6/2019 10:52:42 AM

Annual Growth Rate of Traffic (%)	0.0
Speed Limit Under Normal Operating Conditions (mph)	25
No of Lanes in Each Direction During Normal Conditions	2
Free Flow Capacity (vphpl)	2170
Queue Dissipation Capacity (vphpl)	1700
Maximum AADT (total for both directions)	107,546
Maximum Queue Length (miles)	1
5. Maintenance and Rehabilitation Sequence	
Alternative 1	
Final Pavement Surface	
Design Life	
Activity 1 Name	NEW/RECONST HMA W/RHMA (20YR)
Activity 1 Year of Action	2020
Activity 1 Annual Maintenance Cost (\$1000)	0.324
Activity 1 Activity Service Life (Year)	23
Activity 2 Name	CAPM HMA W/ RHMA
Activity 2 Year of Action	2043
Activity 2 Annual Maintenance Cost (\$1000)	0.42
Activity 2 Activity Service Life (Year)	10
Activity 3 Name	REHAB HMA W/ RHMA (20YR)
Activity 3 Year of Action	2053
Activity 3 Annual Maintenance Cost (\$1000)	0.42
Activity 3 Activity Service Life (Year)	23
Activity 4 Name	CAPM HMA
Activity 4 Year of Action	2076
Activity 4 Annual Maintenance Cost (\$1000)	8.8
Activity 4 Activity Service Life (Year)	5
Activity 5 Name	REHAB HMA (20YR)
Activity 5 Year of Action	2081
Activity 5 Annual Maintenance Cost (\$1000)	23.2
Activity 5 Activity Service Life (Year)	5
Activity 6 Name	
Activity 6 Year of Action	2086
Activity 6 Annual Maintenance Cost (\$1000)	0
Activity 6 Activity Service Life (Year)	0
Alternative 2	
Final Pavement Surface	
Design Life	
Activity 1 Name	NEW/RECONST HMA W/RHMA (40YR)
Activity 1 Year of Action	2020

RealCost 2.5 Report

6/6/2019 10:52:42 AM

Activity 1 Annual Maintenance Cost (\$1000)	0.48
Activity 1 Activity Service Life (Year)	40.0
Activity 2 Name	CAPM HMW W/ RHMA
Activity 2 Year of Action	2060
Activity 2 Annual Maintenance Cost (\$1000)	0.42
Activity 2 Activity Service Life (Year)	10.0
Activity 3 Name	REHAB HMA W/ RHMA (20YR)
Activity 3 Year of Action	2070
Activity 3 Annual Maintenance Cost (\$1000)	0.324
Activity 3 Activity Service Life (Year)	23
Activity 4 Name	
Activity 4 Year of Action	2093
Activity 4 Annual Maintenance Cost (\$1000)	0
Activity 4 Activity Service Life (Year)	0
Activity 5 Name	
Activity 5 Year of Action	2093
Activity 5 Annual Maintenance Cost (\$1000)	1
Activity 5 Activity Service Life (Year)	0
Activity 6 Name	
Activity 6 Year of Action	2093
Activity 6 Annual Maintenance Cost (\$1000)	0
Activity 6 Activity Service Life (Year)	0
Alternative 3	
Final Pavement Surface	
Design Life	
Activity 1 Name	NEW/RECONST JPCP (40YR)
Activity 1 Year of Action	2020
Activity 1 Annual Maintenance Cost (\$1000)	0.096
Activity 1 Activity Service Life (Year)	45
Activity 2 Name	CAPM (CPR C)
Activity 2 Year of Action	2065
Activity 2 Annual Maintenance Cost (\$1000)	0
Activity 2 Activity Service Life (Year)	5
Activity 3 Name	CAPM (CPR B)
Activity 3 Year of Action	2070
Activity 3 Annual Maintenance Cost (\$1000)	0
Activity 3 Activity Service Life (Year)	10
Activity 4 Name	CAPM (PR A)
Activity 4 Year of Action	2080
Activity 4 Annual Maintenance Cost (\$1000)	5
Activity 4 Activity Service Life (Year)	10
Activity 5 Name	
Activity 5 Year of Action	2090

RealCost 2.5 Report

6/6/2019 10:52:42 AM

Activity 5 Annual Maintenance Cost (\$1000)	0
Activity 5 Activity Service Life (Year)	0
Activity 6 Name	
Activity 6 Year of Action	2090
Activity 6 Annual Maintenance Cost (\$1000)	0
Activity 6 Activity Service Life (Year)	0
Alternative 4	
Final Pavement Surface	
Design Life	
Activity 1 Name	NEW/RECONST CRCP (20YR)
Activity 1 Year of Action	2020
Activity 1 Annual Maintenance Cost (\$1000)	0
Activity 1 Activity Service Life (Year)	30
Activity 2 Name	CAPM (PR C)
Activity 2 Year of Action	2050
Activity 2 Annual Maintenance Cost (\$1000)	0
Activity 2 Activity Service Life (Year)	5
Activity 3 Name	CAPM (PR B)
Activity 3 Year of Action	2055
Activity 3 Annual Maintenance Cost (\$1000)	0
Activity 3 Activity Service Life (Year)	10
Activity 4 Name	CAPM (PR A)
Activity 4 Year of Action	2065
Activity 4 Annual Maintenance Cost (\$1000)	0
Activity 4 Activity Service Life (Year)	10
Activity 5 Name	20
Activity 5 Year of Action	2075
Activity 5 Annual Maintenance Cost (\$1000)	0
Activity 5 Activity Service Life (Year)	0
Activity 6 Name	
Activity 6 Year of Action	2075
Activity 6 Annual Maintenance Cost (\$1000)	0
Activity 6 Activity Service Life (Year)	0

Alternative 1	20-yr HMA with RHMA-G
Number of Activities	3

Activity 1	NEW/RECONST HMA W/RHMA (20YR)
Agency Construction Cost (\$1000)	\$152.10
User Work Zone Costs (\$1000)	
Work Zone Duration (days)	0
No of Lanes Open in Each Direction During Work Zone	1
Activity Service Life (years)	23.0

RealCost 2.5 Report

6/6/2019 10:52:42 AM

Activity Structural Life (years)		
Maintenance Frequency (years)		1
Agency Maintenance Cost (\$1000)		0.324
Work Zone Length (miles)		0.12
Work Zone Speed Limit (mph)		25
Work Zone Capacity (vphpl)		1510
Traffic Hourly Distribution	Weekday Double-Peak	
Time of Day of Lane Closures (use whole numbers based on a 24-hour clock)		
Inbound	Start	End
First period of lane closure	0	5
Second period of lane closure	22	24
Third period of lane closure		
Outbound	Start	End
First period of lane closure	0	5
Second period of lane closure	22	24
Third period of lane closure		

Activity 2	CAPM HMA W/ RHMA	
Agency Construction Cost (\$1000)		\$29.00
User Work Zone Costs (\$1000)		
Work Zone Duration (days)		1
No of Lanes Open in Each Direction During Work Zone		1
Activity Service Life (years)		10.0
Activity Structural Life (years)		
Maintenance Frequency (years)		1
Agency Maintenance Cost (\$1000)		0.42
Work Zone Length (miles)		0.12
Work Zone Speed Limit (mph)		25
Work Zone Capacity (vphpl)		1510
Traffic Hourly Distribution	Weekday Double-Peak	
Time of Day of Lane Closures (use whole numbers based on a 24-hour clock)		
Inbound	Start	End
First period of lane closure	0	5
Second period of lane closure	22	24
Third period of lane closure		
Outbound	Start	End
First period of lane closure	0	5
Second period of lane closure	22	24
Third period of lane closure		

Activity 3	REHAB HMA W/ RHMA (20YR)	
Agency Construction Cost (\$1000)		\$108.00

RealCost 2.5 Report

6/6/2019 10:52:42 AM

User Work Zone Costs (\$1000)		
Work Zone Duration (days)	1	
No of Lanes Open in Each Direction During Work Zone	1	
Activity Service Life (years)	23.0	
Activity Structural Life (years)		
Maintenance Frequency (years)	1	
Agency Maintenance Cost (\$1000)	0.42	
Work Zone Length (miles)	0.12	
Work Zone Speed Limit (mph)	25	
Work Zone Capacity (vphpl)	1510	
Traffic Hourly Distribution	Weekday Double-Peak	
Time of Day of Lane Closures (use whole numbers based on a 24-hour clock)		
Inbound	Start	End
First period of lane closure	0	5
Second period of lane closure	22	24
Third period of lane closure		
Outbound	Start	End
First period of lane closure	0	5
Second period of lane closure	22	24
Third period of lane closure		

Alternative 2	40-yr HMA with RHMA-G
Number of Activities	3

Activity 1	NEW/RECONST HMA W/RHMA (40YR)	
Agency Construction Cost (\$1000)	\$260.97	
User Work Zone Costs (\$1000)		
Work Zone Duration (days)	0	
No of Lanes Open in Each Direction During Work Zone	1	
Activity Service Life (years)	40.0	
Activity Structural Life (years)		
Maintenance Frequency (years)	1	
Agency Maintenance Cost (\$1000)	0.48	
Work Zone Length (miles)	0.12	
Work Zone Speed Limit (mph)	25	
Work Zone Capacity (vphpl)	1510	
Traffic Hourly Distribution	Weekday Double-Peak	
Time of Day of Lane Closures (use whole numbers based on a 24-hour clock)		
Inbound	Start	End
First period of lane closure	0	5
Second period of lane closure	22	24
Third period of lane closure		

RealCost 2.5 Report

6/6/2019 10:52:42 AM

Outbound	Start	End
First period of lane closure	0	5
Second period of lane closure	22	24
Third period of lane closure		

Activity 2	CAPM HMW W/ RHMA	
Agency Construction Cost (\$1000)	\$29.00	
User Work Zone Costs (\$1000)		
Work Zone Duration (days)	1	
No of Lanes Open in Each Direction During Work Zone	1	
Activity Service Life (years)	10.0	
Activity Structural Life (years)		
Maintenance Frequency (years)	1	
Agency Maintenance Cost (\$1000)	0.42	
Work Zone Length (miles)	0.12	
Work Zone Speed Limit (mph)	25	
Work Zone Capacity (vphpl)	1510	
Traffic Hourly Distribution	Weekday Double-Peak	
Time of Day of Lane Closures (use whole numbers based on a 24-hour clock)		
Inbound	Start	End
First period of lane closure	0	5
Second period of lane closure	22	24
Third period of lane closure		
Outbound	Start	End
First period of lane closure	0	5
Second period of lane closure	22	24
Third period of lane closure		

Activity 3	REHAB HMA W/ RHMA (20YR)	
Agency Construction Cost (\$1000)	\$128.00	
User Work Zone Costs (\$1000)		
Work Zone Duration (days)	1	
No of Lanes Open in Each Direction During Work Zone	1	
Activity Service Life (years)	23.0	
Activity Structural Life (years)		
Maintenance Frequency (years)	1	
Agency Maintenance Cost (\$1000)	0.324	
Work Zone Length (miles)	0.12	
Work Zone Speed Limit (mph)	25	
Work Zone Capacity (vphpl)	1510	
Traffic Hourly Distribution	Weekday Double-Peak	
Time of Day of Lane Closures (use whole numbers based on a 24-hour clock)		
Inbound	Start	End

RealCost 2.5 Report

6/6/2019 10:52:42 AM

First period of lane closure	0	5
Second period of lane closure	22	24
Third period of lane closure		
Outbound	Start	End
First period of lane closure	0	5
Second period of lane closure	22	24
Third period of lane closure		

Alternative 3	40-yr JPCP
Number of Activities	3

Activity 1	NEW/RECONST JPCP (40YR)	
Agency Construction Cost (\$1000)	\$404.18	
User Work Zone Costs (\$1000)		
Work Zone Duration (days)	0	
No of Lanes Open in Each Direction During Work Zone	1	
Activity Service Life (years)	45.0	
Activity Structural Life (years)		
Maintenance Frequency (years)	1	
Agency Maintenance Cost (\$1000)	0.096	
Work Zone Length (miles)	0.12	
Work Zone Speed Limit (mph)	25	
Work Zone Capacity (vphpl)	1510	
Traffic Hourly Distribution	Weekday Double-Peak	
Time of Day of Lane Closures (use whole numbers based on a 24-hour clock)		
Inbound	Start	End
First period of lane closure	0	5
Second period of lane closure	22	24
Third period of lane closure		
Outbound	Start	End
First period of lane closure	0	5
Second period of lane closure	22	24
Third period of lane closure		

Activity 2	CAPM (CPR C)	
Agency Construction Cost (\$1000)	\$12.00	
User Work Zone Costs (\$1000)		
Work Zone Duration (days)	1	
No of Lanes Open in Each Direction During Work Zone	1	
Activity Service Life (years)	5.0	
Activity Structural Life (years)		
Maintenance Frequency (years)	1	

RealCost 2.5 Report

6/6/2019 10:52:42 AM

Agency Maintenance Cost (\$1000)	0.36	
Work Zone Length (miles)	0.12	
Work Zone Speed Limit (mph)	25	
Work Zone Capacity (vphpl)	1510	
Traffic Hourly Distribution	Weekday Double-Peak	
Time of Day of Lane Closures (use whole numbers based on a 24-hour clock)		
Inbound	Start	End
First period of lane closure	0	5
Second period of lane closure	22	24
Third period of lane closure		
Outbound	Start	End
First period of lane closure	0	5
Second period of lane closure	22	24
Third period of lane closure		

Activity 3	CAPM (CPR B)	
Agency Construction Cost (\$1000)	\$23.00	
User Work Zone Costs (\$1000)		
Work Zone Duration (days)	1	
No of Lanes Open in Each Direction During Work Zone	1	
Activity Service Life (years)	10.0	
Activity Structural Life (years)		
Maintenance Frequency (years)	1	
Agency Maintenance Cost (\$1000)	0.18	
Work Zone Length (miles)	0.12	
Work Zone Speed Limit (mph)	25	
Work Zone Capacity (vphpl)	1510	
Traffic Hourly Distribution	Weekday Double-Peak	
Time of Day of Lane Closures (use whole numbers based on a 24-hour clock)		
Inbound	Start	End
First period of lane closure	0	5
Second period of lane closure	22	24
Third period of lane closure		
Outbound	Start	End
First period of lane closure	0	5
Second period of lane closure	22	24
Third period of lane closure		

RealCost 2.5 Report

6/6/2019 10:52:42 AM

Deterministic Results

Total Cost	Alternative 1: 20-yr HMA with RHMA-G		Alternative 2: 40-yr HMA with RHMA-G		Alternative 3: 40-yr JPCP	
	Agency Cost (\$1000)	User Cost (\$1000)	Agency Cost (\$1000)	User Cost (\$1000)	Agency Cost (\$1000)	User Cost (\$1000)
Undiscounted Sum	\$304	\$2	\$342	\$1	\$434	\$2
Present Value	\$200	\$1	\$284	\$0	\$410	\$0
EUAC	\$9	\$0	\$13	\$0	\$19	\$0

RealCost 2.5 Report

6/6/2019 10:52:42 AM

Attachment 7: Electronic Data (provided separately)