04-ALA-880 PM 31.0/32.4
04-ALA-260 PM 1.1/1.9
Program Code 20.30.600.624
EA 04-0G360K
March 2011

PROJECT STUDY REPORT (PROJECT DEVELOPMENT SUPPORT)

To

Request Programming for Capital Outlay Support (Project Approval/Environmental Document Phase)

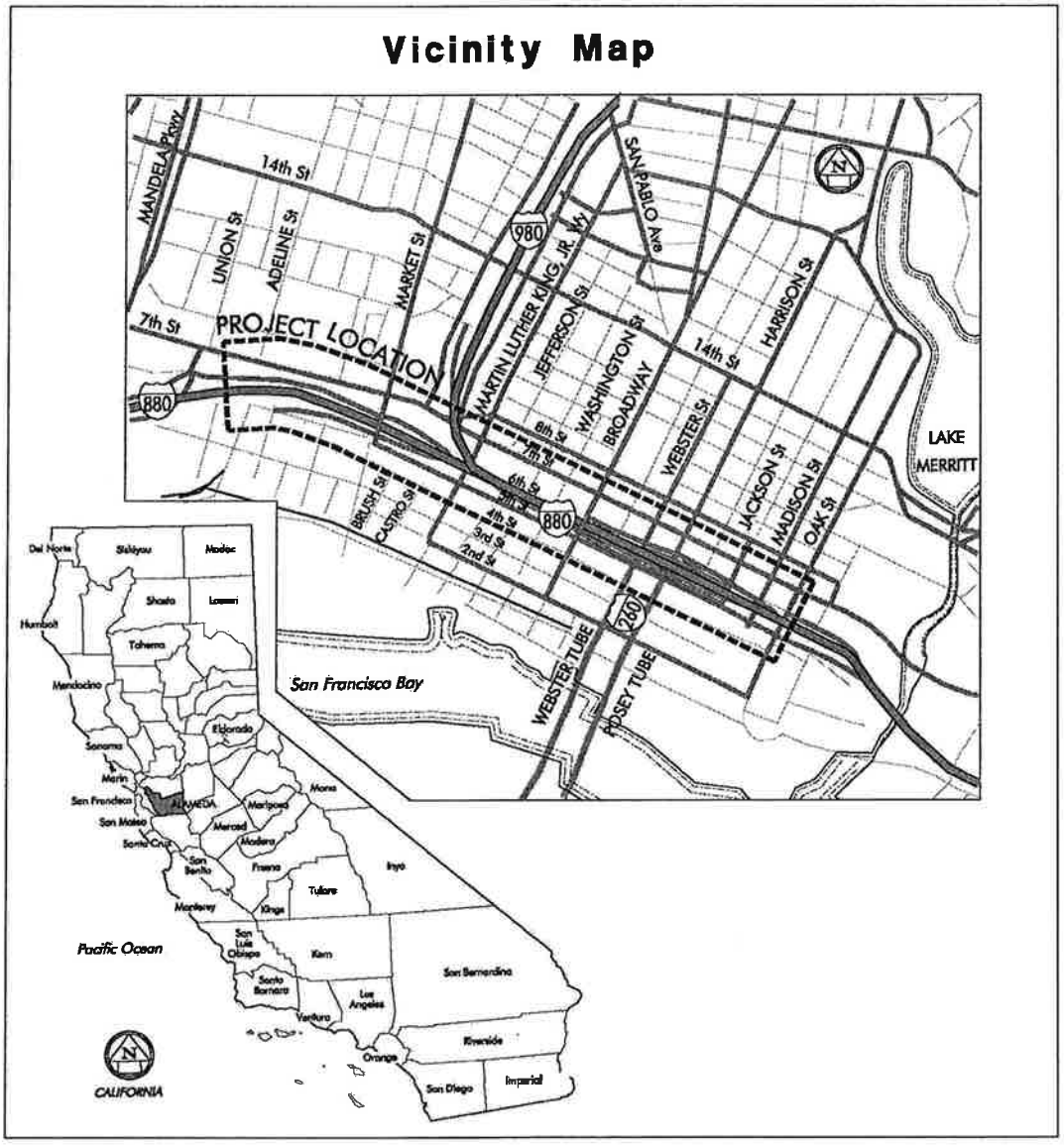
On Route I-880
Between Oak Street
And Union Street

and

On SR 260
Between 4th Street
And 9th Street

APPROVAL RECOMMENDED: _____
Stanley Gee, Project Manager

APPROVED: _____ 3-16-11
Bijan Sartipi, District Director — *DATE*



On Route I-880
Between Oak Street
And Union Street

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On SR 260
Between 4th Street
And 9th Street

This Project Study Report-Project Development Support (PSR-PDS) has been prepared under the direction of the following Registered Engineer. The registered Civil Engineer attests to the technical information contained herein and the engineering data upon which recommendations, conclusions, and decisions are based.

REGISTERED CIVIL ENGINEER

3-9-2011
DATE

Reviewed by:

PATRICK K. PANG, OFFICE CHIEF
OFFICE OF ADVANCE PLANNING

3/9/11
DATE

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1.0 Introduction

This Project Study Report-Project Development Support (PSR-PDS) has been prepared to request programming capital outlay support for Project Approval and Environmental Document (PA&ED) phase of the proposed Interstate 880 (I-880)/Broadway-Jackson interchange improvements project. The project limits extend from PM 31.0 to 32.4 on I-880 (from Oak Street to Union Street) and from PM 1.1 to PM 1.9 on State Route 260 (SR-260) (from the Alameda end of Posey Tube to 7th Street), in Oakland. See **Attachment A**, Vicinity Map for project location. The project proposes to relieve both the current and projected traffic congestion, resulting from existing and anticipated operational deficiencies, due to various pending developments proposed near the project location. One Build Alternative and one No Build Alternative were evaluated in the PSR/PDS phase. The Build Alternative consists of several viable features that require careful evaluation/study during the next PA/ED phase.

The Build Alternative is estimated to cost approximately $107.9 Million (in Escalated 2015 Dollars) in construction and right-of-way costs. The project is expected to be funded by local, state, and federal funds. Funding sources identified to date include, but are not limited to, Alameda County's Measure B local sales tax (renewed in 2000) and the State Transportation Improvement Plan - Regional Improvement Plan (STIP-RIP) funds. The anticipated project construction completion date is fall 2017.

For jointly completing the PA&ED efforts, the Alameda County Transportation Commission (Alameda CTC) intends to enter into a cooperative agreement (co-op) with the California Department of Transportation (Caltrans). A draft co-op that outlines project roles and responsibilities is included as **Attachment O**.

Please refer to the attached Cost Estimates for a preliminary list of specific work items included in this project (**Attachment H – Preliminary Project Cost Estimates**).

Project Limits:	4-ALA-260-PM 1.1/1.9 4-ALA-880-PM 31.0/32.4
Number of Alternatives:	2
Capital Outlay Support for PAED	$2.5 million
Capital Construction Costs:	$72.4 Million (2010 Dollars) $92.4 Million (Escalated 2015 Dollars)
Capital Right-of-Way Costs:	$12.2 Million (2010 Dollars) $15.5 Million (Escalated 2015 Dollars)
Funding Sources:	ACTC Measure B, STIP-RIP, Federal
Type of Facility:	Freeway (I-880); Conventional Highway (SR-260)
Number of Structures:	4
Anticipated Environmental Determination/Document:	CEQA- Initial Study or Focused Initial Study with Negative Declaration (ND) or Mitigated ND NEPA- Complex Environmental Assessment with Finding of No Significant Impact
Legal Description:	I-880/Broadway-Jackson Interchange Improvements
Project Category:	3

A Project Report (PR) will serve as conceptual and project approval for a selected alternative and as the programming document for the remaining support and capital cost of the project.

2.0 Background

I-880 is a major north-south freeway that extends from San Jose at the southern end to Oakland at the northern end and acts as a major route for the goods and people movement. I-880 also connects to other major freeways to provide regional access to San Francisco and other parts of the Bay Area. The I-880/Broadway –Jackson Interchange, bounded by the 5th and 6th Streets between Broadway and Jackson, is located in a highly constrained urban environment that provides freeway access to residents/commuters from both the cities of Oakland and Alameda. Partial interchanges exist along I-880 at the Oak Street, Jackson, I-980 connector, Broadway, Market Street, Adeline Street, and at 7th Street/Union Street. Along I-980 in the southbound direction, there is an isolated off-ramp to Broadway Street. Some of these interchanges are also closely spaced and do not meet current Caltrans "Interchange Spacing" requirements.

Within the project limits, I-880 is a six-lane divided freeway, north of the I-980 connector and an eight-lane divided freeway to the south of I-980 connector. It is located entirely on an elevated structure composed of either bridges or retaining structures. The posted speed limit on I-880 within project limits is 55 miles per hour. Within the project limits, the lane widths are standard 12 feet and the shoulder widths vary from 2 to 10 feet.

SR-260 is a four-lane conventional state highway that provides access between the City of Alameda and the City of Oakland. Two eastbound lanes provide access from Alameda to Oakland via the Posey Tube, while complementing two westbound lanes provide access from Oakland to Alameda via the Webster Tube. Both the tubes were built under the Oakland Inner Harbor area. The Posey Tube is of historic significance because it was built in 1928 and is over 50 years old. In the Oakland side, the segment of Harrison Street from the Posey Tube Portal to 7th Street is also designated as SR-260.

The 5th and 6th Street are two-lane, north-south local road that run parallel to I-880 and mainly provide access to several local businesses, including Jack London Square as well as the Oakland Police Department.

Under current conditions, vehicles traveling between the I-880 freeway and the Webster and Posey Tubes must take circuitous routes along local Oakland city streets, which cause heavy traffic congestion and long delays on these local streets. In the future, additional traffic will impact the local streets and freeway system in the vicinity of the Broadway and Jackson ramps, when the Oak to 9th neighborhood development on Oakland's waterfront is complete and Jack London Square continues to experience growth.

Alameda CTC in cooperation with Caltrans is proactively seeking project improvements that will either mitigate or minimize the traffic impacts to the local streets and freeway network, within the project limits by improving access between I-880, the Posey and Webster Tubes, Downtown Oakland, and the City of Alameda. As the project sponsor, Alameda CTC has listed the project in Transportation Improvement Plan to receive federal, state and local funding and is working with major stakeholders to develop the proposed project. An approved Project Report, prepared during the next PA&ED phase will serve as the programming document to program remainder of the support and all of the capital costs for the project.

Project stakeholders include:

- Alameda County Transportation Commission (Alameda CTC)
- Federal Highway Administration (FHWA)
- California Department of Transportation (Caltrans)
- The City of Alameda
- The City of Oakland
- Port of Oakland
- Alameda West End Business Association (WABA)
- Oakland Chinatown Advisory Committee (OCAC)
- Jack London District Association (JLDA)
- West Oakland Commerce Association (WOCA)
- West Oakland Project Areas Committee (WOPAC)
- Jack London Village
- Signature Partners

Many of these stakeholders including the Alameda CTC, Caltrans, the City of Alameda, and the City of Oakland have had various levels of input and involvement in developing the project purpose and need, and agreed to features included in the Build Alternative. However, the partners agreed to future evaluate the geometry during the PA&ED phase, when more detailed traffic operational analysis could be performed.

3.0 Purpose and Need

3.1 Need

There is a need for the proposed project to address issues of limited freeway access, impacted local traffic circulation, excessive freeway traffic weaving, and operational deficiencies within the vicinity of the I-880/Broadway-Jackson interchange. With growth and planned developments in the area, traffic is expected to increase. Without improvements, the current congested situation will worsen, compromising safety and operational efficiency. The following deficiencies contribute to the need of this project:

- From Alameda, I-880/I-980 bound traffic has to use the existing loop through several local streets and intersections before reaching the Northbound I-880 on-ramp from Jackson Street. During peak periods, traffic queues extend from the existing on-ramp back to the Posey Tube. This circulation pattern also generates vehicle-pedestrian conflicts at the Harrison Street/7th Street intersection. Moreover, traffic bound for downtown Oakland has to travel through the core of Chinatown, which contributes to the already poor traffic circulation in the area.

- From I-880, traffic bound for Alameda and Jack London Square has to through several local intersections in Oakland, which impacts operations on local streets. For example, Southbound I-880 traffic heading to Alameda must exit at the Union Street off-ramp, and then travel south along 5th Street for more than a mile and through eight signalized intersections before reaching the Webster Tube access at 5th and Broadway. Similarly, Westbound I-980 traffic heading to Alameda must exit at the Jackson Street off-ramp and then circle back around the core of Chinatown (via Jackson, 8th, and Webster) through nine signalized and un-signalized intersections to reach the Webster Tube. Northbound I-880 traffic heading to Alameda must exit at the Broadway off-ramp and then either form a queue on the ramp to use the Webster Street access at Broadway/5th or make a loop through the core of Chinatown to reach the tube.

- On Northbound I-880, freeway traffic queues back from the weaving section between the Jackson Street on-ramp and the Eastbound I-980 connector during peak periods. This problem is caused by nonstandard spacing between the freeway connector and the local interchange, resulting in insufficient weaving length.

- The Port of Oakland is the 4th largest port in the United States and is located near the project area. Existing truck traffic from Southbound I-880 exits at the Union Street off-ramp, travels along 5th Street, and turns right onto either Adeline Street or Market Street to access the port through Middle Harbor Road. Similarly, trucks bound for Northbound I-880 from the Port of Oakland use the same route to access the freeway through the existing Union street on-ramp **(Attachment N – Port of Oakland Truck Access Map)**. Trucks are currently sharing part of this existing route (Union Street Ramps and 5th Street) with commute traffic destined to/from Jackson London Square and Alameda. The continuous mixed flow of commute and truck traffic causes operation and safety concerns.

3.2 Purpose

The purpose of the proposed project is to:

- Improve access from I-880/I-980 to Alameda
- Improve access from Alameda to I-880/I-980
- Improve truck access between I-880 and Port of Oakland
- Improve local street circulation
- Improve freeway operations, particularly at the weaving area along Northbound I-880, between the Jackson Street on-ramp and Eastbound I-980 connector
- Improve access to Jack London Square from I-880 and Downtown Oakland
- Reduce cut through traffic within Chinatown
- Reduce vehicle-pedestrian/bicycle conflicts and improve overall safety
- Improve pedestrian/bicycle environments in the project area, particularly at the intersections of Harrison Street/7th Street and Broadway/5th Street
- Improve connections for pedestrians/bicycles to/from Jack London Square

4.0 Deficiencies

4.1 Traffic

Access from Alameda to I-880/I-980

Currently, traffic from Alameda heading to I-880/I-980 uses an out of direction loop movement. Traffic exiting the Posey Tube heads east along Harrison Street, then turns right onto 7th Street (via dual free right-turn lanes), right onto Jackson Street and then either right again onto the Northbound I-880 on-ramp at 6th Street or left onto the Southbound I-880 on-ramp at 5th Street. A high volume of traffic heading to the Northbound I-880 on-ramp during both the AM and PM peak periods results in extensive traffic backups along the loop, queuing traffic well upstream and into the Posey Tube. This high on-ramp traffic volume also degrades Northbound I-880 freeway operations, where the on-ramp traffic must weave with the high volume of Northbound I-880 traffic that either travels north on I-880 or weaves in this section of roadway, in order to exit towards the Eastbound I-980 connector. The situation is expected to get worse in the future as new developments in Alameda and Oakland, slated for construction are complete.

The dual free right-turn lanes at the Harrison Street/7th Street intersection also create a vehicle-pedestrian/bicycle conflict. This conflict is hazardous to pedestrians/bicyclists and increases the queue on Harrison Street during the peak periods, thus lengthening travel times to reach the freeway. Further, the short weaving distance on 7th Street, between Harrison Street and Jackson Street, adds to the congestion because motorists slow down to either enter or exit the right trap lane—this trap lane provides access to Northbound I-880 and Jack London Square.

The Harrison Street/7th Street intersection operates at LOS F during the existing peak-hour conditions and is expected to get worse without improvements. In the year 2030, the Jackson Street/7th Street and Jackson Street/6th Street intersections will degrade to LOS F and LOS E, respectively, if no improvements are made.

Access from Northbound I-880 to Alameda

Currently, there is no direct access from Northbound I-880 to the Webster Tube. Traffic from the freeway heading to Alameda exits at the Broadway off-ramp and makes a loop movement around the block between Broadway and Webster Street. This forces Alameda bound traffic to go through multiple intersections in Oakland. Traffic either 1) turns left on Broadway and left on 5th Street, or 2) right on Broadway, right on 7th Street, and right on Webster Street. This existing route is inefficient and causes unnecessary delays and vehicle-pedestrian/bicycle conflicts.

Access from Southbound I-880 to Jack London Square/Alameda

In recent years, Jack London Square has been transformed from an industrial area to a regional destination for retail shopping, dining, and entertainment. This development has generated new demand of traffic flows toward the area. Currently, the 7th Street/Union Street off-ramp is the only Southbound I-880 off-ramp that serves the Jack London Square area and Alameda. This ramp also serves a high percentage of truck traffic destined for the Port of Oakland. The increasing mixing of commute and truck traffic on this ramp is a safety concern, especially due to speed differentials between truck and commute traffic. Also, this ramp does not provide

convenient or efficient access to Jack London Square and Alameda. Traffic to the two destinations has to travel more than a mile along 5th Street and cross more than eight local intersections. With more new developments coming on-line (Oak to 9th), the operations at those intersections are expected to get worse.

Access from Alameda to Downtown Oakland

For traffic in the Posey Tube that is bound for Downtown Oakland, the only option is to continue on Harrison Street through the core of Oakland Chinatown. This generates increased traffic circulating through Chinatown and contributes to the current severe traffic congestion and vehicle-pedestrian/bicycle conflicts in that area. A goal of the Oakland Chinatown Advisory Committee (OCAC) is to improve pedestrian/bicycle safety within the Chinatown area.

I-880/I-980

As mentioned above, a key deficiency with the current traffic operations on I-880 within the project limits is the weave conflict between the Northbound I-880 Jackson Street on-ramp and the Northbound I-880/EB I-980 split. The primary cause of the weaving problem is the insufficient spacing between the Jackson Street on-ramp and the Eastbound I-980 connector; and adjacent local interchanges, both upstream and downstream of the interchange. This creates several closely spaced freeway access points within the limited stretch. However, eliminating existing access ramps to Downtown Oakland and Alameda is not desirable since it will have adverse impacts to established businesses and communities. Therefore, the local communities are in agreement that reducing the volume of traffic entering the Jackson/I-980 weaving section may be the only practical approach to reducing the local street/freeway congestion. During the PA&ED phase, detailed traffic operational analysis will be performed to validate the project benefits.

4.2 Accident Data

The following summarizes accident data from the Traffic Accident Surveillance and Analysis System-Transportation System Network (TASAS-TSN) reports for SR-260 and I-880 within the project area. The reports provide accident rates and collision data for the three-year period from January 2007 to December 2009 on SR-260/Harrison, I-880 Mainline, and the ramps. Some key statistics include:

- 28.2% of the 337 accidents that occurred on the mainline were sideswipe type of collisions and 47.5% were rear end type collisions.
- 88.9% of the total accidents on the Northbound on-ramp from Jackson Street were rear end type of collisions.
- 81.8% of the total accidents on SR-260/Harrison Street were sideswipe and rear end types of collisions.
- 50.0% of the total accidents on the Northbound I-880 off-ramp to Broadway were rear end type of collisions.
- The accident rates on the I-880 mainline, the Northbound I-880 off-ramp and Southbound on-ramp to/from Broadway, and the Northbound on-ramp from Jackson are above the state average.

Table 1 shows the comparison of accident rates for the facilities within the project area versus the statewide averages. As stated above, the I-880 mainline, the Northbound I-880 off-ramp and Southbound on-ramp to/from Broadway, and the Northbound on-ramp from Jackson have accident rates higher than the state average. The accident rate is 1.07 (state average is 0.99) for I-880 mainline, whereas the accident rate is 0.55 (state average is 0.45) for the Northbound I-880 off-ramp to Broadway, 0.25 (state average is 0.20) for the Southbound on-ramp from Broadway, and 0.73 (state average is 0.70) for the Northbound on-ramp from Jackson.

TABLE 1
Accident Rates

Facility	Actual			Average		
	Fat	F+I	Total	Fat	F+I	Total
SR 260/Harrison Street (PM 0.64- 1.924)	0.000	0.08	0.29	0.007	0.25	0.73
I-880 Mainline (PM 31.0-32.4)	0.000	0.25	**1.07**	0.010	0.31	0.99
I-880 NB Off-Ramp to Broadway	0.000	0.07	**0.55**	0.005	0.15	0.45
I-880 SB On-Ramp from Broadway	0.000	0.13	**0.25**	0.002	0.07	0.20
I-880 SB Slip-Ramp to Jackson	0.000	0.09	0.56	0.004	0.23	0.70
I-880 SB Slip-Ramp from Broadway	0.000	0.00	0.23	0.004	0.23	0.70
I-880 NB On-Ramp from Jackson	0.000	0.08	**0.73**	0.004	0.23	0.70
I-880 NB Slip-Ramp to Broadway	0.000	0.06	0.37	0.004	0.42	1.20
I-880 NB Off-Ramp to Market	0.000	0.14	0.29	0.004	0.42	1.20
I-880 SB On-Ramp from Adeline	0.000	0.00	0.00	0.002	0.07	0.20

*Note: Accident rates are expressed as number of accidents per million vehicle miles
Fat = Fatality
F+I = Fatality + Injury

Table 2 shows the percentage of each type of accident that occurred on each facility and the overall percentage of type of collisions. The primary types of collisions for these facilities are sideswipe and rear end collisions. This is likely due to driver inattention to sudden stopped traffic backups ahead or aggressive weaving maneuvers within short distances. These types of accidents typically occur where recurring traffic congestion is experienced.

TABLE 2
Collision Summary

Facility	Type of Collision							Total Collisions
	Head-On	Sideswipe	Rear End	Broadside	Hit Object	Overturn	Other	
SR 260/Harrison St (PM 0.64- 1.924)	4.5	40.9	40.9	0.0	13.6	0.0	0.0	22
I-880 Mainline (PM 31.0-32.4)	0.4	28.8	44.3	0.7	25.1	0.4	0.4	271
I-880 NB Off-Ramp to Broadway	0.0	37.5	50.0	12.5	0.0	0.0	0.0	8
I-880 SB On-Ramp from Broadway	0.0	0.0	100.0	0.0	0.0	0.0	0.0	2
I-880 SB Slip-Ramp to Jackson	0.0	33.3	50.0	16.7	0.0	0.0	0.0	6
I-880 SB Slip-Ramp from Broadway	0.0	50.0	50.0	0.0	0.0	0.0	0.0	2
I-880 NB On-Ramp from Jackson	0.0	5.6	88.9	5.6	0.0	0.0	0.0	18
I-880 NB Slip-Ramp to Broadway	0.0	16.7	66.7	0.0	16.7	0.0	0.0	6
I-880 NB Off-Ramp to Market	0.0	0.0	50.0	50.0	0.0	0.0	0.0	2
I-880 SB On-Ramp from Adeline	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Totals	0.59	28.19	47.48	1.78	21.36	0.30	0.30	337

The proposed project is expected to improve the safety for motorists, pedestrians, and bicyclists of the I-880/Broadway-Jackson interchange by i) reducing the amount of traffic that enters the weaving segment of I-880 between the Northbound I-880 Jackson Street on-ramp and the Northbound I-880/Eastbound I-980 split and ii) providing an alternate route to the freeway for traffic exiting the Posey Tube, thus reducing queues along the already congested SR-260/Harrison Street area.

5.0 Corridor and System Coordination

I-880 is an Interstate facility that is critical to regional and interregional traffic in the Bay Area region. It is vital to commuting, freight, and recreational traffic and is one of the most congested freeway facilities in the region. I-880 serves as the freeway connection between the San Francisco Bay Area and the Monterey Bay region via SR-17. The I-880/Broadway-Jackson Interchange Improvements project is consistent with the goals of the following planning efforts:

- Alameda County's 20-Year Transportation Expenditure Plan
- Alameda County Congestion Management Agency (ACCMA) Countywide Transportation Plan 2008
- Metropolitan Transportation Commission's (MTC')s Transportation 2035 Plan
- State Transportation Improvement Program (STIP)
- Strategic Growth Plan (2006)

5.1 State Planning

The Governor's Strategic Growth Plan (2006) calls for an infrastructure improvement program that includes a major transportation component (GoCalifornia). The SGP is based on the premise that investments in mobility throughout the system will yield significant improvements in congestion relief. It calls for transportation infrastructure improvements that are designed to decrease congestion, improve travel times and safety, while accommodating growth in the economy and population. The Strategic Growth Plan was supported by the passage of the transportation bond (Prop 1B) in the November 2006 election. The Corridor Mobility Improvement Account (CMIA) was developed as part of Prop 1B and includes funding for projects in this corridor. The CMIA projects identified in the I-880 Corridor are: ALA I-880 SB HOV Lane Extension Hegenberger Rd to Marina Blvd and SCL 880 SB HOV Lanes SR-237 to US-101.

On March 15, 2007, the CTC adopted *Resolution CMIA-P-0607-02*. In Sections 2.12 and 2.13 of this resolution, the CTC resolved that "...the Commission expects Caltrans and regional agencies to preserve the mobility gains of urban corridor capacity improvements over time that will be described in Corridor System Management Plans (CSMPs),.." A CSMP is a transportation planning document that will study the facility based on comprehensive performance assessments and evaluations. The strategies are phased and included both operational and more traditional long-range capital expansion strategies. The strategies also take into account transit usage and projections and interactions with arterial network and connection to State Highways. Each CSMP presents an analysis of existing and future traffic conditions and proposes traffic management strategies and capital improvements to maintain and enhance mobility within each corridor.

5.2 Regional Planning

MTC's Transportation 2035 Plan for the San Francisco Bay Area lists programmed and planned projects (including the I-880 Corridor) within a 25-year planning horizon. Programmed projects in the project area include: I-880/High Street interchange improvements, replace I-880/Davis

Street overcrossing, replace I-880/Marina Blvd overcrossing. MTC's T2035 was adopted on April 22, 2009. The I-880/Broadway-Jackson Interchange Improvements project is included in T2035 (# 98207).

5.3 Local Planning

In November 2000, Alameda County voters approved the 2000 Measure B, which is a continuation of the previous Measure B that was set to expire in March 2002. The 2000 Measure B authorized the collection of ½-cent sales tax on transportation improvements projects until the year 2022. Formerly Alameda County Transportation Improvement Agency (ACTIA) and now the newly formed Alameda CTC serves as the agency to collect and distribute the Measure B funding in accordance with the 20-Year Transportation Expenditure Plan. The Transportation Expenditure Plan states the need to improve the County's aging highway infrastructure and identifies several projects that are a high priority. The I-880 Broadway-Jackson Interchange Improvements Project is identified as Tier 1, a project with high priority. This project also correlates with the ongoing I-880 Operational and Safety Improvements Project at 29th Avenue and 23rd Avenue (PSR approved in November 2007), as part of the I-880 corridor improvements. Other ongoing projects in vicinity of the project area include:

- The 7th Street Grade Separation and Roadway Improvements Project
- The pavement rehabilitation project (1A680K) between I-880 PM 27.6/31.0

Formerly the Alameda County Congestion Management Agency's and now the newly formed Alameda CTC's Countywide Transportation Plan 2008 indicates that the I-880 Jackson/Broadway Interchange will be the third most congested location during PM peak period in Alameda County in 2025 and includes the project as one of the high priority projects. It also states that the project meets countywide transportation goals by improving mobility, supporting economic vitality, and enhancing operational efficiency.

6.0 Alternatives

During the conceptual analysis and preliminary engineering stage of this project, many features were investigated, including several that attempted to resolve all weaving issues on the I-880 mainline. Due to significant right-of-way impacts, geometric constraints, constructability, and other issues, most of the considered features were withdrawn, except for the combination of viable features that are included in the Build Alternative.

Since there was significant input received from various local jurisdictions and/or stakeholders, the remainder of this section attempt to document both the considered and withdrawn features in detail.

6.1 No-Build Alternative

The no-build alternative does not include any of the features considered during the conceptual analysis and preliminary engineering stage of this project. That is, it does not modify the existing configuration of the I-880/Broadway-Jackson interchange and does not address current deficiencies, congestion, and safety shortcomings that are expected to be exacerbated in the future. The no-build alternative does not meet the project's purpose and needs; it simply provides a baseline for comparison with the Build Alternative.

6.2 Build Alternative

The Build Alternative proposes to reconfigure the I-880/Broadway-Jackson Interchange to include reconstructing the Northbound I-880 Broadway off-ramp to terminate at Webster Street, depressing Harrison Street, providing a left turn lane from Harrison Street to 6th Street, constructing a new Northbound I-880 on-ramp from Market Street and constructing a new Southbound I-880 off-ramp to Martin Luther King Jr. Way. This alternative also proposes improvements along 6th Street and 5th Street to facilitate the flow of traffic to and from I-880, Jack London Square, Chinatown, and Downtown Oakland. Below are the features that comprise the Build Alternative.

Feature No. 1- Reconstructed Off-Ramp from Northbound I-880 to Webster/Broadway

This feature proposes to reconstruct and realign the existing Northbound I-880 Broadway off-ramp to terminate at Webster Street (**Attachment C – Build Alternative - Layouts**). The reconstructed ramp begins just downstream of the existing Broadway Street off-ramp exit and stays between I-880 and 6th Street before crossing over Harrison Street. Once it crosses Harrison Street, this one-lane ramp widens to two lanes to allow vehicles to turn left and access the Webster Tube and Alameda or Jack London Square. The ramp terminus creates a new intersection at 6th and Webster Streets. The feature includes 6th Street corridor improvements from Webster Street to Broadway by implementing signal timing and restriping to provide standard lanes and shoulders.

The existing Northbound I-880 slip ramp between Jackson Street and Broadway needs to be removed as part of the design. This feature provides a direct connection from Northbound I-880 to the Webster Tube, eliminating the need for Alameda-bound traffic to go through several local

intersections in Oakland. Preliminary analysis indicates that this direct connection reduces the Year 2030 total travel delay between Northbound I-880 and Alameda by 76.5 percent (75 seconds) during the PM peak period.

To accommodate the new off-ramp profile, the existing profile of Harrison Street needs to be depressed. The realigned and depressed Harrison Street profile begins approximately 144 feet after exiting the Posey Tube. The road continues to be depressed while traversing beneath I-880 and requires the reconstruction of existing retaining walls on both sides of Harrison Street that are part of the Historic Posey Tube Structure.. The profile then rises up just to the east of the new Webster/Broadway off-ramp, and conforms to existing grade just upstream of the Harrison Street/7th Street intersection (**Attachment D – Build Alternative - Profiles**). There are three lanes on the I-880 mainline that widens to four lanes just north of the reconstructed Webster/Broadway off-ramp.

Feature No. 2 - Depressed Harrison Street to Northbound 6th Street Connection

This feature proposes to construct a new left-turn lane from the depressed portion of Harrison Street onto northbound 6th Street. The left-turn lane begins as a dedicated turn-pocket on the left side of Harrison Street beneath the existing I-880 freeway structures. The lane then traverses under the freeway structures before turning left onto Northbound 6th Street. The single left-turn lane widens to provide two lanes. The profile then rises up along 6th Street and conforms to existing grade at the Webster/6th Street intersection. New retaining walls are needed on both sides of the depressed two-lane section on 6th Street (**Attachment C – Build Alternative - Layouts**). The left-turn lane provides an alternate route along 6th Street for Posey Tube traffic headed toward Jack London Square (via Broadway), Downtown Oakland, West Oakland, Northbound I-880/San Francisco (via the existing Union Street or proposed Market Street on-ramps) and Eastbound I-980 (via a right turn from 6th Street onto Castro Street). This alternate route serves as a direct connection between Alameda and several local destinations/freeway access points in Oakland and removes a significant portion of traffic from Downtown Oakland, Chinatown, and the existing Jackson Street On-ramp. It has the added benefit of relieving some congestion along the Harrison-7th-Jackson loop and the I-880/I-980 weaving section.

From a geometrics standpoint, this feature provides a free left-turn through an intersection because it directly connects two urban arterials (Harrison Street and 6th Street). The distance between the end of Posey Tube and the left-turn curve is just sufficient to provide the standard deceleration length for vehicles exiting the tube (tube posted speed = 45 mph) to partially decelerate within the through lane, enter the left turn pocket, and further decelerate to 15 miles per hour to safely navigate the left-turn curve (curve design speed = 16 miles per hour). An 18-foot lane width is provided at the left-turn curve to accommodate truck off-tracking.

The existing segment of 6th Street between Webster and Harrison Streets is a two-way two lane roadway that provides access and street-side parking for properties abutting the road. 6th Street also has an existing mid-block T-intersection with Webster Place, a two-way two lane road that connects 5th and 6th Streets. The proposed section of 6th Street in this area will depress the street below existing grade (from 0' to 6') and accommodate two lanes of northbound one-way traffic. Retaining walls that are necessary to depress the street below grade, will eliminate access to the existing properties and to Webster Place.

Pavement runoff conveyed toward the Posey-Oakland Portal Building is currently limited to the depressed portion of the Posey Tube exit roadway south of 6th Street. Storm runoff from Harrison Street north of 6th Street and the surrounding properties is presently collected by the City storm drains located in the at-grade streets adjacent to the depressed Posey Tube exit areas. The drainage design for the proposed improvements will not alter this existing runoff pattern. Drainage inlets will be placed just north of 6th Street to intercept the pavement runoff. No additional runoff will be directed into the tube.

Feature No. 3 - 5th & 6th Street Corridor Improvements/Northbound I-880 On-ramp from Market Street/Southbound I-880 Off-Ramp to Martin Luther King Jr. Way

This feature proposes to improve I-880 corridor traffic operations by enhancing arterial street capacity parallel to the freeway. The feature includes:

- 6th Street corridor improvements from Broadway to Market Street and 5th Street corridor improvements from Martin Luther King Jr. Way to Broadway, by use of signal timing, consistent geometry, fixed number of lanes, and uniform lane and shoulder widths.
- Construction of a new Northbound I-880 on-ramp at the Market Street/6th Street intersection
- Construction of a new Southbound I-880 off-ramp to Martin Luther King Jr. Way

Corridor improvements along 6th Street allow 6th Street to function as a high volume arterial. Such an arterial provides an alternate route for Northbound I-880 traffic originating from Alameda, Jack London Square, and parts of Chinatown, thereby relieving some of the demand on the existing Jackson Street on-ramp and its related congestion. The improved 6th Street feeds into the new Northbound I-880 on-ramp at the Market Street/6th Street intersection, thus completing the alternate route to access Northbound I-880.

Corridor improvements along 6th Street, in conjunction with the left-turn lane from Harrison Street onto 6th Street (Feature No. 8), have the added benefit of providing efficient transit connections originating from Alameda. With the build alternative, the Traffic Operations Analysis Report shows that year 2030 AM and PM peak hour queues at the Harrison/7th intersection will be shorter compared to the no-build alternative (the no-build queues will back up into Posey Tube). Buses can traverse Posey Tube with reduced delay and proceed efficiently along a signal-coordinated 6th Street - Local buses can have a faster connection to the West Oakland BART station, and Transbay buses can access Northbound I-880/Bay Bridge via the new Market Street on-ramp.

In the southbound direction, the proposed Martin Luther King Jr. Way off-ramp serves as the main access ramp to Alameda and Jack London Square. It segregates the commute traffic from the truck traffic that currently uses the Union Street off-ramp to enter the Port of Oakland, and thus improves safety. 5th Street corridor improvements from Martin Luther King Jr. Way to Broadway, including signal timing and restriping to provide standard lanes and shoulders, complete the link between the off-ramp terminus and Jack London Square/Webster Tube.

At the Market/6th intersection, the existing Market Street off-ramp approaches the intersection almost parallel to the proposed one-way 6th Street alignment. Similarly, at the Martin Luther

King Jr. Way/5th intersection, the proposed Martin Luther King Jr. Way off-ramp approaches the intersection almost parallel to the existing one-way 5th Street alignment. To permit turning movements, a split-phase signal will be necessary at both of these intersections. This operational assumption requires concurrence from the District's Traffic Operations and Traffic Safety functional units.

6.4 Traffic Summary

Rapid growth in Alameda County coupled with the recent and pending developments within the Cities of Oakland and Alameda is expected to have significant operational impacts on the I-880/Broadway-Jackson interchange. A known planned development is the Oak to 9th neighborhood development on Oakland's waterfront. A Traffic Forecast Memorandum, prepared by Dowling Associates, Inc. included analyses and comparison of three operational scenarios: the existing conditions (2007), the 2030 No-Build conditions, and the 2030 Build conditions. The Build Alternative, as described above, was used to forecast traffic volumes for the 2030 Build conditions described in the memo. The memorandum was reviewed by Caltrans, and the Cities of Alameda and Oakland and included in the project files.

Detailed analysis of all the freeway components was not conducted since the primary focus of traffic study performed in this PSR/PDS phase was to obtain local consensus on the development of alternatives and the associated impacts/improvements to the local street network. The Alameda CTC does recognize the risk associated with deferring the detailed freeway operational analysis to the next phase of project development. However, the Alameda CTC and Caltrans reached an agreement to conduct a full freeway component analysis during the next stage, as outlined in the attached November 23, 2010 letter, included as **Attachment P**.

Freeway & Ramp Traffic Conditions

Average annual daily traffic (AADT) volumes on the I-880 mainline for Year 2007 are shown in table 3 below.

TABLE 3: AADT Volumes

Location (Post Mile)	Year 2007 AADT (vpd)
Oak St to Jackson/Broadway (31.09-31.23)	194,000
Jackson/Broadway to I-980 split/Market Street (31.23-31.68)	198,000
Market Street to Adeline/Union Streets (31.68-R32.79)	134,000
Adeline/Union Streets to 7th Street (R32.79-R33.27)	146,000

The truck data from the 2007 Caltrans Average Daily Truck Traffic report shows 9.6% trucks north of High Street and 10.7% south of Oak Street. It is estimated that approximately 10% of the current and forecasted traffic volumes are truck traffic.

A micro-simulation model using VISSIM software was created to analyze the freeway facilities and compare the Build and No Build scenarios. Travel time and traffic volumes have been extracted and will be utilized as the measures of effectiveness to compare the Build and No-Build scenarios. The proposed two new ramps were analyzed using Highway Capacity Manual (HCM) methodology. Findings of the analysis are summarized below (See **Traffic Operations Analysis Report** in the project files for details):

I-880 Northbound

Currently, traffic from Oakland and Alameda traveling to I-880 northbound would use the on-ramps at Jackson Street and Union Street, both of which have downstream off-ramps creating weaving sections along the freeway mainline. The construction of 6th Street as an arterial from Harrison Street to Market Street and the on-ramp at Market Street would provide another option for northbound freeway traffic. While these modifications will modify the existing circulation patterns in the immediate area, it is not expected to significantly alter the overall freeway volumes.

This would create a bypass of the congested weaving section between the Jackson Street on-ramp and the I-980 off-ramp, reducing the number of vehicles traveling through the weaving section. It will also allow vehicles currently using the Northbound Union Street on-ramp and weaving with the 7th Street off-ramp traffic to enter the freeway upstream and bypass the weaving section. As shown in the Traffic Operations Analysis Report (Appendix B), it is projected that approximately 600 fewer vehicles during the AM peak hour and approximately 400 fewer vehicles during the PM peak hour would use the Union Street on-ramp, reducing the number of weaving vehicles through this section.

The proposed Northbound Market Street on-ramp north of the I-880/I-980 Interchange and weaving area is not projected to contribute to significant congestion along the freeway mainline or generate queues that would back up onto the freeway. A significant drop in traffic volumes north the I-880/I-980 interchange allows for more favorable operating conditions along the I-880 mainline through this area, providing an opportunity to add a new on-ramp Under the No-Build scenario, the I-880 mainline through this area is projected to operate at LOS D during the AM peak hour and LOS C during the PM peak hour. Under the Build scenario, the I-880 mainline is projected to operate at LOS D during both AM and PM peak hours.

At the intersection of the I-880 northbound off-ramp and Market Street, it is projected the intersection would deteriorate to LOS F under the Build scenario due to the additional traffic diverted with the Market Street on-ramp. However, using the HCM intersection analysis methodology, it is projected that the existing off-ramp has sufficient storage capacity to accommodate the added queues and will not back up onto the freeway mainline.

I-880 Southbound

The construction of a new southbound off-ramp at Martin Luther King, Jr. Way (MLK) and connecting to an improved 5th Street is projected to reduce the traffic volumes currently using the 5th Street/Union Street interchange to access West Oakland and Jack London Square and reduce

the number of weaving vehicles with the upstream 7th Street on-ramp. This second off-ramp will allow vehicles to balance between the two off-ramps and reduce congestion through the weaving area by diverting approximately 850 vehicles in the AM peak hour and 950 vehicles in the PM peak hour from the Union Street off-ramp to the MLK off-ramp.

The intersection of the I-880 southbound ramp and MLK/5th Street is projected to operate at LOS D during the AM peak hour and PM peak hours. It is not expected that any queues at the intersection will back up onto the freeway mainline.

With the new off-ramp the only freeway modification along Southbound I-880, more vehicles would exit the freeway sooner, resulting in lower volumes on the mainline downstream of the new off-ramp. As shown in Appendix B, the forecast volumes indicate that, with the proposed project, there would be an average of approximately 300 fewer vehicles during the AM peak hour and approximately 100 fewer vehicles during the PM peak hour on the mainline south of the new off-ramp.

Travel Time Comparison

The VISSIM model can provide travel times and average travel speed along the freeway for the Existing (2007), 2030 No Build, and 2030 Build analysis scenarios. Table 4 and Table 5 summarize the travel times and average speed for various segments of the study area for the AM peak hour and the PM peak hour, respectively.

TABLE 4

Travel Time to Freeway Facilities: No-Build vs. Build Scenario (AM Peak Hour)

Segment		2007		2030 No-Build*		2030 Build*		Gain per Project	
	Segment Length (miles)	Travel Time (sec)	Avg. Speed (mph)	Travel Time (sec)	Avg. Speed (mph)	Travel Time (sec)	Avg. Speed (mph)	Travel Time (sec)	Avg. Speed (mph)
NB-880 from 23rd St to I-980 split	2.639	238	39.92	231	41.13	218	43.58	**-13.00**	**+2.45**
NB-880 from 23rd St to I-880, north of I-980 split	2.624	199	47.47	206	45.86	199	47.47	**-7.00**	**+1.61**
SB-880 From 7th St ramp to 23rd St Ramp	4.192	320	47.16	342	44.13	328	46.01	**-14.00**	**+1.88**
Alameda Traffic from Oakland portal of Posey Tube to I-880 after the 880/980 gore	0.794	129	22.16	450	6.35	157	18.21	**-293.00**	**+11.85**

*Ramp Metering is active on Jackson Street on-ramp for 2030 No Project and 2030 With Project Scenarios

TABLE 5

Travel Time to Freeway Facilities: No-Build vs. Build Scenario (PM Peak Hour)

Segment		Existing		2030 No-Build*		2030 Build*		Gain per Project	
	Segment Length (miles)	Travel Time (sec)	Avg. Speed (mph)	Travel Time (sec)	Avg. Speed (mph)	Travel Time (sec)	Avg. Speed (mph)	Travel Time (sec)	Avg. Speed (mph)
NB-880 from 23rd St to I-980 split	2.639	212	44.81	209	45.46	209	45.46	**0.00**	**0.00**
NB-880 from 23rd St to I-880, north of I-980 split	2.624	198	47.71	198	47.71	198	47.71	**0.00**	**0.00**
SB-880 From 7th St ramp to 23rd St Ramp	4.192	328	46.01	362	41.69	363	41.57	**1.00**	**-0.11**
Alameda Traffic from Oakland portal of Posey Tube to I-880 after the 880/980 gore	0.794	112	25.52	354	8.07	214	13.36	**-140.00**	**+5.28**

*Ramp Metering is active on Jackson Street on-ramp for 2030 No Project and 2030 With Project Scenarios

In the 2030 No-Build scenario, it is projected that there will be congestion on Northbound I-880 during both peak hours. It is expected that the congestion will primarily be concentrated in the right lanes due to the merging and diverging activity at the ramps, as well as the weaving area between Jackson Street and I-980. The projected travel time for northbound traffic traveling from 23rd Street to I-980 would be approximately 4 minutes during the AM peak hour and approximately 3½ minutes during the PM peak hour. With the proposed project (Build Scenario), the travel times along the same routes are projected to improve to 3½ minutes during the AM peak hour and remain about the same during the PM peak hour.

It is projected that travel time for Northbound I-880 traffic from 23rd Street to I-880 north of the I-980 split would remain about the same during the AM and PM peak hours between the No-Build and Build scenarios.

For vehicles from Alameda exiting the Posey Tube and traveling to I-880 (continuing north of the I-980 split), there would be a projected travel time reduction from 7½ minutes in the No-Build scenario to 2½ minutes in the Build scenario during the AM peak hour. During the PM peak hour, the projected travel time reduction would be from 5½ minutes in the No-Build scenario to 3½ minutes in the Build scenario.

Traffic studies performed for this PSR/PDS provide a preliminary assessment on existing and future freeway operational conditions with and without this project. It is recommended that additional detailed traffic analysis, including merge/diverge and weaving analysis be conducted during the PA&ED phase to validate the above findings.

Local Arterial Street Traffic Conditions

The following sections discuss the traffic conditions for existing, 2030 No-Build and 2030 Build scenarios along various local arterials/streets and/or at various intersections, as part of the project operational studies:

Intersection Level of Service (LOS)

The Traffic Operational Analysis Report also documented the traffic operations at various local intersections. The report has been circulated for comments/input from the Cities of Oakland and Alameda, and Caltrans. The report analyzed over three dozen existing intersections and a new intersection (6th/Webster) for the proposed project. **Table 6** summarizes the LOS results for the analyzed intersections. The table includes intersections that are to be physically improved/modified as part of this project, as well as those that are in the vicinity of the study area and may experience a modification in peak hour traffic volumes due to the construction of the proposed project.

TABLE 6
Intersection Level of Service Summary

Location		Peak	Existing		2030 No-Build		2030 Build	
East-West St.	North-South St.	Hour	LOS	Delay	LOS	Delay	LOS	Delay
Oakland Signalized Intersections								
3rd Street	Broadway	AM	B	13	B	15	B	12
		PM	B	13	B	13	B	13
5th Street	Union/880 Ramps	AM	B	16	C	22	B	16
		PM	B	19	C	23	B	20
5th Street	Adeline	AM	C	23	C	28	C	27
		PM	D	37	C	28	C	21
5th Street	MLK/SB Off-ramp	AM	A	8	B	14	D	52
		PM	B	12	B	11	D	36
5th Street	Washington	AM	B	12	B	11	B	11
		PM	B	15	B	13	B	16
5th Street	Broadway	AM	D	36	D	36	D	42
		PM	D	40	**E**	**66**	**E**	**64**
5th Street	Jackson	AM	B	10	B	16	B	14
		PM	B	12	C	24	C	21
5th Street	Madison	AM	C	21	A	8	B	15
		PM	C	21	B	13	B	12
5th Street	Oak	AM	B	15	D	36	C	25
		PM	B	15	D	38	C	25
6th Street	Oak	AM	B	10	D	36	C	23
		PM	A	9	B	14	B	13
6th Street	Jackson	AM	D	37	**E**	**59**	**B**	**15**
		PM	A	7	B	18	B	17

Location		Peak	Existing		2030 No-Build		2030 Build	
East-West St.	North-South St.	Hour	LOS	Delay	LOS	Delay	LOS	Delay
Oakland Signalized Intersections (continued)								
6th Street	Webster	AM	Only Exists in With Project Case				C	27
		PM					C	23
6th Street	Broadway/NB Off-ramp	AM	C	24	C	35	D	45
		PM	C	22	C	32	D	40
6th Street	Washington	AM	B	14	B	12	B	10
		PM	A	9	B	13	B	11
6th Street	Market/NB On-ramp	AM	A	9	A	9	**E**	**64**
		PM	B	10	B	10	**E**	**72**
7th Street	Brush	AM	B	15	B	16	B	17
		PM	B	17	B	17	B	15
7th Street	Castro	AM	B	15	B	16	B	18
		PM	B	14	B	18	B	15
7th Street	MLK	AM	A	9	B	10	B	13
		PM	A	10	B	12	B	12
7th Street	Washington	AM	A	6	B	10	B	11
		PM	A	9	B	14	B	14
7th Street	Broadway	AM	B	12	D	36	B	14
		PM	B	16	C	31	C	25
7th Street	Webster	AM	B	12	B	19	C	22
		PM	B	13	C	20	C	28
7th Street	Harrison	AM	**F**	**>80**	**E**	**68**	B	13
		PM	**F**	**>80**	**F**	**>80**	D	46
7th Street	Jackson	AM	B	15	B	14	B	12
		PM	A	9	**F**	**>80**	**F**	**>80**
7th Street	Madison	AM	B	17	A	9	B	15
		PM	A	9	D	43	D	42
8th Street	Webster	AM	C	25	**F**	**>80**	**E**	**78**
		PM	C	24	C	30	C	25
8th Street	Franklin	AM	B	16	B	18	C	27
		PM	A	7	C	23	B	16
8th Street	Broadway	AM	B	12	B	16	B	19
		PM	B	11	B	15	A	9
8th Street	Washington	AM	A	9	B	14	A	7
		PM	A	9	A	10	A	9
8th Street	MLK	AM	A	7	B	13	B	12
		PM	A	7	B	11	A	9

Location		Peak	Existing		2030 No-Build		2030 Build	
East-West St.	North-South St.	Hour	LOS	Delay	LOS	Delay	LOS	Delay
Alameda Signalized Intersections								
Atlantic	Webster	AM	D	53	**F**	**>80**	**F**	**>80**
		PM	D	42	**F**	**>80**	**F**	**>80**
Marina Village	Constitution	AM	C	24	C	30	C	33
		PM	C	24	C	32	C	30
Oakland Unsignalized Intersections								
3rd Street	MLK	AM	A	8	A	9	A	9
		PM	B	11	B	11	B	11
3rd Street	Washington	AM	A	9	A	8	A	8
		PM	B	11	B	11	B	11
4th Street	Broadway	AM	C	22	**F**	**>50**	**F**	**>50**
		PM	D	35	**F**	**>50**	**F**	**>50**
4th Street	Jackson	AM	B	14	C	20	**F**	**>50**
		PM	B	12	C	20	**E**	**44**
Embarcadero	Washington	AM	A	8	A	8	A	8
		PM	A	8	A	8	A	8
Embarcadero	Broadway	AM	A	8	D	28	D	30
		PM	A	9	**F**	**>50**	**F**	**>50**
Alameda Unsignalized Intersections								
Tinker	Mariner Square	AM	A	8	**F**	**>50**	**F**	**>50**
		PM	A	8	**F**	**>50**	**F**	**>50**
Mariner Square	Constitution	AM	B	11	B	11	B	12
		PM	C	18	**F**	**>50**	**F**	**>50**

There are two important aspects of the results to note: 1) whether the proposed project itself would function adequately, and 2) whether the operations in the immediate vicinity would be better than under the No-Build scenario.

A review of the analysis results indicates that the project would function adequately. The level of service for the proposed new signalized intersection of Webster/6th/NB I-880 Off-ramp would be LOS C during both peak hours. The levels of service for other Project intersections (intersections included in the project construction) is summarized in Table 7.

Table 7 Year 2030 Build Level of Service for New or Substantially Modified Intersections *(to determine if proposed project would function adequately)*		
Intersection	**AM Peak Hour**	**PM Peak Hour**
5th/MLK/Off-ramp	D	D
5th/Washington	B	B
5th/Broadway	D	E
6th/Webster/Off-ramp	C	C
6th/Broadway	D	D
6th/Washington	B	B
6th/Market/NB Ramps	E	E

Two of the new or substantially modified intersections would operate at LOS E during at least one peak hour in 2030. Ordinarily, LOS E is not considered favorable enough for a new intersection; however, it would seem adequate in this urban setting. Furthermore, the City of Oakland General Plan allows LOS E in its downtown area. The understanding is that Caltrans ordinarily follows local guidelines for the local/ramp intersection level of services, as long as queues do not back up onto the mainline. The queues calculated by Synchro for the 6th/Market/NB Ramps intersection indicates that they are not long enough to create a back up onto the Northbound I-880 mainline.

Eleven intersections would improve by at least one level of service grade in one or both peak hours if the project were constructed (compared to the Year 2030 No-Build scenario). Four of the eleven intersections have relatively notable improvement, and are summarized in Table 8.

TABLE 8 Notable Intersection Improvement: No-Build vs. Build Scenario					
Intersection	**2030 No-Build**		**2030 Build**		**Peak Hour**
	LOS	**Volume**	**LOS**	**Volume**	
7th/Harrison	E	3414	B	3168	AM
7th/Harrison	F	5055	D	4476	PM
6th/Jackson	E	3630	B	3468	AM
7th/Broadway	D	3225	B	3070	AM

Three intersections would have a level of service degrade by at least one grade:

- 7th/Madison – the level of service would worsen from LOS A to LOS B;
- 8th/Franklin – the level of service would worsen from LOS B to LOS C; and
- 4th/Jackson – this all-way stop-controlled intersection would worsen to LOS F in the AM peak hour and LOS E in the PM peak hour.

The remaining intersections either improve or worsen at a magnitude that would not change the level of service grade.

The primary factor contributing to the intersection level of service improvements at various intersections near the project is the reduction of several hundred vehicles making the "loop" movement along Harrison, 7th, and Jackson to reach northbound I-880. The reason for the Broadway/7th LOS improvements is that the traffic previously exiting I-880 at Broadway/6th, turning north onto Broadway would now disperse before reaching that point, resulting in less traffic on northbound Broadway.

Intersections with LOS F Results

Eight study intersections are projected to operate at LOS F under Year 2030 No-Build and Build scenarios for the AM and/or PM peak hour. Three of the intersections are signalized and five are unsignalized. Of the five unsignalized intersections, two are all-way stop-controlled.

Based on discussions above, the proposed project improvements will improve local traffic circulation and provide two new freeway access points north of the I-980 interchange that will reduce the number of vehicles weaving within the I-880/I-980 interchange area, resulting in a reduction of freeway congestion through this area. As indicated in this section, additional traffic studies will be performed during the PA&ED phase to validate the geometry developed during this PSR/PDS phase and to obtain "engineering and operational acceptability" from the state and federal officials.

6.5 Transportation Management Plans (TMP)

The existing Broadway off-ramp is a major access point from NB-880 to downtown Oakland and Alameda, and long term closure of this ramp must be avoided during reconstruction. Proper staging is necessary to allow demolition and construction work while keeping this ramp open. A TMP has been prepared indicating how construction within the ramp can be accomplished using conventional traffic controls and planned detours, to minimize traffic delays and inconvenience caused by construction activities. A public information campaign will be launched to alert area residents, commuters and tourists of the impending construction.

Construction of the Market Street On-ramp and MLK off-ramp is not expected to cause significant traffic delays due to the amount of work that will occur outside of the travel corridor.

6.6 Ramp Metering

The existing Jackson Street on-ramp currently provides two-lane ramp metering. Downstream from the existing limit line, the right lane connects to the slip ramp to Broadway, while the left lane becomes a freeway entrance. Under this project, the existing right lane will need to be dropped due to the removal of the slip ramp to Broadway. This lane drop will be accomplished between the existing limit line and the freeway entrance, and will not require relocation of any existing ramp metering equipments. Minor adjustment to the existing ramp metering signals may be needed to accommodate the change in lane configuration.

The need for HOV preferential lane will be evaluated in PA&ED phase when the 2035 traffic forecast and operational analysis are completed.

6.7 Right-of-Way

Right-of-way acquisition from private individuals, companies, and the City of Oakland is required for the construction of the Market Street on-ramp. Four full acquisitions and four partial acquisitions of commercial properties and one full acquisition of a vacant parcel are required. Of the eight commercial acquisitions, five business relocations are required. Also, three residential properties along 6th Street will have their access eliminated due to the construction of new retaining walls. Damage costs have been assessed for these properties. Easements may be needed during construction and will be identified at the PA/ED phase once additional detail is available.

Alameda CTC will perform Right of Way engineering and field surveys in the PA&ED and PS&E phases of the project.

Acquisition, Utilities, and Railroad

Utilities identified to have potential conflicts with the proposed improvements are sewer, water, gas, overhead and underground electric, telephone, communication, and television lines. Owners of the utilities have been identified as East Bay Municipal Utilities District (EBMUD), Sprint Nextel Corporation, Pacific Gas & Electric Company (PG&E), and the City of Oakland. The potential locations of utility conflict are on Harrison Street and 6th Street where the existing roadway will be depressed and near the bridge columns of the proposed on-ramp and off-ramps. Existing underground utilities within the depressed section, therefore, must be lowered under the proposed pavement section or relocated outside the depressed section at higher elevation. Potholing is required in the design phase to verify the location of utilities and confirm the potential conflicts. Relocation is anticipated for any utilities found to be in conflict with the proposed improvements.

Several utilities were found crossing state right-of-way. When relocated, agreements for permanent utility easement will be needed; however, no longitudinal encroachment is anticipated. There is an existing elevated BART facility that runs along 5th Street between Union Street and Washington Street. The proposed improvements do not encroach upon the BART easement, and there is no work proposed within BART's right-of-way.

The Right-of-Way Data Sheet and Utility Information Sheet include a detailed summary of the right-of-way impacts, utility owners, and costs associated with acquisitions and utility relocations (**Attachment I – Right-of-Way Data Sheet**).

6.8 Design Exceptions

The following nonstandard features have been identified for the Build Alternative:

Mandatory Design Standards

i. The project proposes nonstandard shoulder and lane widths on Harrison Street at the stations specified in Table 9 and 10 below:

TABLE 9 Nonstandard Shoulder Widths		
Station and Location	**Proposed Shoulder Width**	**Required Shoulder Width**
102+57.78 to 102+67.47(Right)	3'	10'
102+67.47 to 104+73.42 (Right)	VAR (4' to 8.35')	10'
104+73.42 to 106+70.27 (Right)	4'	10'
102+11.29 to 102+62.46 (Left)	4'	10'
104+56.36 to 106+88.98 (Left)	4'	10'

TABLE 10 Nonstandard Lane Width		
Station	**Proposed lane Width**	**Required lane Width**
102+11.29 to 106+88.98	11'	12'

It is noted that existing column footing dimensions adjacent to the proposed retaining walls have been historically different from what are shown on the as-built plans. During the design phase, field verification is necessary to confirm footing dimensions. Adjustment to shoulder and lane widths may be needed to maximize the width of the proposed cross section while not compromising the structural integrity of the column footings. Any variation on shoulder and lane widths from what is proposed in this PSR/PDS must be approved by the Headquarters Project Development Coordinator.

ii. The project proposes nonstandard Stopping Sight Distances (SSD) at the locations listed below:

TABLE 11 Nonstandard Stopping Sight Distances					
Alignment	**Station**	**Proposed SSD Ft**	**Design Speed mph**	**Required SSD ft**	**Design Speed mph**
Harrison Street	104+02.89 to 105+12.79	135	22	200	30
MLK Off-Ramp	120+49.54 to 121+80.77	137	22	200	30
Webster Off-Ramp	110+08.20 to 111+15.48	110	17	200	30

iii. The project proposes the following interchange spacing:

a. Spacing between the Market Street on-ramp and the I-980 freeway-to-freeway interchange 0.5 miles. The required spacing is two miles.

b. Spacing between the MLK off-ramp and the I-980 freeway-to-freeway interchange is 0.0 miles. The required spacing is two miles.

c. Spacing between the Market Street on-ramp and the Union Street interchange is 0.25 miles. The required spacing is one mile.

d. Spacing between the MLK off-ramp and the Union Street interchange is 0.7 miles. The required spacing is one mile.

iv. The project proposes the following spacing between ramp intersections and local intersections:

a. Spacing between the Market Street on-ramp intersection and the Market Street/7th Street intersection is 70 feet. The required spacing is 400 feet

b. Spacing between the Market Street on-ramp intersection and the Brush Street/5th Street intersection is 300 feet. The required spacing is 400 feet.

c. Spacing between the MLK off-ramp intersection and the Jefferson Street/5th Street intersection is 280 feet. The required spacing is 400 feet.

d. Spacing between the Webster off-ramp intersection and the Webster Street/7th Street intersection is 200 feet. The required spacing is 400 feet.

e. Spacing between the Market Street on-ramp intersection and the Market Street/5th Street intersection is 180 feet. The required spacing is 400 feet.

Advisory Design Standards

i. The project proposes two isolated off-ramp – MLK off-ramp and Webster off-ramp.

ii. The MLK off-ramp has a single lane for more than 1,000 feet. A two-lane ramp is required.

iii. The project provides 550 feet decision sight distance at the exit of MLK off-ramp. The required decision sight distance is 1,000 feet.

iv. The project does not provide an auxiliary lane in advance of the MLK off-ramp exit where visibility is restricted. A 600-1000 foot auxiliary lane is required.

v. The project proposes vertical curves listed in **Table 12** that do not meet either the: i) L = 10V (Length of curve = 10 X Design Speed) criterion for design speeds equal to or greater than 40 miles per hour, or ii) L = 200-foot criterion for design speeds less than 40 miles per hour.

TABLE 12 Nonstandard Vertical Curve Lengths					
Alignment	**Station**	**Design Speed (mph)**	**Sag or Crest**	**Proposed Length (ft)**	**Required Length (ft)**
Harrison Street	101+44.93 to 104+02.73	40	Crest	257	400
Harrison Street	104+02.73 to 105+12.65	30	Sag	110	200
Harrison Street	105+91.97 to 106+90.02	25	Crest	100	200
Left-Turn to 6th Street	101+10.83 to 102+09.26	30	Sag	72	200
Webster Off-Ramp	110+08.17 to 111+15.48	25	Sag	110	200

Exceptions to mandatory and advisory design standards will be requested in the PA&ED phase. Gordon Brown, Caltrans design reviewer has reviewed the project and his comments have been incorporated in this report.

6.8 Constructability

The existing slip-ramp from the Northbound Jackson Street on-ramp to Broadway must be removed to allow for the reconstructed Webster/Broadway off-ramp to touch down at Webster Street. This removal must be performed in stages so as to minimize impacts on traffic using the existing Jackson on-ramp and Broadway off-ramp. The conceptual plan for this staged construction is shown in **Attachment G – Structures Advanced Planning Study** illustrates the conceptual stage construction approach for this area under "Webster Street Off-Ramp: Stage Construction."

The lowering of Harrison Street must also be performed in a staged sequence to maintain access out of the Posey Tube during construction. **Attachment G – Structures Advanced Planning Study** illustrates the conceptual stage construction approach for this area under "Depressed Section of Harrison Street: Stage Construction."

The permanent vertical clearance under the Martin Luther King Jr. Way off-ramp structure at Castro Street meets the minimum requirement (15 feet), but does not accommodate the additional vertical clearance normally required for falsework during construction. It is anticipated that a precast structure will be used to span over Castro Street. During the placement of the span, traffic on Castro Street will need to be temporarily diverted to nearby streets. This work will likely be performed at night to minimize the impacts to motorists.

A review by the District Constructability group was performed on the proposed alternative. The review group raised concerns about the construction of the depressed Harrison Street, including the impact on the structural integrity of the Posey Tube, the access out of Posey Tube during construction, and the construction method of the retaining walls. These concerns have been addressed by verification of several As-built plans for the Posey Tube and inclusion of the clearance/staging diagrams in the Structures Advanced Planning Study (See Attachment G). The

potential risk related to the construction of the depressed Harrison Street is identified in the Risk Management Plan (**Attachment M – Risk Management Plan**).

6.9 Features Considered But Withdrawn

Numerous other features were developed and presented at the various Monthly Agency Coordination Meetings. However, these features were withdrawn from further consideration due to the reasons and issues listed under the respective feature description below.

Study Feature No. 1 - Depressed Harrison Street to Northbound 6th Street Connection

The existing segment of 6th Street between Webster and Harrison Streets is a two-way, two-lane roadway that provides access and street-side parking for properties abutting the road. 6th Street also has an existing mid-block T-intersection with Webster Place, a two-way, two-lane road that connects 5th and 6th Streets. The proposed section of 6th Street in this area will depress the street below existing grade (from 0' to 6'). A configuration that provides one northbound lane and one southbound lane on 6th Street was studied during the preliminary engineering effort. While this alternate configuration accommodates access to properties, the traffic operations analysis shows that provision of only one northbound lane degrades the intersection level of service at Webster/6th from LOS C to LOS F, and generates a queue that backs up well into the Posey Tube. This alternate configuration is, therefore, withdrawn from further consideration.

Study Feature No. 2 - Posey Tube to Southbound 5th Street Connection & I-880 Horseshoe

This feature proposes to add a connection from the Posey Tube to Northbound and Southbound I-880 via 5th Street. The layout includes a right turn from Harrison Street onto 5th Street, immediately following the Oakland exit of the Posey Tube. To accommodate this connection, the I-980 off-ramp to Jackson Street would be realigned to the west side of 5th Street. The new connection would allow traffic to use either a dedicated northbound I-880 on-ramp horseshoe underneath I-880 or continue on 5th Street to the southbound I-880 on-ramp. This feature was withdrawn from further consideration based on the following specifics:

<u>Design Issues</u>

To construct a new connection (ramp) from the Posey Tube exit to southbound 5th Street, the ramp must fit within tight physical constraints. The ramp geometry is constrained by the Tube exit, the I-880 southbound mainline and 5th Street. Additionally, the difference in elevation between the Posey Tube exit and 5th Street is approximately 25 feet.

As such, a ramp that meets all of Caltrans' design standards is not possible. Several features of the ramp geometry will require Design Exception Fact Sheets for Mandatory and Advisory Standards from Caltrans. Following is a brief summary of the key nonstandard features:

- Stopping Sight Distance – Minimum stopping sight distance is needed for the driver of a vehicle, traveling at the posted 45 miles per hour in the Posey Tube , to bring his vehicle to a stop after an object on the road becomes visible. The stopping sight distance approaching the Posey Tube to 5th Street connection is approximately 130 feet. A 360-foot minimum is required by standard for a posted speed of 45 miles per hour.

***150 feet minimum is required by standard for a design speed of 25 miles per hour.*

- Superelevation Rate – Superelevation rate is the amount of banking on a curve. Superelevation increases the friction between a car and the road and therefore improves safety. Superelevation rate standards are based upon the radius of the curve. This curve will not be able to meet the standard superelevation rate of 12 percent required for its radius. This is primarily due to the need to conform to the existing tube.

- Decision Sight Distance – Minimum decision sight distance is needed to allow the driver of a vehicle, traveling at the posted 45 miles per hour in the Posey Tube, time to select the appropriate path and complete the maneuver safely. The decision sight distance approaching the Posey Tube to 5th Street connection is approximately 130 feet. A 675-foot minimum is required by standard for a posted speed of 45 miles per hour.
  ***375 ft minimum is required by standard for a design speed of 25 miles per hour.*

- Design Speed – Design speed is the speed that drivers are likely to expect on a given highway facility. The geometric features of a roadway are to correlate with the Design Speed. Due to its sharp radius, the curve of the Posey Tube to 5th Street connection is a 20-mile per hour curve and does not meet the design speed. Minimum 25 miles per hour is required by standard.

- Superelevation Runoff – Superelevation runoff is the length of pavement rotation approaching a curve. The superelevation runoff within Posey Tube is 0 foot. 160 feet is required by standard.

- Vertical profile – Vertical profile provides a 25-mile per hour design speed at the Posey Tube to 5th Street connection.

In addition to the design aspects described above, deceleration length is needed for the driver of a vehicle, traveling at the posted 45 miles per hour in Posey Tube, to slow down to the appropriate speed before entering the Posey Tube to 5th Street connection. The maximum deceleration length at the mouth of the Posey Tube before the connection would be 65 feet; 316 feet is required. Therefore, the deceleration must take place within the tube. This will result in speed differential between the adjacent lanes of up to 25 miles per hour.

<u>Environmental Issues</u>

- Historic Posey Tube – The Posey Tube is a historically significant structure that was initially conceived of in 1908 and finally opened to traffic in 1928. The Posey Tube replaced the Webster Street Drawbridge that was constructed in1871. The proposed 5th Street connection ramp will have impacts to this historic resource, in part by eliminating the south side retaining wall and barrier of the Posey exit. It is anticipated that a Finding of Effect report and Memorandum of Agreement will be required for the likely adverse effect to the national Register eligible resource.

- Water Quality – Groundwater will be encountered during construction at the exit of Posey tube. This will need to be pumped and treated during construction. It is possible that contaminants will be encountered. The volume of water that will be pumped may be enough to cause underground plumes to travel.

Right-of-Way Issues

- Property Acquisition – The Posey Tube to 5th Street connection encroaches to the commercial property at the corner of 5th Street. The property will need to be acquired.

- Loss of Access – The commercial building that is located at the corner of 5th Street and Alice will lose its access from 5th Street due to the realignment of the I-980 westbound off-ramp to Jackson Street.

- Access to Pulte Condominiums – The Pulte building is a recently constructed condominium complex that is bordered on three sides by 4th Street, Alice Street, and 5th Street. All vehicular access to the Pulte building is via an entrance on 5th Street. 5th Street is currently a one-way street in the southbound direction. 5th Street is accessed from westbound Alice Street.

  The new 5th Street connection and realigned I-980 Northbound off-ramp encroach into the existing space available for vehicles to enter and exit the building. The alignments reduce the area available for local road circulation; circulation must be maintained from Alice Street to 5th Street for vehicles to enter the Pulte building.

  Vehicles leaving the Pulte building will not be able to turn left at Jackson Street due to the new intersection & signal configuration that would be required. Impacts to the Pulte vehicular access including the reduced space for accessing the building on 5th Street, and the preclusion of turning left on Jackson Street, may affect the value of the property.

Construction Issues

- Reconstruction of Boat Section – The existing exit from the Posey tube is below sea level. As such, the roadway and retaining walls are subject to hydrostatic pressure. The original roadway and walls were designed as a boat section (i.e., the walls and roadway were designed and constructed as a single structural unit—a boat). The boat section resists the hydrostatic pressures by structural piles that hold the roadway down and the walls in place. To construct the new 5th Street connection, the south retaining wall will need to be removed. The roadway will need to be widened and a new retaining wall constructed. This new roadway and retaining wall must also function as features of the boat section. This will be a complicated and costly construction effort due, in part, to the groundwater that will seep in during construction; the groundwater will need to be pumped out and treated continuously during construction.

- New standard retaining walls – Because of the reconstruction of the Jackson Street off-ramp, the existing retaining wall at the off-ramp will have to be removed. New retaining

walls will be required for the off-ramp along 5th Street to south of Alice; walls will also be required for the new 5th Street connection until it rises to the level of 5th Street.

- Tie-Back Walls – To place the traffic destined for Northbound I-880 underneath I-880, a new tie-back wall will be required in front of the existing I-880 north-side abutment at Jackson Street.

Traffic Issues

- Elimination of parking – The alternative proposes modifying 5th Street between Harrison to Jackson from a three-lane street to a four-lane street. Existing public parking in front of the Pulte building from Harrison to Jackson will be eliminated to provide room for the additional lane.

- Potential Reduction in capacity of Posey Tube – Harrison Street between the Posey Tube and 7th Street is currently a two-lane street that contains mixed traffic to Oakland and I-880. Under this proposed alternative, traffic will split inside the Posey Tube. Traffic going to I-880 will take the Posey Tube to the 5th Street connection, while the Oakland traffic will stay on Harrison Street. If the traffic split is not 50/50, one lane will be underutilized, thereby reducing the overall capacity of the tube.

- Reduction of Speed within Posey Tube – Reduction of the speed limit within the Posey Tube was considered in an effort to reduce or eliminate some of the safety concerns associated with the speed differential of the tube and the 5th Street connection; the posted speed within the tube is 45 miles per hour, and the design speed of the 5th Street connection is 20 miles per hour.

  However, the speed limit of a facility is set based upon the typical speed that vehicles travel along the particular stretch of roadway. The speed is usually set for the 85th percentile of drivers. Simply reducing the speed limit within the tube may not change driver behavior, and is not consistent with current policy. Another consideration was to introduce features such as rumple strips to slow traffic within the tube. These were found to be a safety concern.

A meeting was held with Caltrans' Headquarters Geometrician, The City of Alameda, and Caltrans to discuss the opportunities and constraints for Caltrans' approval of the Posey Tube to 5th Street Connection. Caltrans stated that the geometry of the connection was not acceptable if the posted speed within the Tube is 45 miles per hour (as it currently is), because the proposed connection only meets the 25-mile per hour standards. Caltrans' Geometrician stated that if it is possible to slow traffic to 25 miles per hour within the Tube, the proposed connection may be acceptable with respect to geometry. However, this reduction must be demonstrated in actuality, as a pilot project.

Options to slow down traffic within the tunnel were explored. Dowling Associates, Inc. prepared a white paper summarizing the potential options and traffic control devices for slowing traffic in

the tunnel. The paper ranked two options as having a high level of applicability to the tunnel/tube environment: the combination of rumble strips, signage & flashers, and Speed RADAR signs.

A subsequent meeting was held on July 18th, 2007 with the Caltrans' Traffic Safety, Traffic Operations, and Ramp Metering functional units and the City of Alameda to discuss the findings of the white paper. Caltrans provided specific feedback at this meeting:

- Reducing the speed of through traffic to accommodate the traffic turning onto the proposed connector ramp is not conventional.
- Adding a meter (signal) at the midway point of the tunnel would still allow some drivers to accelerate enough after the meter to approach the proposed connector ramp at a high speed.
- As a minimum, two signal warrants must be met in order for a signal to be installed.
- Traffic enforcement would not be possible.
- Metering traffic would restrict traffic flow to 900 vph/lane; this may cause backups in Alameda; there is a possibility that the net travel time from Alameda to the freeway may actually go up.
- The internal diameter of the tunnel would not allow for installation of ramp meters or signals.
- Rumble strips/grooves do not appear to be a feasible traffic slowdown mechanism in this particular situation.
- In general, slowing traffic in the tube appears not to be feasible. The Posey Tube connector ramp alternative is not acceptable given the field situation. A safer alternative that still meets the need and purpose of the study should be considered.

Study Feature No. 3 - Pedestrian Overcrossing/Traffic System Management/Context Sensitive Solutions for the Harrison Street/7th Street/Jackson Street Loop

This feature was developed to reduce/eliminate the conflict between pedestrians and vehicles at the intersection of Harrison Street and 7th Street – Dowling & Associates' initial traffic analysis concluded that one of the primary causes of congestion for vehicles leaving the Posey Tube is the conflict between vehicles turning right onto 7th Street and pedestrians crossing the street. This feature consists of three distinct sub-features, which work together to accommodate pedestrian access to/from the Hong Lok Senior Center. These sub-features are:

Pedestrian Overcrossing Across 7th Street at the 7th/Harrison Streets Intersection

This pedestrian overcrossing would span 7th Street, from an existing parking lot at the SE corner of the Harrison/7th intersection to the Hong Lok Senior Center and would be designed to ADA standards. The overcrossing would function as the northerly pedestrian access point to/from the Senior Center, replacing the existing at-grade crosswalk at the corner of Harrison and 7th Streets, and effectively eliminating the current pedestrian/vehicle conflict at the

intersection. The overcrossing structure would have minimal impacts on the existing roadway and adjacent residential properties on 7th Street and would therefore be cost-effective.

Traffic System Management (TSM)

This sub-feature would signalize the existing crosswalk across 7th Street (at Alice Street), along with TSM features to stabilize traffic flows and speeds through the Harrison Street/7th Street/Jackson Street Loop. The new crosswalk would function as the southerly pedestrian access point to/from the Senior Center. This solution would simply 'shift' the signalized at-grade crosswalk from its current location at Harrison/7th to the new location at Alice/7th. However, the new location would allow vehicles to approach the signalized crosswalk along a conventional 'tangent' section (instead of the current curve at the Harrison to 7th turn-pocket), which would potentially reduce the number of pedestrian/vehicle conflicts.

Context-Sensitive Solutions (CSS)

A context-sensitive solution was developed for 7th Street that would meet the transportation needs while enhancing the environment and setting. This sub-feature includes a revised cross-section for 7th Street (between Harrison and Jackson Streets) consisting of: a dedicated lane from the Posey Tube to the existing Jackson Street on-ramp, separated from three through 'local' lanes via a narrow tree-lined median; a bike lane; tree planting; focused crosswalk locations; widened sidewalks; tree bulb-outs; and parking. The solution would meet transportation needs because the tree-lined median would visually and physically separate the dedicated Posey to I-880 lane from the local through lanes, creating an isolated setting for local movement. This isolated setting would encourage pedestrians to cross 7th Street at dedicated crosswalks, and the median island would serve as a crosswalk refuge. The enclosed environment proposed by this solution would also help calm local traffic, potentially encouraging bicyclist and pedestrian use.

This feature is removed from consideration because it does not meet the project purpose and need to improve freeway operations—in particular, the weave on Northbound I-880 between Jackson and I-980. Under this alternative, the Jackson Street on-ramp would remain as the only access ramp from Alameda to Northbound I-880.

Study Feature No. 4 - Pedestrian Overcrossing Only

This feature proposes to construct the pedestrian overcrossing as described above, but without the TSM and CSS features. The feature does not appear to meet the needs of the project because of two reasons:

- Without the TSM feature, there is no access enhancement on the south side of Hong Lok Senior Center. Pedestrians to/from the south would, therefore, still be attracted to the existing at-grade crosswalk at the un-signalized Alice Street/7th Street intersection. The existing pedestrian conflicts remain.

- Pedestrians are less likely to use the overcrossing without the CSS feature. The existing layout of 7th Street has an open setting. That is, the street does not have any physical barrier between the two sides. This setting allows clear visions to the other side of the

street, encouraging pedestrians to take the shortest path, which is crossing the street at-grade.

Study Feature No. 5 - Harrison Street Trench

This feature would lower Harrison Street such that it crosses under the existing crosswalk at the corner of 7th and Harrison Streets. Harrison Street would begin a new, lowered profile 44 meters (144 feet) after exiting the Posey Tube; the road would continue to push down while traversing underneath I-880; then the road would split - the left lane would rise back up to conform to the 7th Street intersection, whereas, the right lane would continue losing elevation until it is grade-separated from the crosswalk; the lowered roadway would then begin rising and conform to existing 7th Street at the far side of the 7th Street/Alice Street intersection.

This feature has several challenges that rendered it infeasible, including:

- Residential properties (Victorian homes) on the north side of Harrison will need to be acquired to accommodate the necessary widening
- A part of the Hong Lok Senior Center right-of-way will be required to accommodate the Harrison widening
- The trench would not reach existing grade until the far side of the Alice/7th intersection; sight distance, weaving, and safety are a concern
- Only one dedicated lane will be available for each movement (straight on Harrison vs. ramp to I-880) – if the future traffic split ends up not being 50/50, capacity within the Posey Tube will be impacted

Study Feature No. 6 - I-980/880 Freeway Solutions

This feature comprehensively evaluated numerous Corridor Solutions for I-880. A key challenge with the current traffic operations on I-880 within the project limits is the weave conflict between the Northbound Jackson Street on-ramp and the Northbound I-880/Eastbound I-980 split. Solutions explored full-blown corridor reconstruction options, as well as options that focused specifically on the elimination of the Jackson on-ramp/Eastbound I-980 weave problem. A variety of permutations of the following concepts were explored:

- Relocate I-980 branch connection south of the Jackson Street on-ramp
- Combine on-ramps or off-ramps
- Relocate the Northbound Jackson Street on-ramp north of Northbound I-880/Eastbound I-980 split
- Widen the Jackson Street on-ramp to two lanes

It was determined that the primary cause of the weaving problem is the insufficient spacing between the Northbound I-880 to Eastbound I-980 connector and adjacent local interchanges, both upstream and downstream of the connector. This creates too many freeway access points within the limited stretch. Therefore, the congestion problem cannot be solved by simply adding

more structures and/or ramps. On the other hand, eliminating existing access ramps to downtown Oakland and Alameda would result in tremendous impacts to established businesses and communities. A table that summarizes all the feaures that have been studied can be found in **Attachment F – Summary Table of All Features Studied To-Date**.

7.0 Community Involvement

The I-880/Broadway-Jackson Interchange Improvements project is sponsored by the City of Alameda, in conjunction with the Alameda CTC. Development of the PSR-PDS has been a highly collaborative effort between Alameda CTC, City of Alameda, City of Oakland, Caltrans, and several other public stakeholders and community advisory committees. Input was received from the various stakeholders during regularly scheduled project-specific Monthly Agency Coordination Meetings, as well as numerous community advisory committee meetings.

Features included in the Build Alternative are consistent with input received from the following community/public stakeholders:

- City of Alameda: The City of Alameda staff has expressed strong support for the proposed project because the project improves access between I-880 and Alameda. The City has been involved with the development of the project for more than 10 years. Most recently, the City sponsored the preparation of the I-880/Broadway-Jackson Interchange Improvements Feasibility Study in 2006. This study serves as the foundation of the geometric features explored in the PSR-PDS. Staff members from the City's Public Works Department were present at each of the eighteen Monthly Agency Coordination Meetings, as well as at three City of Alameda Transportation Commission Meetings.

  During PSR-PDS development, the City of Alameda raised specific concerns about traffic forecasting and operational analysis methodologies and results. These concerns were addressed by inclusion of origin and destination (O&D) studies at several intersections within the City of Alameda, as well as item-by-item comments resolution for the Traffic Forecasting Report and Traffic Operational Analysis Report.

- City of Oakland: The City of Oakland staff has expressed strong support for the proposed project because the project improves local and freeway traffic circulation, as well as corridor capacity in the I-880 Broadway/Jackson area. The City has been involved with the development of the project for more than 10 years. The City's Public Works Department staff was present at each of the eighteen Monthly Agency Coordination Meetings, as well as at several community advisory meetings.

  During PSR-PDS development, the City of Oakland raised specific concerns about traffic forecasting and operational analysis methodologies and results. These concerns were addressed by inclusion of origin and destination (O&D) studies at several intersections and incorporation of future land use data for several upcoming development projects within the City. This was followed by item-by-item comments resolution for the Traffic Forecasting Report and Traffic Operational Analysis Report. Also, a copy of the Traffic Operational Analysis Report was provided to City's Planning and Zoning Division staff in relation the project's bearings on the planned development at 325 7th Street.

  On July 21, 2008, the Build Alternative was presented to Greg Hunter, Deputy Director of Redevelopment & Economic Development for City Oakland Community and Economic Development Agency. On July 23 2008, a similar presentation was made to

Oakland City Councilmember Patricia Kernighan. The project received strong support at both presentations.

- Oakland Chinatown Advisory Committee (OCAC): The proposed project was presented to the OCAC at four different occasions in 2007 and 2008.

  The OCAC raised specific concerns about future congestion at the proposed Webster/6th signalized intersection. Future traffic operations at this intersection were modeled and studied in the traffic reports, and the future LOS was found to be C, an acceptable level of service. These results were presented to members of the OCAC during the July 2008 meeting.

  Also, during a Project Progress Meeting in October 2008, OCAC had the following requests:

  - The 2006 Feasibility Study considered a "Horseshoe" concept to provide a new connection from the Posey Tube to Southbound 5th Street, which should be studied in further detail during the upcoming environmental phase of the project.
  - The feasibility of relocating the Hong Lok Senior Center and any resulting transportation solutions for the area should be investigated.
  - The project should study the following features to control how traffic to / from Alameda utilizes Oakland's surface streets -
    - Metering the traffic exiting the Posey Tube at 7th/Harrison
    - Disallowing peak hour left-turn movement from the NB-880 Broadway off-ramp onto Broadway for vehicles headed to the Webster Tube. These vehicles can be routed past Broadway to turn left on Washington and left again on to 5th leading to the Webster tube entrance.
    - Providing directional signs to encourage Alameda-bound traffic exiting the freeway at the WB-980 Jackson Street off-ramp to utilize 4th Street as the primary access back to the Webster Tube via the tube's Broadway/5th entrance.
  - The proposed 6th Street improvements should consider enhancing bicycle / pedestrian access across the 5th and 6th Street corridors by providing dedicated bike lanes, wider sidewalks, and lighting under the freeway.
  - The project should explore connecting Franklin Street between 5th and 6th, including a dedicated bicycle / pedestrian access if possible.
  - Alameda should explore measures to control its land use to reduce impact of Alameda traffic using Oakland's city streets.

- Alameda CTC should continue working closely with the OCAC on parking challenges within the Jack London Square area.
- The effect of the project on the proposed conversion of several one-way streets to two-way streets within Chinatown should be considered (one-way to two-way street conversion is being studied as a separate project by the City of Oakland).
- There is a concern that the proposed timed signals for the 6th Street corridor improvements may cause traffic backups on cross streets.
- The project should explore (with input from the City of Oakland) "near-term" fixes to help alleviate existing traffic congestion (i.e. directional signs along 4th Street and other types of minor improvements).

The requests above have been included on the public outreach records and will be further studied during the PA&ED phase.

- Jack London District Association (JLDA): The proposed project was presented to the JLDA on October 6, 2008. The JLDA had the following requests:
  - Turning vehicles along Jackson Street, between 5th and 6th Streets, currently block the path of through traffic. Elimination of parking lanes and/or shifting of the sidewalks behind the I-880 bridge columns could open up room for additional through lanes or left-turn pockets in each direction to help with this situation.
  - Additional lighting should be provided under the freeway structures at Jackson Street and Broadway to help pedestrians walking between Jack London Square and the 12th Street BART station feel safe at night.
  - The lowered profile of the proposed Webster Street off-ramp blocks Webster Place, requiring that it be converted into a cul-de-sac at 6th Street. Franklin Street should therefore be "opened up" between 5th and 6th Streets to allow alternate local access from Jack London Square to Chinatown and Downtown.
  - If the existing island blocking through movement along 6th Street at Market is removed, and traffic can continue for another ½-mile along 6th Street to the existing Union Street on-ramp.
  - The proposed Martin Luther King Jr. (MLK) Way off-ramp from Southbound 880 may cause an emissions "hot spot" at MLK and 5th.
  - The existing access ramp from Broadway/5th to the Webster Tube should be eliminated to help ease congestion at the Broadway/5th intersection.

The requests above have been included on the public outreach records and will be further studied during the PA&ED phase.

- West Oakland Project Area Committee (WOPAC): The proposed project was presented to the WOPAC on July 21, 2008. Members of the WOPAC raised concerns that the project did not seem to provide a direct solution to congestion at the Adeline/3rd intersection caused by trucks accessing the Port of Oakland. Alameda CTC and the project team clarified that the Adeline/3rd intersection is not part of the I-880 Broadway/Jackson Interchange Improvements project footprint and was therefore not studied; improvements at this intersection could be studied as a separate project.

- West Oakland Commerce Association (WOCA): The proposed was presented to the WOCA on November 20, 2008. The project team was encouraged to move forward and work with the trucking industry, as well as, other stakeholders to refine the project in a way that would stimulate investments in Oakland. The following specific comments were received:

    - The existing narrow sidewalk inside the Posey Tube is the only pedestrian link between Oakland and northern Alameda. The project team should explore alternatives for additional pedestrian/bike links between the two cities.

    - The existing Market Street off-ramp from Northbound 880 must remain in place since it will serve as a gateway for the future shopping center at 4th /Market.

    - The project team should consider shifting the terminus of the proposed Southbound 880 off-ramp from 5th/Martin Luther King to 5th/Market. The touchdown at Market Street would better serve future developments along 3rd and 4th Streets.

    - The project team should explore possible ways to make 3rd Street an attractive option for travel between Market Street and Broadway.

    - Truck access for Schnitzer Steel along Embarcadero West (in the vicinity of the Port of Oakland) is currently available only via Martin Luther King Way because of turn restrictions at Market / Embarcadero West. The project team should investigate possible ways to facilitate turning movements at Market / Embarcadero West, which would allow more efficient truck access for Schnitzer Steel.

    - The project team should look at the feasibility of providing additional storage lanes on Broadway between 5th and 6th Streets. The additional lane(s) may be feasible if one or both of the sidewalks along Broadway are shifted to the far side of the existing freeway undercrossing structure columns surrounding Broadway.

    - The team should also work to obtain funding allocation from the California Transportation Commission (CTC) for this project.

- Alameda CTC should maintain project communication with local communities by providing regular updates on project progress on its website.

After approval of this PSR-PDS, a Project Report (PR) and Environmental Document (ED) will be prepared by Alameda CTC (formerly ACTIA). During the development of the PA&ED, Alameda CTC will hold additional community meetings to discuss potential improvements and solicit input.

8.0 Environmental Determination/ Documentation

8.1 Environmental Approval

A final Preliminary Environmental Assessment Report (PEAR) was prepared for this project by CirclePoint in February, 2011 to identify environmental constraints associated with the project (**Attachment L – Preliminary Environmental Assessment Report**). This project is not expected to have significant social or economic impacts, but could potentially have significant environmental impacts. Caltrans is to be the California Environmental Quality Act (CEQA) lead agency for this project with ACTC providing necessary support.

Environmental issues that may be associated with the project include the likely presence of hazardous materials (in project area soils or existing structures), community impacts during construction, noise levels in excess of local standards, the potential to encounter prehistoric or historic era artifacts during excavation, and potential carbon monoxide hotspots around the freeway corridor. The project would demolish several historic resources that may qualify for Section 4(f) protection. Environmental documentation for the project is anticipated to require preparation of an Initial Study and Complex Environmental Assessment (IS/EA). Preparation of environmental technical reports would be required, including:

- Community impact analysis
- Air quality technical report
- Greenhouse gas analysis
- Noise impact analysis
- Visual impact assessment
- Hazardous waste (Phase II soils sampling and potentially a remediation plan)
- Cultural (archaeological) resource evaluation
- Historical resource studies
- Section 4(f) Evaluation (pending Historic resource studies)

Preparation of the IS/EA, including technical studies, is anticipated to take 24 to 36 months, after receiving information necessary to begin the environmental analysis (per the Felker Memorandum). The Build Alternative would not require a Section 404 permit or Section 7 consultation given that no sensitive biological resources or waters of the US are present within the project area. The Build Alternative would require a Regional Water Quality Control Board permit (401), which would require preparation and adoption of a Storm Water Pollution Prevention Plan. The removal of trees in the project area may also require a permit from the City of Oakland should the trees be defined as "protected trees" under the Protected Trees Ordinance, Chapter 12.36 of the Oakland Municipal Code.

9.0 Funding

Two primary funding sources have been identified to date for project development activities: 1) Funding from the State Transportation Improvement Program (STIP) Regional Improvement Program (RIP); and 2) Funding from the Alameda County Measure B ½-cent Sales Tax Program.

The 2008 Report of STIP Balances County and Interregional Shares (i.e. the "Orange Book") prepared by the California Transportation Commission (CTC) shows $3.245 million of STIP-RIP funding in prior fiscal years, separated between the Environmental and Permits (E&P) component and the Plans, Specifications and Estimates (PS&E) component. The Orange Book shows $2.125 million in prior years for E&P, and $1.120 million in prior years for PS&E.

The current Strategic Plan for the Measure B Program, the 2010/2011 Strategic Plan shows a total Measure Commitment for the project of $8.101 million. Based on existing encumbrances and expended to date amounts, more than $5 million of Measure B funding will remain available for subsequent project phases following the approval of this PSR/PDS.

The funding currently identified likely be sufficient to perform the technical studies and preliminary engineering required to secure environmental approval for the project. Approval of PSR/PDS will provide opportunities to program additional funds for the next PA&ED phase, if currently available funds are not sufficient to complete the tasks.

Additional funding for subsequent phases, including for the construction capital cost will be pursued during the Preliminary Engineering/Environmental Document phase of the project while a more detailed project description and project financial plan are being developed. Potential sources for additional project funding include state, federal, regional and local sources such as future STIP shares, federal funds distributed via formula or earmark, and funding from infusions of transportation funding authorized by legislation such as bond programs and/or local measures.

TABLE 13 – Estimated Annual Capital Outlay (in millions)

Fiscal Year	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16	2016/17
Support Expenditures							
PA&ED	$1.0	$1.50					
PS&E			$5.05	$5.05			
R/W				$0.40			
Construction					$3.37	$3.37	$3.37
Capital Expenditures							
R/W				$15.5			
Construction					$29.67	$29.67	$29.67
Total	$1.0	$1.50	$5.05	$20.95	$33.04	$33.04	$33.04

Note: Estimates have been escalated by 5% per year.

TABLE 14					
	PROJECT SUPPORT COMPONENTS				
	PA&ED 0 Phase		Design 1 Phase		Total
	Dist	DES	Dist	DES	
Estimated PY's	4.48	0.24	3.28	0.58	8.58
Estimated PS $'s	669010	35210	489750	86430	1280400
Estimated PYE $'s ($1000's)					
Total $'s	669010	35210	489750	86430	1280400

The construction cost estimates for each feature of the Build Alternative are included in **Attachment H – Preliminary Project Cost Estimates**.

A Cooperative Agreement is necessary for this project to document the roles and responsibilities of Caltrans, Alameda CTC, and other funding agencies and define what work will be performed, by whom, how it will be paid for, and on what schedule it will be completed. A draft cooperative agreement is included in **Attachment O – *Draft* Cooperative Agreement**. A final cooperative agreement will be provided once all the funding sources have been identified.

10.0 Schedule

TABLE 15 Schedule	
HQ Milestones	**Delivery Date (Month and Year)**
Begin Environmental	April 2011
Notice of Intent (NOI)	July 2011
Circulate DED	November 2012
PA&ED	June 2013
Begin Right-of-Way Acquisition	July 2013
End Right-of-Way Acquisition	January 2015
Project PS&E	June 2015
Right-of-Way Certification	June 2015
Ready to List	October 2015
Approve Contract	February 2016
Contract Acceptance	September 2017
End Project	December 2017

11.0 FHWA Coordination

This Report has been reviewed by Lahn Phan, Transportation Engineer reviewing on October 5, 2009. Per SAFETEA-LU, this project is eligible for federal-aid funding and is considered to be STATE-AUTHORIZED under current FHWA-Caltrans Stewardship Agreements.

A copy of the unsigned Project Report will be submitted to FHWA as a requirement for requesting federal "engineering and operational acceptability" determination. The project Build Alternative includes new on and off-ramps as well as modification to an existing off-ramp. Federal "engineering and operational acceptability" determination will be sought prior to circulation of the environmental document. In addition, "Final Approval" from FHWA must be obtained prior to approval of the environmental document.

12.0 Other Considerations

12.1 Freeway Agreement and Maintenance Agreement

A freeway agreement is necessary to document the understanding between Caltrans and the City of Oakland relating to the planned traffic circulation features of the proposed facilities. A separate maintenance agreement between these two agencies is also needed to define the maintenance responsibility for the modifications to the local streets located within the state right-of-way.

During the PA&ED phase, the current freeway and maintenance agreements will be reviewed. If determined necessary, the current agreements will be amended or new agreements will be provided.

12.2 Value Analysis

All projects on National Highway System are mandated to perform a Value Analysis (VA) Study per SAFETEA-LU if the total project cost exceeds $25M. A VA study will be performed during the PA/ED phase.

12.3 Life Cycle Cost Analysis

A Life-Cycle Cost Analysis (LCCA) is not conducted due to some design parameters are not available at this phase or may change as the design advances. In lieu of this analysis, a conservative pavement cost using Portland Cement Concrete (PCC) as the pavement section is assumed for the recommended alternative. The district has occurred to defer the analysis to the PA&ED phase per Pavement Policy Bulletin 10-04 "Deferral of Life Cycle Cost Analysis", based upon a higher initial cost for pavement is used. A LCCA will be completed prior to the PA&ED delivery date. Updated traffic forecast and operational analysis will be necessary to provide the required design parameters for the LCCA.

12.4 Title VI – ADA Requirement

The proposed modification to several local intersections will include improving the existing pedestrian/bike facilities to meet current ADA requirements. Details about the improvement will be studied in the PA&ED phase.

13.0 Project Contacts

Department District 4	
Stanley Gee, Project Manager	510-286-4935
ACTC	
Art Dao, Executive Director	510-267-6104
James O'Brien, Project Manager	510-267-6114
City of Alameda	
Barbara Hawkins, City Engineer	510-749-5863
Obaid Khan, Supervising Civil Engineer	510-749-5926
City of Oakland	
Wladimir Wlassowsky, Supervising Civil Engineer	510-238-6383
Ade Oluwasogo, Supervising Transportation Engineer	510-238-6103
Kimley-Horn and Associates, Inc.	
Kenneth Chan, Project Manager	925-398-4840
Marty Beene, Traffic Dowling Associates, Inc.	510-839-1742
Scott Steinwert, Environmental CirclePoint	415-227-1100
Gary Parikh, Geotechnical Geotechnical – Parikh	408-945-1011
Steve Castellano, Right-of-Way Associated Right of Way Services, Inc.	925-691-8500
Guoping Xu, APS MGE Engineering, Inc.	916-421-1000

14.0 Project Reviews

Constructability Review	Stuart Rucker Date 02/01/2010
HQ Design Coordination	Gordon Brown Date 02/01/2010

15.0 Attachments

A. Vicinity Map
B. Key Map
C. Build Alternative - Layouts
D. Build Alternative - Profiles
E. Build Alternative - Typical Sections
F. Summary Table of Features Studied To-Date
G. Structures Advanced Planning Study (APS) - Structural and Staging Plans (Complete APS in the project files)
H. Preliminary Project Cost Estimates
I. Right-of-Way Data Sheet
J. Storm Water Data Report (Cover Sheet)
K. Transportation Management Plan Data Sheet
L. Preliminary Environmental Assessment Report
M. Risk Management Plan
N. Port of Oakland Truck Access Map
O. Draft Cooperative Agreement
P. ACTC Letter to CT
Q. Pavement Strategy Checklist

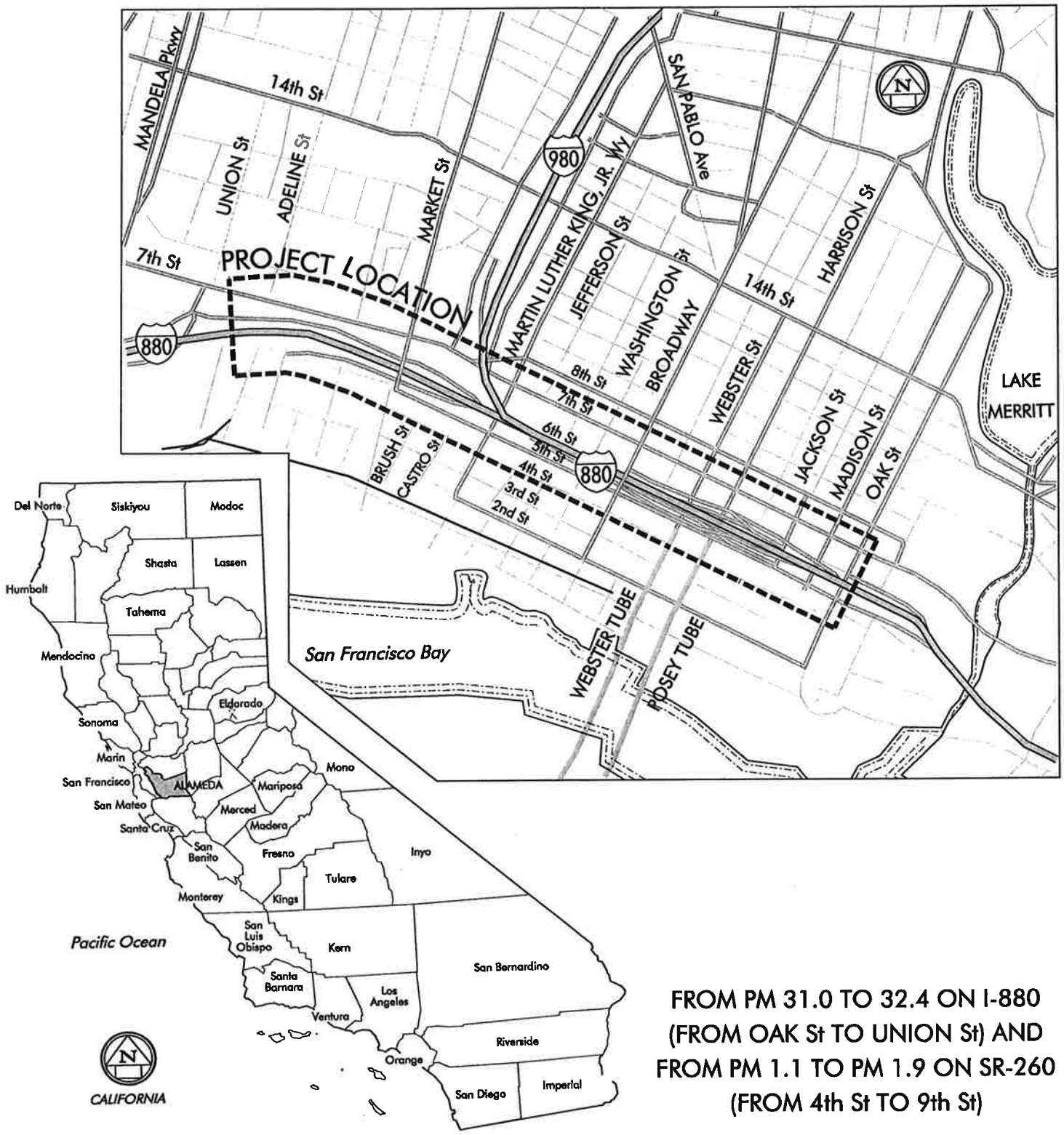
04-ALA-880 PM 31.0/32.4
04-ALA-260 PM 1.1/1.9
Program Code 20.30.600.624
EA 04-0G360K
March 2011

I-880/Broadway-Jackson Interchange Project

PSR-PDS

Attachment A

Vicinity Map



FROM PM 31.0 TO 32.4 ON I-880
(FROM OAK St TO UNION St) AND
FROM PM 1.1 TO PM 1.9 ON SR-260
(FROM 4th St TO 9th St)

Vicinity Map

Kimley-Horn and Associates, Inc.

04-ALA-880 PM 31.0/32.4
04-ALA-260 PM 1.1/1.9
Program Code 20.30.600.624
EA 04-0G360K
March 2011

I-880/Broadway-Jackson Interchange Project

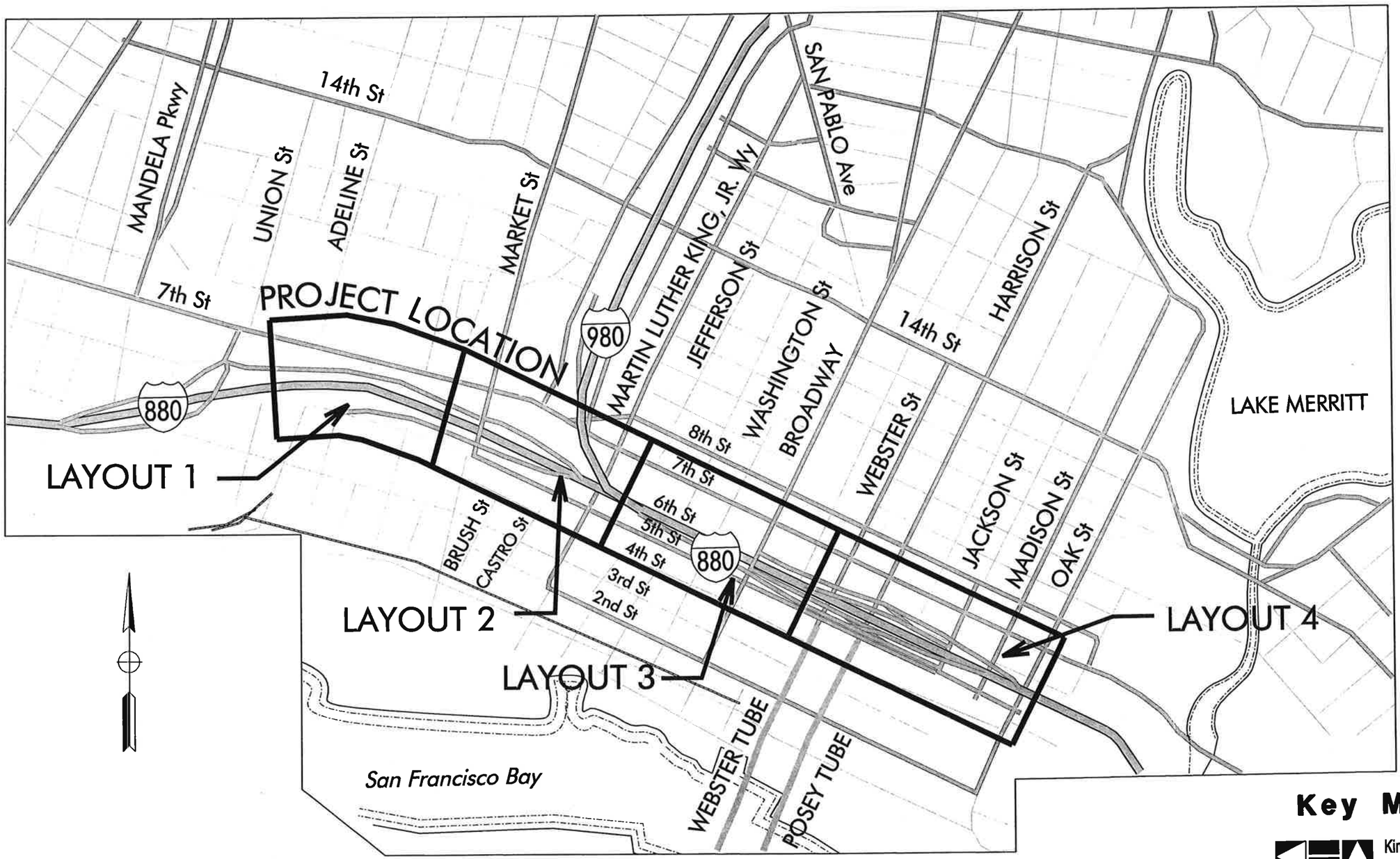
PSR-PDS

Attachment B

Key Map

Broadway-Jackson PSR-PDS

December 2010



Key Map

Kimley-Horn and Associates, Inc.

04-ALA-880 PM 31.0/32.4
04-ALA-260 PM 1.1/1.9
Program Code 20.30.600.624
EA 04-0G360K
March 2011

I-880/Broadway-Jackson Interchange Project

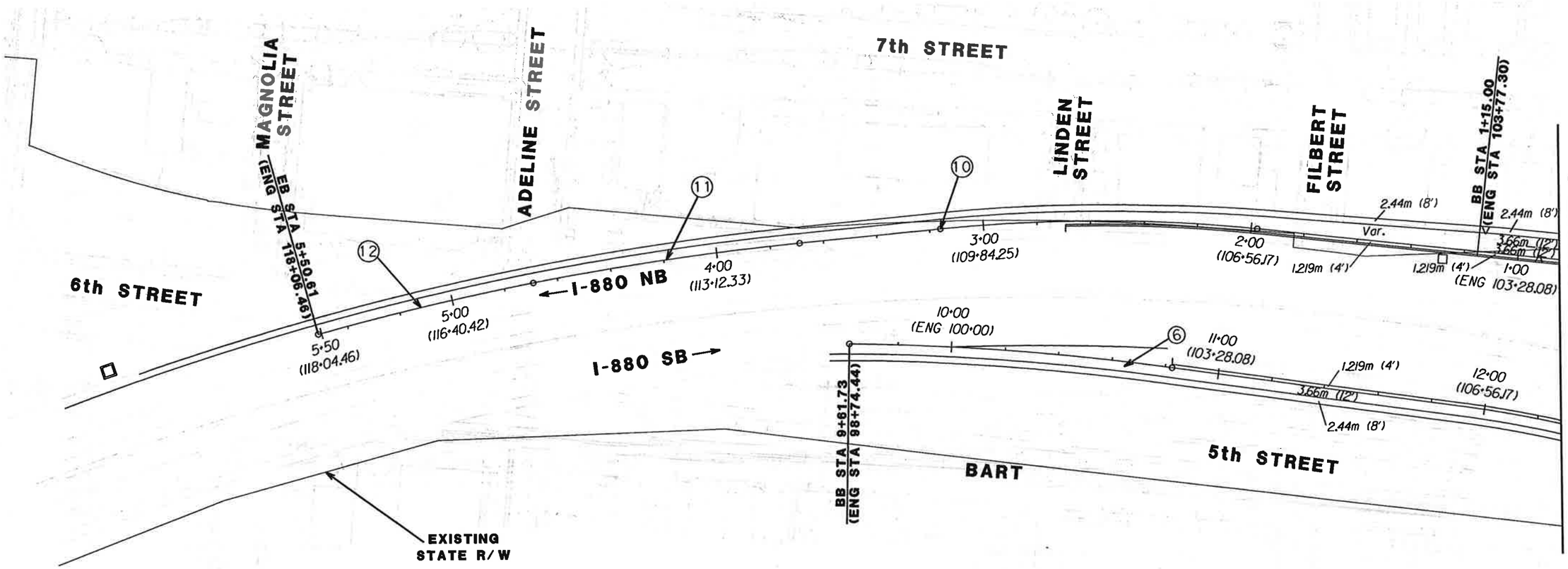
PSR-PDS

Attachment C

Build Alternative – Layouts

Broadway-Jackson PSR-PDS

December 2010



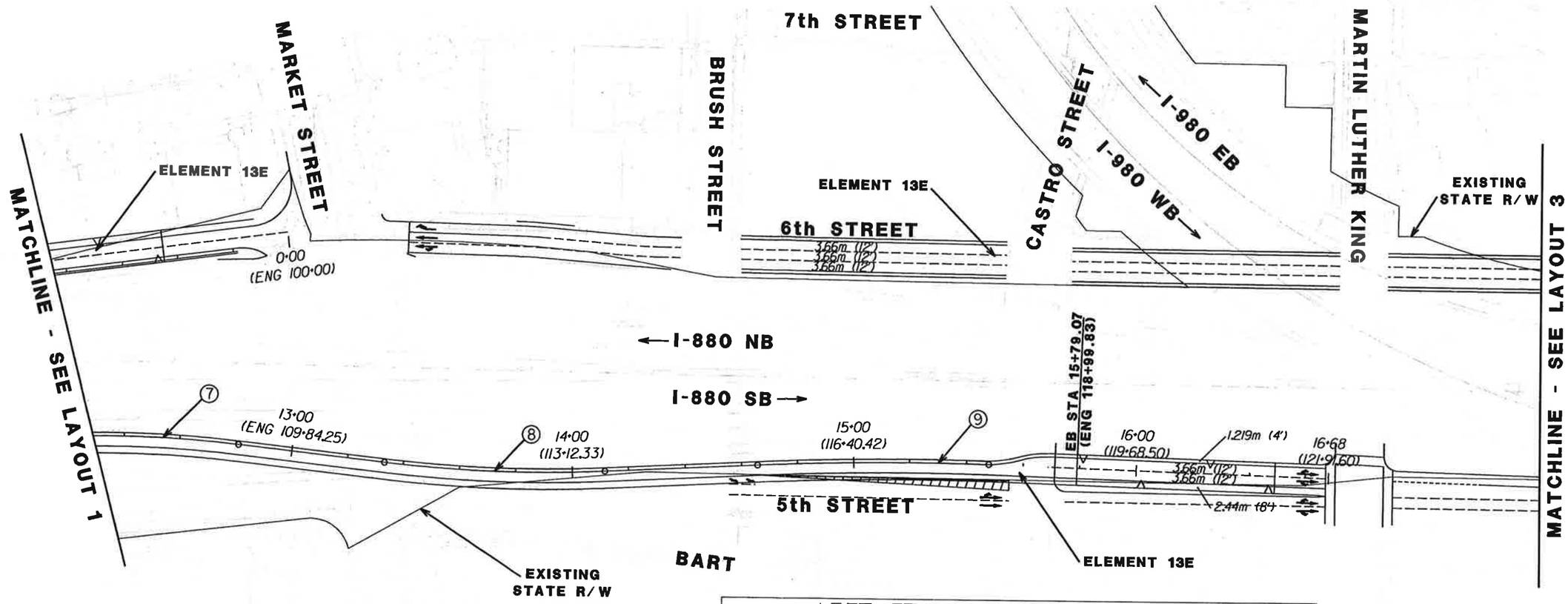
LEFT ETW DATA - MARKET ST ON-RAMP			
NO.	DELTA OR BRG.	RADIUS	LENGTH
	N71°04'06"W		197.72m(648.7')
(10)	Δ=11°40'44"	580.00m(1902.9')	118.22m(387.9')
	N82°44'50"W		52.97m(173.8')
(11)	Δ=5°40'25"	1011.60m(3318.9')	100.17m(328.6')
(12)	Δ=4°38'15"	1008.79m(3309.7')	81.07m(266.0')

Layout 1

Kimley-Horn and Associates, Inc.

Broadway-Jackson PSR-PDS

December 2010



LEFT ETW DATA - MLK OFF-RAMP			
NO.	DELTA OR BRG.	RADIUS	LENGTH
⑥	Δ=5°08'28"	920.00m(3018.3')	82.55m(270.8')
	N69°22'31"W		109.48m(359.2')
⑦	Δ=12°15'06"	416.00m(1364.8')	88.95m(291.8')
	N57°07'25"W		52.18m(171.2')
⑧	Δ=9°12'53"	487.68m(1600.0')	78.43m(257.3')
	N66°20'18"W		54.11m(177.5')
⑨	Δ=5°00'09"	1003.60m(3292.6')	87.62m(287.5')
	N61°20'09"W		15.31m(50.2')
	N61°20'09"W		99.56m(326.6')

0m 20m 40m 60m 80m 100m

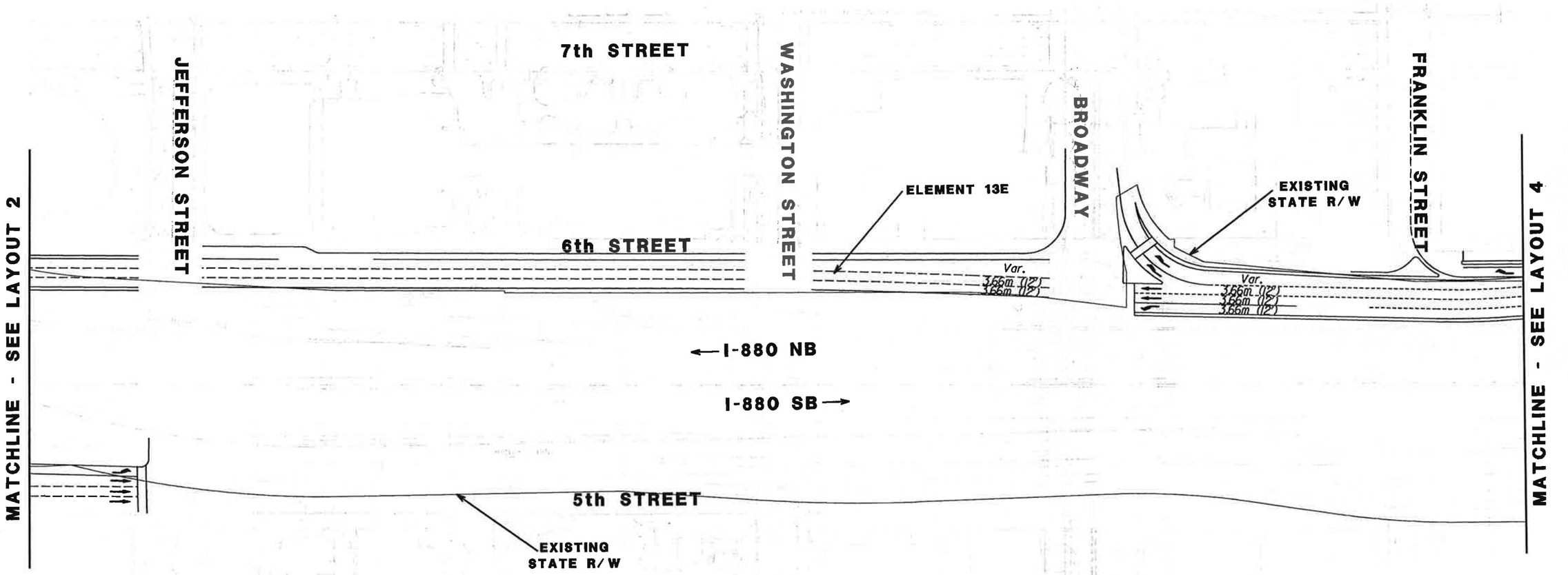
0' 100' 200' 300'

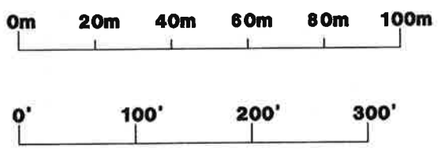
Layout 2

Kimley-Horn and Associates, Inc.

Broadway-Jackson PSR-PDS

December 2010



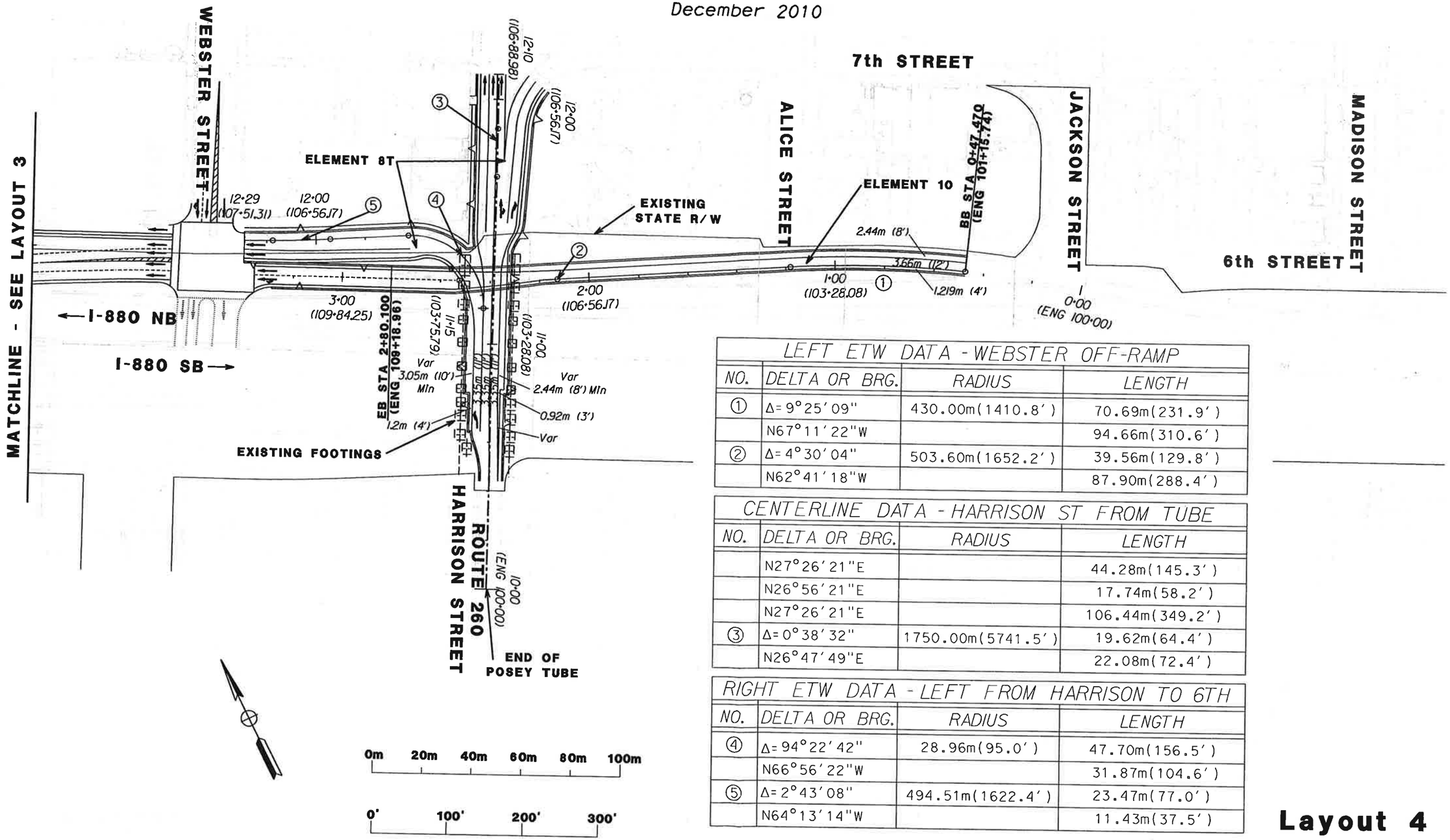


Layout 3

Kimley-Horn and Associates, Inc.

Broadway-Jackson PSR-PDS

December 2010



LEFT ETW DATA - WEBSTER OFF-RAMP			
NO.	DELTA OR BRG.	RADIUS	LENGTH
①	Δ=9°25'09"	430.00m(1410.8')	70.69m(231.9')
	N67°11'22"W		94.66m(310.6')
②	Δ=4°30'04"	503.60m(1652.2')	39.56m(129.8')
	N62°41'18"W		87.90m(288.4')

CENTERLINE DATA - HARRISON ST FROM TUBE			
NO.	DELTA OR BRG.	RADIUS	LENGTH
	N27°26'21"E		44.28m(145.3')
	N26°56'21"E		17.74m(58.2')
	N27°26'21"E		106.44m(349.2')
③	Δ=0°38'32"	1750.00m(5741.5')	19.62m(64.4')
	N26°47'49"E		22.08m(72.4')

RIGHT ETW DATA - LEFT FROM HARRISON TO 6TH			
NO.	DELTA OR BRG.	RADIUS	LENGTH
④	Δ=94°22'42"	28.96m(95.0')	47.70m(156.5')
	N66°56'22"W		31.87m(104.6')
⑤	Δ=2°43'08"	494.51m(1622.4')	23.47m(77.0')
	N64°13'14"W		11.43m(37.5')

Layout 4

Kimley-Horn and Associates, Inc.

04-ALA-880 PM 31.0/32.4
04-ALA-260 PM 1.1/1.9
Program Code 20.30.600.624
EA 04-0G360K
March 2011

I-880/Broadway-Jackson Interchange Project

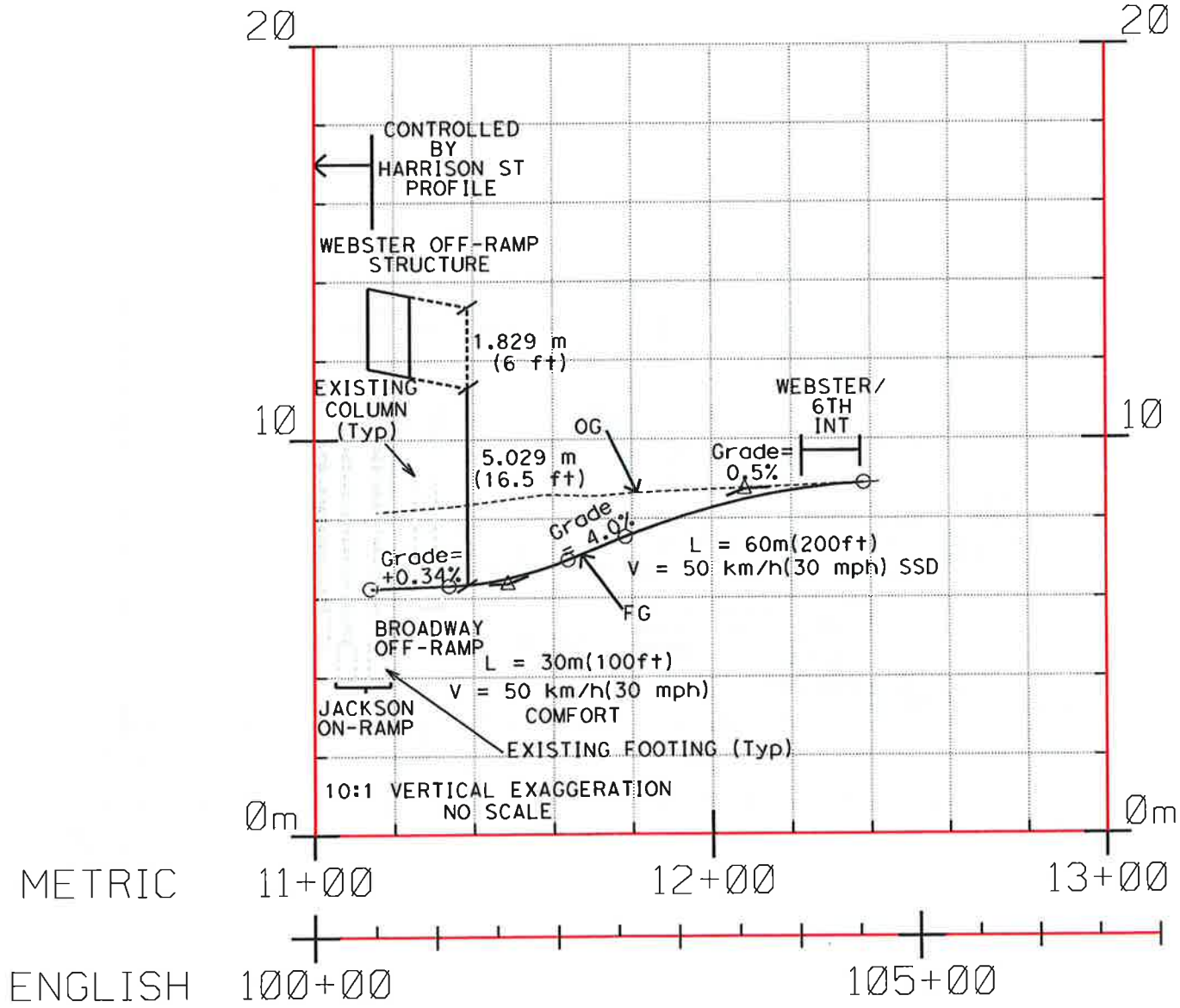
PSR-PDS

Attachment D

Build Alternative – Profiles

Broadway-Jackson PSR-PDS

December 2010

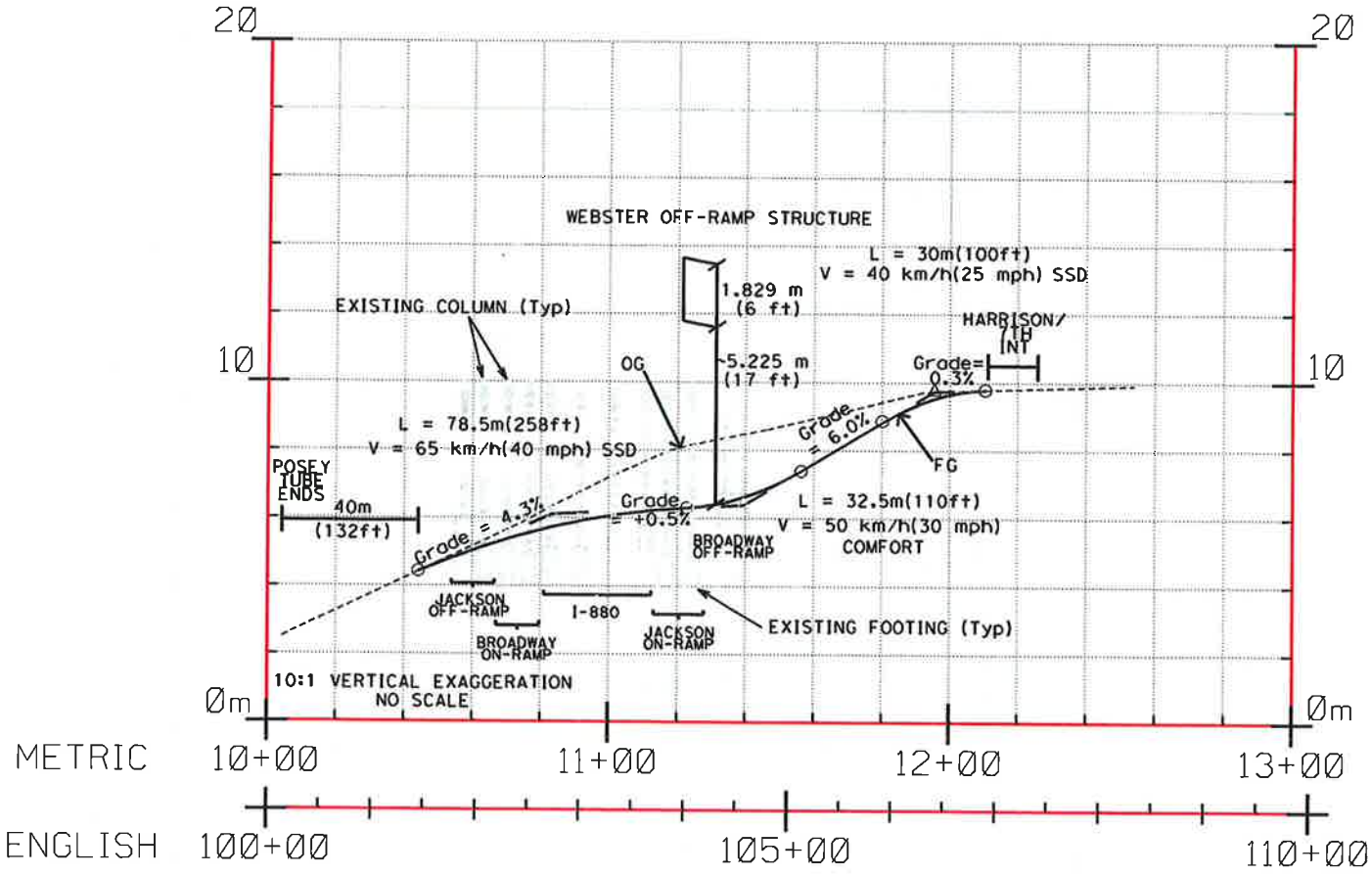


Left Turn from Harrison Street to 6th Street Profile

Kimley-Horn and Associates, Inc.

Broadway-Jackson PSR-PDS

December 2010

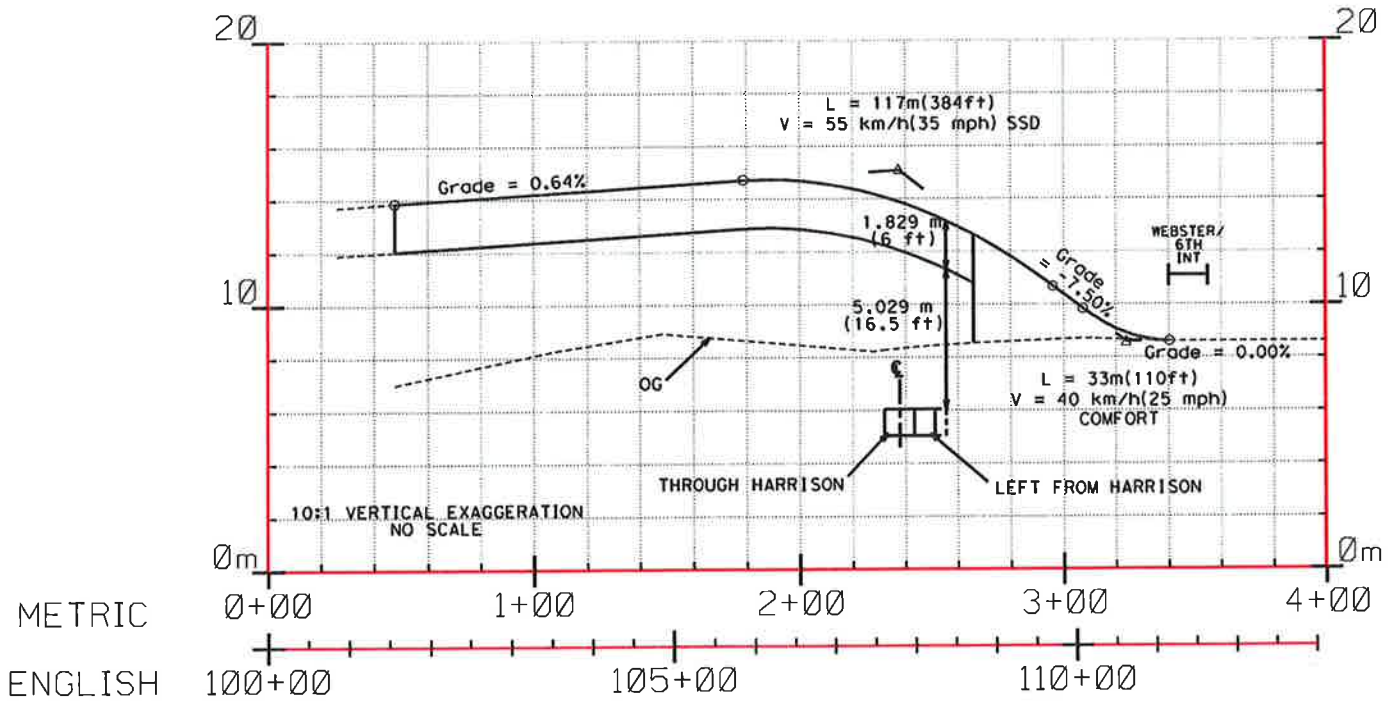


Depressed Harrison Street Profile

Kimley-Horn and Associates, Inc.

Broadway-Jackson PSR-PDS

December 2010

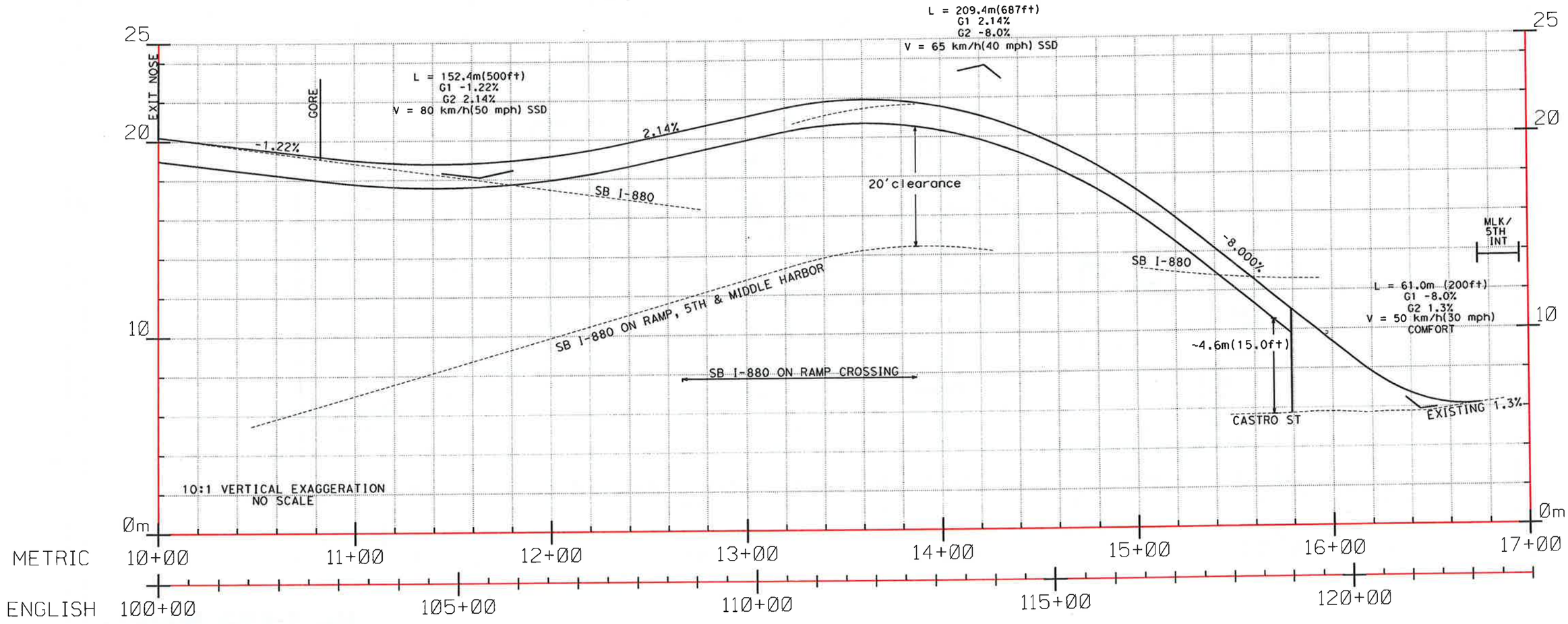


NB I-880 Off-Ramp to Webster Street Profile

Kimley-Horn and Associates, Inc.

Broadway-Jackson PSR-PDS

December 2010

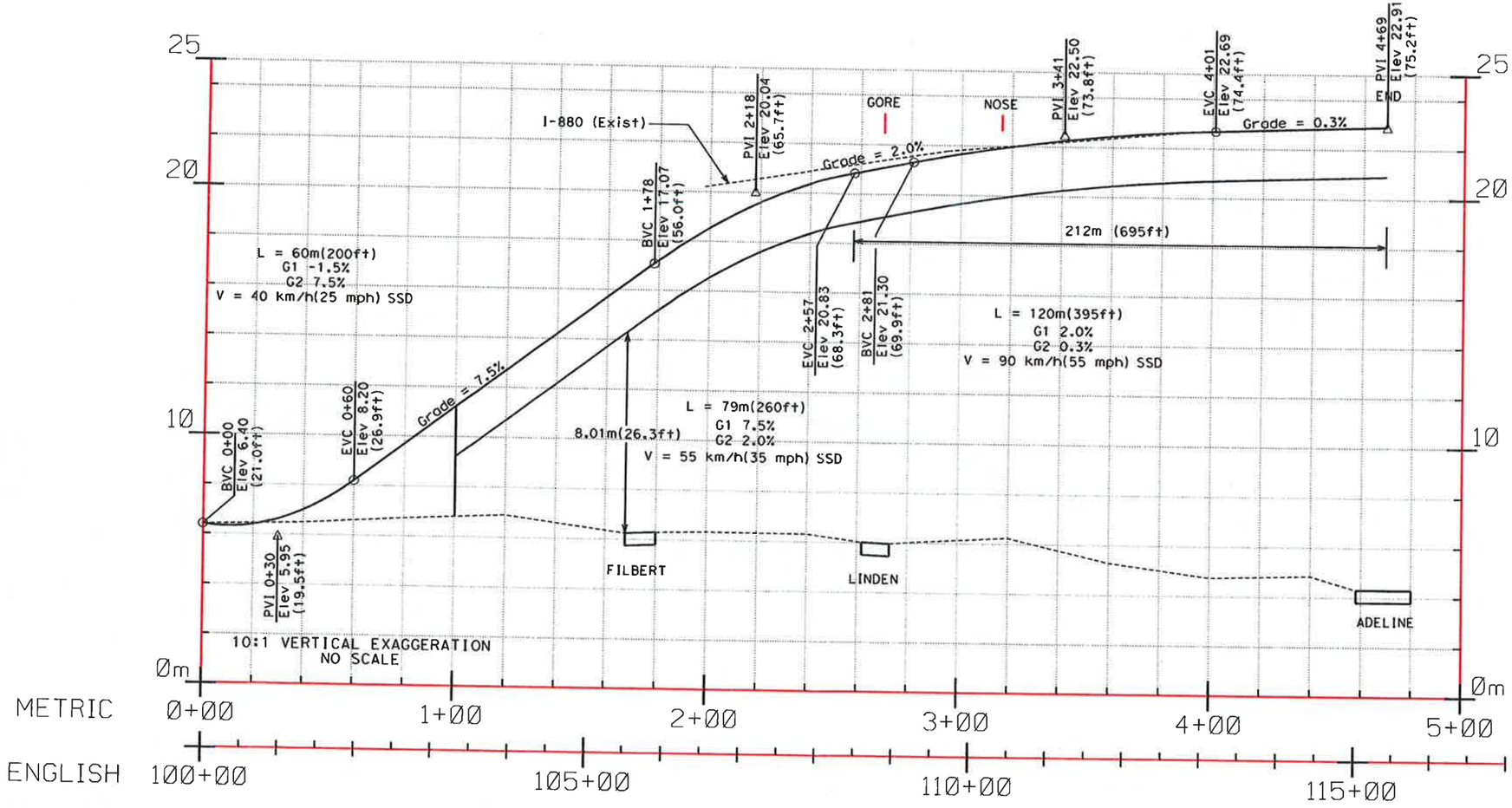


SB I-880 Off-Ramp to MLK Profile

Kimley-Horn and Associates, Inc.

Broadway-Jackson PSR-PDS

December 2010



NB I-880 Market Street On-Ramp Profile

Kimley-Horn and Associates, Inc.

04-ALA-880 PM 31.0/32.4
04-ALA-260 PM 1.1/1.9
Program Code 20.30.600.624
EA 04-0G360K
March 2011

I-880/Broadway-Jackson Interchange Project

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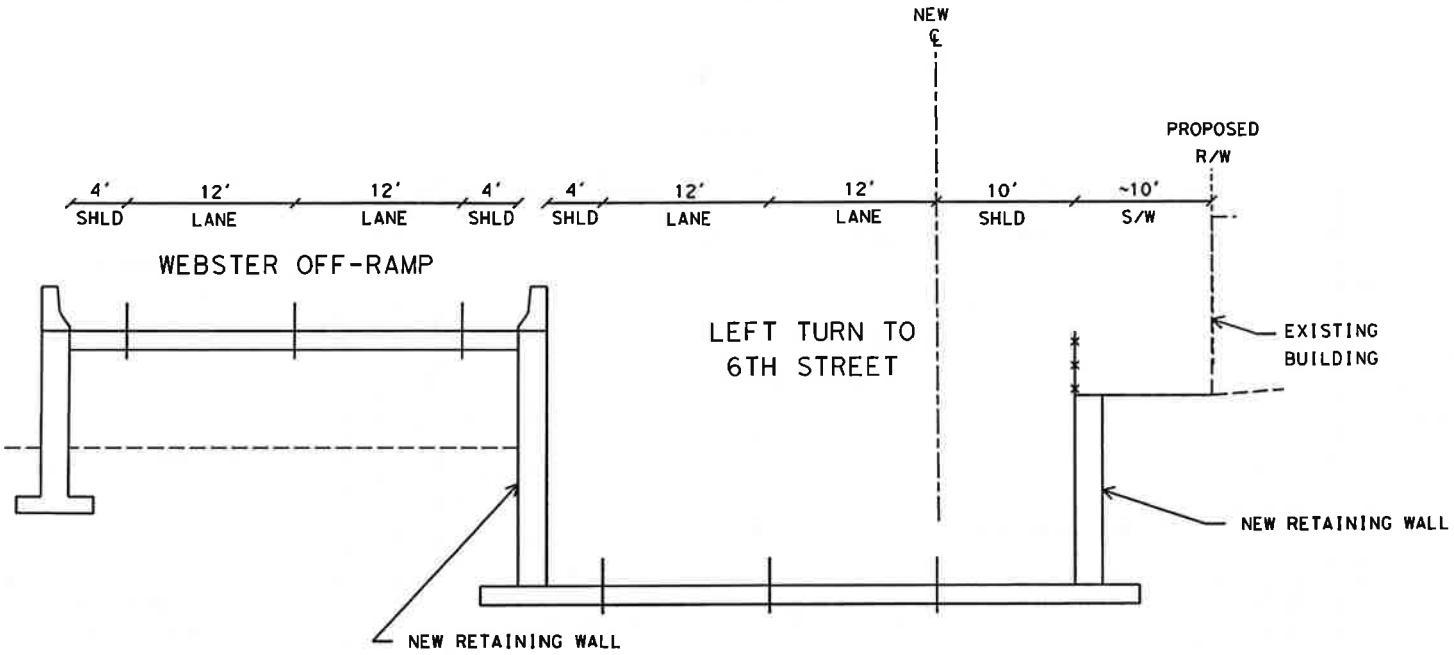
Attachment E

Build Alternative – Typical Sections

Broadway-Jackson PSR-PDS

December 2010



LEFT TURN FROM HARRISON TO 6TH STREET TYPICAL SECTON

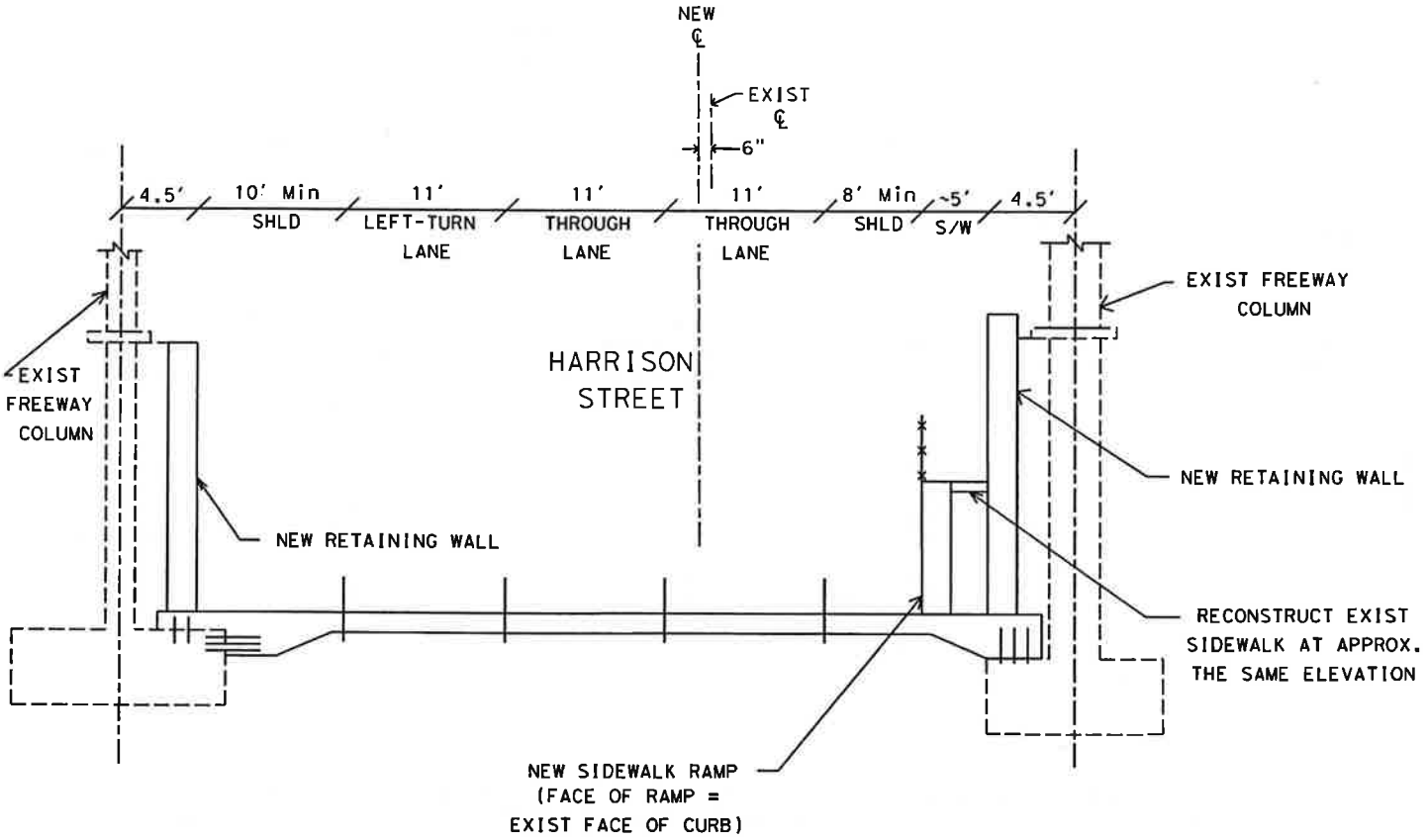
NO SCALE

Left Turn from Harrison to 6th Street Typical Section

Kimley-Horn and Associates, Inc.

Broadway-Jackson PSR-PDS

December 2010



HARRISON STREET TYPICAL SECTION

ROUTE 260

NO SCALE

Depressed Harrison Street Typical Section

Kimley-Horn and Associates, Inc.

04-ALA-880 PM 31.0/32.4
04-ALA-260 PM 1.1/1.9
Program Code 20.30.600.624
EA 04-0G360K
March 2011

I-880/Broadway-Jackson Interchange Project

PSR-PDS

Attachment F

Summary Table of All Features Studied To-Date

I-880 Broadway-Jackson Project
Summary of All Features Studied To-Date

12/9/2010

Legend:
Feature included in build alternative

	FEATURE	Option	Descriptions	Considerations
ACCESS IMPROVEMENTS FROM ALAMEDA TO I-880/I-980 — Posey Tube to Southbound 5th Street Connection & I-880 (Horseshoe)		A	SB Jackson off-ramp shifted next to Pulte Bldg; Single-lane ramp from Posey Tube onto 5th Street; Ramp opens up to three lanes on 5th between SB-880 structure and shifted Jackson off-ramp.	**Design Issues**: Stopping Sight Distance, Superelevation Rate, Decision Sight Distance, Design Speed, Superelevation Runoff, and Vertical Profile **Environmental Issues**: Historic Posey Tube and Water Quality **Right-of-Way Issues**: Property Acquisition, Loss of Access, and Access to Pulte Condominiums **Construction Issues**: Reconstruction of Boat Section, New Standard Retaining Walls, and Tie-Back Walls **Traffic Issues**: Elimination of Parking, Potential Reduction in Capacity of Posey Tube, and Reduction of Speed within Posey Tube
		B	A 2-lane ramp from Posey Tube onto 5th Street to fit between existing SB Jackson off-ramp and Pulte Bldg.	
		C	A 2-Lane ramp from Posey Tube onto 5th St, with the SB Jackson off-ramp eliminated.	
		D	A 2-Lane ramp from Posey Tube onto 5th Street to carry the entire tube traffic; Harrison Street closed at 5th Street; No through movement on Harrison Street between 5th Street and 7th Street; SB Jackson off-ramp eliminated.	
		E	Single-lane ramp from Posey Tube onto 5th Street to fit between existing SB Jackson off-ramp and Pulte Bldg.	
		F	SB Jackson off-ramp shifted next to Pulte Bldg; Single-lane ramp from Posey Tube onto 5th Street; Ramp opens up to two lanes on 5th between SB-880 structure and shifted Jackson off-ramp.	
Posey Tube to 7th Street Connection	Pedestrian Overcrossing / Traffic System Management/ Context Sensitive Solutions	-	Pedestrian overcrossing across 7th Street, from parking lot at the SE corner of the intersection to the Senior Center New signal at crosswalk across 7th Street at Alice Street. TSM Elements to stabilize traffic flow. Dedicated lane from Posey Tube to the NB Jackson Street On-ramp; three through lanes on 7th Street, along with one bike lane, tree planting, focused crosswalk locations, widened sidewalks, bulb-outs, and parking.	Reduces pedestrian conflict while stabalizing traffic flows and speeds. Cost effective; meets ADA requirements. Controls pedestrian flow. Enhances the environment and setting.
	Pedestrian Overcrossing Only across 7th Street	-	Pedestrian overcrossing across 7th Street, from parking lot at the SE corner of the intersection to the Senior Center; without Traffic System Management or Context Sensitive Solutions.	Does not provide pedestrian access improvements to/from the south side of Hong Lok Senior Center; Potential for traffic to travel at excessive speeds (per agency comments).
	Raised Harrison Street	-	Elevate the Harrison Street to 7th Street turn pocket over the 7th Street Crosswalk; Crosswalk to remain at-grade	Extremely steep profile that conforms well past 7th/Alice intersection; impacts on homes along 7th St.
	Harrison Street Trench	-	Lower Harrison Street such that it crosses under the existing crosswalk at the corner of 7th Street and Harrison Street.	Partial right of way takes from the Senior Center & Victorian houses on 7th Street; Potential safety issues associated with the sharp from Harrison Street to 7th Street; Capacity in Posey Tube may be reduced.
	Right turn from Harrison Street onto SB 6th Street	-	Right turn from Harrison Street onto SB 6th Street behind Senior Center, left turn onto Alice Street, then right turn onto 7th Street.	Truck turning criteria not satisfied; Access to residential properties compromised.
	Other Pedestrian Crossing Options	A	Pedestrian overcrossing across 7th Street at the Alice Street intersection.	Significant impacts to property access along Alice Street; overcrossing options place pedestrians too close to residential windows; undercrossing options pose potential safety concerns
		B	Pedestrian undercrossing across 7th Street at the Alice Street intersection.	
		C	Pedestrian overcrossing across Harrison Street; Access through elevators/stairs on the north side, and through a ramp on the south side.	
		D	Same as Element No 7C but with an angled ramp at the south side.	
Depressed Harrison Street to NB 6th Street Connection	Left turn from depressed Harrison Street to NB 6th Street	A	Harrison Street alignment shifted laterally to the right by approximately 6 feet. A single left-turn pocket from Harrison Street to 6th Street starts at the beginning of the alignment shift taper (approximately 130 feet from the end of Posey Tube), and opens up to two lanes on 6th Street. Two NB through lanes from Posey Tube. No encroachments upon the 325 7th Street property.	Future retaining wall on the right side of Harrison Street too close to the existing freeway footings - constructability issues. Insufficient deceleration length between the end of Posey Tube and the beginning of the left-turn curve - deceleration must start inside Posey Tube. Non-standard turn pocket opening. Design speed of the left-turn curve is 20 mph. No sidewalks on Harrison Street between the end of Posey Tube and 6th Street. No Right-of-Way impacts on the 325 7th Street property.
		B	Harrison Street alignment shifted laterally to the right by approximately 6 feet. A single left-turn pocket from Harrison Street to 6th Street starts in the middle of the alignment shift taper (approximately 130 feet from the end of Posey Tube), and opens up to two lanes on 6th Street. Two NB through lanes from Posey Tube. No encroachments upon the 325 7th Street property.	Future retaining wall on the right side of Harrison Street too close to the existing freeway footings - constructability issues. Insufficient deceleration length between the end of Posey Tube and the beginning of the left-turn curve - deceleration must start inside Posey Tube. Standard turn pocket opening Design speed of the left-turn curve is 20 mph. No sidewalks on Harrison Street between the end of Posey Tube and 6th Street. No Right-of-Way impacts on the 325 7th Street property.
		C	Harrison Street alignment remains the same. A single left-turn pocket from Harrison Street to 6th Street starts approximately 130 feet from the end of Posey Tube, and opens up to two lanes on 6th Street. Two NB through lanes from Posey Tube. No encroachments upon the 325 7th Street property.	The future retaining wall on the left side of Harrison Street too close to an existing footing of the freeway. Sufficient deceleration length between the end of Posey Tube and the beginning of the left-turn curve for vehicles to decelerate from 45 mph (posted speed inside Posey Tube) to 16 mph (design speed of the left-turn curve). However, length not sufficient to provide deceleration from 50mph (ASSUMED DESIGN SPEED INSIDE THE POSEY TUBE). Standard turn pocket opening Design speed of the left-turn curve is 16 mph. 5-foot sidewalk on the right side of Harrison Street between the end of Posey Tube and 6th Street. No Right-of-Way impacts on the 325 7th Street property.

I-880 Broadway-Jackson Project
Summary of All Features Studied To-Date

ACCESS IMPROVEMENTS FROM ALAMEDA TO I-880/I-980 (Cont.)

Depressed Harrison Street to NB 6th Street Connection (Cont.)

FEATURE	Option	Descriptions	Considerations
Left turn from depressed Harrison Street to NB 6th Street (Cont.)	D	Harrison Street alignment shifted laterally to the right by approximately 1 foot. A single left-turn pocket from Harrison Street to 6th Street starts at the beginning of the alignment shift taper (approximately 130 feet from the end of Posey Tube), and opens up to two lanes on 6th Street. Two NB through lanes from Posey Tube. No encroachments upon the 325 7th Street property.	The future retaining wall on the left side of Harrison Street too close to an existing footing of the freeway. Sufficient deceleration length between the end of Posey Tube and the beginning of the left-turn curve for vehicles to decelerate from 45 mph (posted speed inside Posey Tube) to 16 mph (design speed of the left-turn curve). However, length not sufficient to provide deceleration from 50mph (ASSUMED DESIGN SPEED INSIDE THE POSEY TUBE). Non-standard turn pocket opening. Design speed of the left-turn curve is 16 mph. 5-foot sidewalk on the right side of Harrison Street between the end of Posey Tube and 6th Street. No Right-of-Way impacts on the 325 7th Street property.
	E	Harrison Street alignment shifted laterally to the right by approximately 6 feet. A single left-turn pocket from Harrison Street to 6th Street starts at the beginning of the alignment shift taper (approximately 130 feet from the end of Posey Tube), and opens up to two lanes on 6th Street. Two NB through lanes from Posey Tube. The left-turn lane encroaches approximately 25 feet upon the 325 7th Street property.	Future retaining wall on the right side of Harrison Street too close to the existing freeway footings - constructability issues. Insufficient deceleration length between the end of Posey Tube and the beginning of the left-turn curve - deceleration must start inside Posey Tube. Non-standard turn pocket opening. Design speed of the left-turn curve is 20 mph. No sidewalks on Harrison Street between the end of Posey Tube and 6th Street. Minimal Right-of-Way impacts on the 325 7th Street property.
	F	Harrison Street alignment shifted laterally to the right by approximately 6 feet. A single left-turn pocket from Harrison Street to 6th Street starts in the middle of the alignment shift taper (approximately 130 feet from the end of Posey Tube), and opens up to two lanes on 6th Street. Two NB through lanes from Posey Tube. The left-turn lane encroaches approximately 25 feet upon the 325 7th Street property.	Future retaining wall on the right side of Harrison Street too close to the existing freeway footings - constructability issues. Insufficient deceleration length between the end of Posey Tube and the beginning of the left-turn curve - deceleration must start inside Posey Tube. Standard turn pocket opening Design speed of the left-turn curve is 20 mph. No sidewalks on Harrison Street between the end of Posey Tube and 6th Street. Minimal Right-of-Way impacts on the 325 7th Street property.
	G	Harrison Street alignment remains the same. A single left-turn pocket from Harrison Street to 6th Street starts approximately 130 feet from the end of Posey Tube, and opens up to two lanes on 6th Street. Two NB through lanes from Posey Tube. The left-turn lane encroaches approximately 25 feet upon the 325 7th Street property.	The future retaining wall on the left side of Harrison Street too close to an existing footing of the freeway. Insufficient deceleration length between the end of Posey Tube and the beginning of the left-turn curve - deceleration must start inside Posey Tube. Standard turn pocket opening Design speed of the left-turn curve is 18 mph. 5-foot sidewalk on the right side of Harrison Street between the end of Posey Tube and 6th Street. Minimal Right-of-Way impacts on the 325 7th Street property.
	H	Harrison Street alignment shifted laterally to the right by approximately 1 foot. A single left-turn pocket from Harrison Street to 6th Street starts at the beginning of the alignment shift taper (approximately 130 feet from the end of Posey Tube), and opens up to two lanes on 6th Street. Two NB through lanes from Posey Tube. The left-turn lane encroaches approximately 50 feet upon the 325 7th Street property.	The future retaining wall on the left side of Harrison Street too close to an existing footing of the freeway. Sufficient deceleration length between the end of Posey Tube and the beginning of the left-turn curve for vehicles to decelerate from 45 mph (posted speed inside Posey Tube) to 20 mph (design speed of the left-turn curve). However, length not sufficient to provide deceleration from 50mph (ASSUMED DESIGN SPEED INSIDE THE POSEY TUBE). Non-standard turn pocket opening. Design speed of the left-turn curve is 20 mph. 5-foot sidewalk on the right side of Harrison Street between the end of Posey Tube and 6th Street. Moderate Right-of-Way impacts on the 325 7th Street property.
	I	Harrison Street alignment remains the same. A single left-turn pocket from Harrison Street to 6th Street starts approximately 130 feet from the end of Posey Tube, and opens up to two lanes on 6th Street. Two NB through lanes from Posey Tube. The left-turn lane encroaches approximately 70 feet upon the 325 7th Street property.	The future retaining wall on the left side of Harrison Street too close to an existing footing of the freeway. Sufficient deceleration length between the end of Posey Tube and the beginning of the left-turn curve for vehicles to decelerate from 45 mph (posted speed inside Posey Tube) to 22 mph (design speed of the left-turn curve). However, length not sufficient to provide deceleration from 50mph (ASSUMED DESIGN SPEED INSIDE THE POSEY TUBE). Standard turn pocket opening Design speed of the left-turn curve is 22 mph. 5-foot sidewalk on the right side of Harrison Street between the end of Posey Tube and 6th Street. Heavy Right-of-Way impacts on the 325 7th Street property. The Harrison-6th Street connection joins the Webster/6th Street intersection at an oblique angle. This may cause driver confusion, and is therefore undesirable.
	J	Harrison Street alignment remains the same. No left turn pockets. Two lanes on Harrison Street. The right lane is a dedicated NB lane. The left lane is an option lane for left turns to 6th Street. No encroachments upon the 325 7th Street property.	Sufficient spacing between the future retaining walls on Harrison Street and the existing footings of the freeway. Insufficient deceleration length between the end of Posey Tube and the beginning of the left-turn curve - deceleration must start inside Posey Tube. Less storage capacity than the left-turn-pocket options. Design speed of the left-turn curve is 20 mph. 5-foot sidewalk on the right side of Harrison Street between the end of Posey Tube and 6th Street. No Right-of-Way impacts on the 325 7th Street property.

I-880 Broadway-Jackson Project
Summary of All Features Studied To-Date

ACCESS IMPROVEMENTS FROM ALAMEDA TO I-880/I-980 (Cont.)

Depressed Harrison Street to NB 6th Street Connection (Cont.)

FEATURE	Option	Descriptions	Considerations
Left turn from depressed Harrison Street to NB 6th Street (Cont.)	K	Harrison Street alignment remains the same. No left turn pocket lanes. Two lanes on Harrison Street. The right lane is a dedicated NB lane. The left lane is a dedicated lane for left turns to 6th Street. No encroachments to the 325 7th Street property.	Sufficient spacing between the future retaining walls on Harrison Street and the existing footings of the freeway. Insufficient deceleration length between the end of Posey Tube and the beginning of the left-turn curve - deceleration must start inside Posey Tube. Only one NB through lane from Posey Tube. Design speed of the left-turn curve is 20 mph. 5-foot sidewalk on the right side of Harrison Street between the end of Posey Tube and 6th Street. No Right-of-Way impacts on the 325 7th Street property.
	L	Harrison Street alignment remains the same. No left turn pocket. Two lanes on Harrison Street. The right lane is a dedicated NB lane. The left lane is an option lane for left turns to 6th Street. The left-turn encroaches approximately 40 feet upon the 325 7th Street property.	Sufficient spacing between the future retaining walls on Harrison Street and the existing footings of the freeway. Sufficient deceleration length between the end of Posey Tube and the beginning of the left-turn curve for vehicles to decelerate from 45 mph (posted speed inside Posey Tube) to 20 mph (design speed of the left-turn curve). However, length not sufficient to provide deceleration from 50mph (ASSUMED DESIGN SPEED INSIDE THE POSEY TUBE). Less storage capacity than the left-turn-pocket options. Design speed of the left-turn curve is 20 mph. 5-foot sidewalk on the right side of Harrison Street between the end of Posey Tube and 6th Street. Moderate Right-of-Way impacts on the 325 7th Street property.
	M	Harrison Street alignment remains the same. No left turn pocket. Two lanes on Harrison Street. The right lane is a dedicated NB lane. The left lane is a dedicated lane for left turns to 6th Street. The left-turn encroaches approximately 40 feet upon the 325 7th Street property.	Sufficient spacing between the future retaining walls on Harrison Street and the existing footings of the freeway. Sufficient deceleration length between the end of Posey Tube and the beginning of the left-turn curve for vehicles to decelerate from 45 mph (posted speed inside Posey Tube) to 20 mph (design speed of the left-turn curve). However, length not sufficient to provide deceleration from 50mph (ASSUMED DESIGN SPEED INSIDE THE POSEY TUBE). Only one NB through lane from Posey Tube. Design speed of the left-turn curve is 20 mph. 5-foot sidewalk on the right side of Harrison Street between the end of Posey Tube and 6th Street. Moderate Right-of-Way impacts on the 325 7th Street property.
	N	Harrison Street alignment remains the same. No left turn pocket. Two lanes on Harrison Street. The right lane is a dedicated NB lane. The left lane is an option lane for left turns to 6th Street. The left-turn encroaches approximately 40 feet upon the 325 7th Street property.	Sufficient spacing between the future retaining walls on Harrison Street and the existing footings of the freeway. Sufficient deceleration length between the end of Posey Tube and the beginning of the left-turn curve for vehicles to decelerate from 45 mph (posted speed inside Posey Tube) to 25 mph (design speed of the left-turn curve). However, length not sufficient to provide deceleration from 50mph (ASSUMED DESIGN SPEED INSIDE THE POSEY TUBE). Less storage capacity than the left-turn-pocket options. Design speed of the left-turn curve is 25 mph. 5-foot sidewalk on the right side of Harrison Street between the end of Posey Tube and 6th Street. Moderate Right-of-Way impacts on the 325 7th Street property. The Harrison-6th Street connection joins the Webster/6th Street intersection at an oblique angle. This may cause driver confusion, and is therefore undesirable.
	O	Harrison Street alignment shifted laterally to the right by approximately 1 foot. A single left-turn pocket from Harrison Street to 6th Street starts at the beginning of the alignment shift taper (approximately 130 feet from the end of Posey Tube). It remains one lane on 6th street Two NB through lanes from Posey Tube. No encroachments to the 325 7th Street property. Design on 6th Street conforms to existing face of curb along the east side of the street (Between Webster and Harrison).	Sufficient spacing between the future retaining walls on Harrison Street and the existing footings of the freeway. Sufficient deceleration length between the end of Posey Tube and the beginning of the left-turn curve for vehicles to decelerate from 45 mph (posted speed inside Posey Tube) to 12 mph (design speed of the left-turn curve). However, length not sufficient to provide deceleration from 50mph (ASSUMED DESIGN SPEED INSIDE THE POSEY TUBE). Non-standard turn pocket opening. Design speed of the left-turn curve is 12 mph. 5-foot sidewalk on the right side of Harrison Street between the end of Posey Tube and 6th Street. No Right-of-Way impacts on the 325 7th Street property. Left turn does not accommodate truck turning.
	P	Harrison Street alignment shifted laterally to the right by approximately 1 foot. A single left-turn pocket from Harrison Street to 6th Street starts at the beginning of the alignment shift taper (approximately 130 feet from the end of Posey Tube). It remains one lane on 6th street Two NB through lanes from Posey Tube. Access in front of the 325 7th Street property encroaches to the southeast corner of the block. Design on 6th Street encroaches onto the existing sidewalk along the east side of the street (Between Webster and Harrison).	Sufficient spacing between the future retaining walls on Harrison Street and the existing footings of the freeway. Sufficient deceleration length between the end of Posey Tube and the beginning of the left-turn curve for vehicles to decelerate from 45 mph (posted speed inside Posey Tube) to 12 mph (design speed of the left-turn curve). However, length not sufficient to provide deceleration from 50mph (ASSUMED DESIGN SPEED INSIDE THE POSEY TUBE). Non-standard turn pocket opening. Design speed of the left-turn curve is 12 mph. 5-foot sidewalk on the right side of Harrison Street between the end of Posey Tube and 6th Street. Right-of-Way acquisition of the house at the southeast corner of the block. Left turn from Webster to the Access in front of the 325 7th Street property does not accommodate truck turning

I-880 Broadway-Jackson Project
Summary of All Features Studied To-Date

	FEATURE	Option	Descriptions	Considerations
ACCESS IMPROVEMENTS FROM ALAMEDA TO I-880/I-980 (Cont.)	Depressed Harrison Street to NB 6th Street Connection (Cont.)	Q	Harrison Street alignment shifted laterally to the right by approximately 1 foot. A single left-turn pocket from Harrison Street to 6th Street starts at the beginning of the alignment shift taper (approximately 130 feet from the end of Posey Tube). It remains one lane on 6th street Two NB through lanes from Posey Tube. Access in front of the 325 7th Street property encroaches to the southeast and southwest corners of the block. Design on 6th Street encroaches onto the existing sidewalk along the east side of the street (Between Webster and Harrison).	Sufficient spacing between the future retaining walls on Harrison Street and the existing footings of the freeway. Sufficient deceleration length between the end of Posey Tube and the beginning of the left-turn curve for vehicles to decelerate from 45 mph (posted speed inside Posey Tube) to 12 mph (design speed of the left-turn curve). However, length not sufficient to provide deceleration from 50mph (ASSUMED DESIGN SPEED INSIDE THE POSEY TUBE). Non-standard turn pocket opening. Design speed of the left-turn curve is 12 mph. 5-foot sidewalk on the right side of Harrison Street between the end of Posey Tube and 6th Street. Minimal Right-of-Way impacts on the southwest corner of the block. Right-of-Way acquisition of the house at the southeast corner of the block.
		R	Harrison Street alignment shifted laterally to the right by approximately 1 foot. A single left-turn pocket from Harrison Street to 6th Street starts at the beginning of the alignment shift taper (approximately 130 feet from the end of Posey Tube), and opens up to two lanes on 6th Street. Two NB through lanes from Posey Tube. No encroachments upon the 325 7th Street property. 10-foot right shoulder on depressed 6th Street adjacent to the retaining wall. Design on 6th Street encroaches onto the existing sidewalk along the east side of the street (Between Webster and Harrison).	The future retaining wall on the left side of Harrison Street too close to an existing footing of the freeway. Sufficient deceleration length between the end of Posey Tube and the beginning of the left-turn curve for vehicles to decelerate from 45 mph (posted speed inside Posey Tube) to 16 mph (design speed of the left-turn curve). However, length not sufficient to provide deceleration from 50mph (ASSUMED DESIGN SPEED INSIDE THE POSEY TUBE). Non-standard turn pocket opening. Design speed of the left-turn curve is 16 mph. Standard shoulder width on depressed 6th Street adjacent to the retaining wall. 5-foot sidewalk on the right side of Harrison Street between the end of Posey Tube and 6th Street. No Right-of-Way impacts on the 325 7th Street property. However, no access provided for 325 7th Street property.
		S	Harrison Street alignment shifted laterally to the left by approximately 6 inches to widen the right lane from existing 11.5 feet to standard 12.0 feet. A single left-turn pocket from Harrison Street to 6th Street starts at the beginning of the alignment shift taper (approximately 130 feet from the end of Posey Tube). It remains one lane on 6th street. Two NB through lanes from Posey Tube. Access in front of the 325 7th Street property encroaches to the southeast and southwest corners of the block. Design on 6th Street encroaches onto the existing sidewalk along the east side of the street (Between Webster and Harrison).	Sufficient spacing between the future retaining walls on Harrison Street and the existing footings of the freeway. Sufficient deceleration length between the end of Posey Tube and the beginning of the left-turn curve for vehicles to decelerate from 45 mph (posted speed inside Posey Tube) to 12 mph (design speed of the left-turn curve). However, length not sufficient to provide deceleration from 50mph (ASSUMED DESIGN SPEED INSIDE THE POSEY TUBE). Design speed of the left-turn curve is 12 mph. 5-foot sidewalk on the right side of Harrison Street between the end of Posey Tube and 6th Street. Minimal Right-of-Way impacts on the southwest corner of the block. Right-of-Way acquisition of the house at the southeast corner of the block.
		T	**Harrison Street alignment shifted laterally to the left by approximately 6 inches to widen the right lane from existing 11.5 feet to standard 12.0 feet.** **A single left-turn pocket from Harrison Street to 6th Street starts at the beginning of the alignment shift taper (approximately 144 feet from the end of Posey Tube), and opens up to two lanes on 6th Street. A 4'-wide left shoulder starts at the beginning of the single left-turn pocket on Harrison Street, and conitues along at a constant width along the left-turn curve and onto 6th Street.** **Two NB through lanes from Posey Tube.** **No encroachments upon the 325 7th Street property.** **10-foot right shoulder on depressed 6th Street adjacent to the retaining wall.** **Geometry of 6th Street encroaches onto the existing sidewalk along the east side of the street (Between Webster and Harrison).**	**Sufficient spacing between the future retaining walls on Harrison Street and the existing footings of the freeway.** **Sufficient deceleration length between the end of Posey Tube and the beginning of the left-turn curve for vehicles to decelerate from 45 mph (posted speed inside Posey Tube) to 16 mph (design speed of the left-turn curve). However, length not sufficient to provide deceleration from 50mph (ASSUMED DESIGN SPEED INSIDE THE POSEY TUBE).** **Design speed of the left-turn curve is 16 mph.** **Standard right shoulder width on depressed 6th Street adjacent to the retaining wall.** **5-foot sidewalk on the right side of Harrison Street between the end of Posey Tube and 6th Street.** **No Right-of-Way impacts on the 325 7th Street property. However, no access provided for 325 7th Street property.**
	NB-880 / EB-980 6th Street Loop On-Ramp	-	Right turn from Harrison Street onto SB 6th Street behind Senior Center; SB 6th Street turns into a single-lane Alice Street loop on-ramp to NB-880/EB-980	Right-of-Way impacts on properties along 6th Street, between Alice Street and Jackson Street. The small turning radius of the loop on-ramp leads to potential safety issues, including sub-standard design speed and truck overturning.
ACCESS IMPROVEMENTS FROM I-880/I-980 TO ALAMEDA	Webster/Broadway Off-Ramp from NB-880	-	**Reconstruct existing NB-880 Broadway off-ramp to terminate at Webster Street; Depress Harrison Street; Eliminate Jackson-Broadway slip ramp**	**Ramp provides a direct connection from NB-880 to Webster Tube, eliminating Alameda traffic from local streets**
	Harrison Off-Ramp from NB 880	-	Reconstruct NB-880 Broadway off-ramp to terminate at Harrison Street; Eliminate Jackson-Broadway slip ramp	Same as Element No. 10. However, per City of Oakland comments, the ramp touchdown may be too far from Broadway . Plus, new intersection at Harrison/6th could cause traffic to back up into Posey Tube
	Webster Off-Ramp from SB 880	-	Reconstruct WB-980 to Jackson Street off-ramp to terminate at Webster Street (At the mouth of Webster Tube).	Ramp's grade is very steep and non-standard. Also, non-standard merge and weaving distances at the entrance of Webster Tube.

I-880 Broadway-Jackson Project
Summary of All Features Studied To-Date

CORRIDOR IMPROVEMENTS

Parallel Access

FEATURE	Option	Descriptions	Considerations
6th Street Corridor Improvements/ NB-880 on-ramp from Market Street / SB-880 off-ramp to Martin Luther King Jr. Way	A	Improve signal timing and other features along 6th Street 2-Lane to single-lane Market Street on-ramp to NB I-880 Single-lane Market Street off-ramp from SB-880 begins above Linden Street.	6th Street corridor improvements provide an alternate route for NB-880 traffic to bypass Jackson/I-980 weave and the associated congestion. SB-880 to Market off-ramp allows vehicles destined for Jack London Square and/or Alameda to exit the freeway before congested section and approach Broadway along 5th Street. Market Street off-ramp - The crest vertical curve at the gore provides stopping sight distance at a design speed of 40 mph (50 mph is required).
	B	Improve signal timing and other features along 6th Street 2-Lane to single-lane Market Street on-ramp to NB I-880 Single-lane Market Street off-ramp from SB-880 begins just past the last outrigger column, approximately 220 feet north of Linden Street.	6th Street corridor improvements provide an alternate route for NB-880 traffic to bypass Jackson/I-980 weave and the associated congestion. SB-880 to Market off-ramp allows vehicles destined for Jack London Square and/or Alameda to exit the freeway before congested section and approach Broadway along 5th Street. Market Street off-ramp - The crest vertical curve at the gore provides stopping sight distance at a design speed of 45 mph (50 mph is required).
	C	Improve signal timing and other features along 6th Street 2-Lane to single-lane Market Street on-ramp to NB I-880 Single-lane Martin Luther King off-ramp from SB-880 begins approximately 400 feet north of Linden Street.	6th Street corridor improvements provide an alternate route for NB-880 traffic to bypass Jackson/I-980 weave and the associated congestion. SB-880 to MLK off-ramp allows vehicles destined for Jack London Square and/or Alameda to exit the freeway before congested section and approach Broadway along 5th Street. Martin Luther King off-ramp - The new ramp encroaches to a major existing outrigger column.
	D	Improve signal timing and other features along 6th Street 2-Lane to single-lane Market Street on-ramp to NB I-880 Single-lane Martin Luther King off-ramp from SB-880 begins just past the last outrigger column, approximately 220 feet north of Linden Street.	6th Street corridor improvements provide an alternate route for NB-880 traffic to bypass Jackson/I-980 weave and the associated congestion. SB-880 to MLK off-ramp allows vehicles destined for Jack London Square and/or Alameda to exit the freeway before congested section and approach Broadway along 5th Street.
	E	Improve signal timing and other features along 5th and 6th Streets 2-Lane to single-lane Market Street on-ramp to NB I-880 Single-lane Martin Luther King off-ramp from SB-880 begins just past the last outrigger column, approximately 220 feet north of Linden Street. Opens up to two lanes about 330' upstream of ramp terminus at MLK & 5th. Three lanes on 6th Street. The right lane is dedicated to NB Broadway. The middle lane is an option lane to NB Broadway. The left lane is a dedicated WB lane. A single left turn pocket from 6th to SB Broadway.	6th Street corridor improvements provide an alternate route for NB-880 traffic to bypass Jackson/I-980 weave and the associated congestion. SB-880 to MLK off-ramp allows vehicles destined for Jack London Square and/or Alameda to exit the freeway before congested section and approach Broadway along 5th Street. No access from 6th Street to NB Franklan.
	F	Improve signal timing and other features along 6th Street 2-Lane to single-lane Market Street on-ramp to NB I-880 Single-lane Martin Luther King off-ramp from SB-880 begins just past the last outrigger column, approximately 220 feet north of Linden Street. Three lanes on 6th Street. The right lane is an option lane to NB Franklin and is destined to NB Broadway. The middle lane is an option lane to NB Broadway. The left lane is a dedicated WB lane. A single left turn pocket from 6th to SB Broadway.	6th Street corridor improvements provide an alternate route for NB-880 traffic to bypass Jackson/I-980 weave and the associated congestion. SB-880 to MLK off-ramp allows vehicles destined for Jack London Square and/or Alameda to exit the freeway before congested section and approach Broadway along 5th Street. Potential speed differential issue between the lanes due to the optional right turn to NB Franklin.
	G	Improve signal timing and other features along 5th and 6th Streets 2-Lane to single-lane Market Street on-ramp to NB I-880 Single-lane Martin Luther King off-ramp from SB-880 begins just past the last outrigger column, approximately 220 feet north of Linden Street. Opens up to two lanes about 330' upstream of ramp terminus at MLK & 5th. Three lanes on 6th Street. The right lane is an option lane to NB Franklin and NB Broadway. The middle and left lanes are dedicated WB lanes. A single left turn pocket from 6th to SB Broadway.	6th Street corridor improvement provide an alternate route for NB-880 traffic to bypass Jackson/I-980 weave and the associated congestion. SB-880 to MLK off-ramp allows vehicles destined for Jack London Square and/or Alameda to exit the freeway before congested section and approach Broadway along 5th Street. Potential speed differential issue between the lanes due to the optional right turn to NB Franklin. Bigger weaving issue - double lanes weaving for vehicles destined for downtown Oakland from the Webster off-ramp.
	H	Improve signal timing and other features along 6th Street 2-Lane to single-lane Market Street on-ramp to NB I-880 Single-lane Martin Luther King off-ramp from SB-880 begins just past the last outrigger column, approximately 220 feet north of Linden Street. Three lanes on 6th Street. The right lane is a dedicated lane to NB Franklin. The middle lane opens up an option lane to NB Broadway. The left lane is a dedicated WB lane. A single left turn pocket from 6th to SB Broadway.	6th Street corridor improvements provide an alternate route for NB-880 traffic to bypass Jackson/I-980 weave and the associated congestion. SB-880 to MLK off-ramp allows vehicles destined for Jack London Square and/or Alameda to exit the freeway before congested section and approach Broadway along 5th Street. Reduced storage capacity on 6th Street.

I-880 Broadway-Jackson Project
Summary of All Features Studied To-Date

	FEATURE	Option	Descriptions	Considerations
Freeway	I-980/I-880 Freeway Solutions	A	EB-980 connector from NB-880 begins 1,600' north of the Oak Street Exit Webster Street off-ramp exits off the I-980 connector Jackson Street on-ramp to NB-880 remains in the existing location. Jackson Street on-ramp to EB-980 splits off the I-880 on-ramp, and joins the EB-980 connector after braiding underneath it.	Right-of-Way impacts on the senior center and residences along the block between Alice Street and Jackson Street. New on/off-ramps at a freeway-to-freeway connector (non-standard design feature). Length of auxiliary lane provided upstream of the branch connection does not meet the minimum 0.5-mile requirement. Limited right-of-way does not allow a mandatory second lane on the NB-880 off-ramp to Webster Street to open up. Spacing between freeway-to-freeway interchange and the local interchange is less than the required 2 miles.
		B	EB-980 connector from NB-880 begins 1,000' north of Webster Street off-ramp Webster Street off-ramp remains in the existing location. Existing Jackson Street on-ramp to NB-880 eliminated Jackson Street on-ramp connects to EB-980 only New NB-880 On-ramp from Webster Street	Length of auxiliary lane provided upstream of the branch connection does not meet the minimum 0.5-mile requirement. Due to the limited corridor right-of-way available to accommodate a parallel EB-980 connector, NB-880 must be reduced to three through lanes in the downtown area. Spacing between freeway-to-freeway interchange and the local interchange is less than the required 2 miles.
		C	EB-980 connector from NB-880 remains in the existing location. Webster Street off-ramp remains in the existing location. Existing Jackson Street on-ramp eliminated to both I-980 and I-880 New EB-980 on-ramp from Martin Luther King Way New NB-880 On-ramp from Market Street.	This design requires a non-standard entrance to EB-980 from the left side of the freeway. Profile of the EB-980 on-ramp from MLK is too steep to meet geometric standard. Increased distance from Posey Tube, the Oak-to-9th development, and Laney College to the NB-880/EB-980 access points. Freeway-bound traffic would need to use 8th Street, thereby impacting traffic circulation in Chinatown. Spacing between freeway-to-freeway interchange and the local interchange is less than the required 2 miles.
		D	EB-980 connector from NB-880 begins 1,000' north of Webster Street off-ramp Webster Street off-ramp remains in the existing location. Existing Jackson Street on-ramp to NB-880 eliminated Jackson Street on-ramp connects to EB-980 only New NB-880 On-ramp from Market Street	Increased distance from Posey Tube, the Oak-to-9th development, and Laney College to the NB-880 access point. Due to the limited corridor right-of-way available to accommodate a parallel EB-980 connector, there is no room on 6th Street to accommodate the new NB-880 off-ramp to Webster Street (Ramp has to end at Harrison Street). Spacing between freeway-to-freeway interchange and the local interchange is less than the required 2 miles. Freeway-bound traffic would need to use 8th Street, thereby impacting traffic circulation in Chinatown. Length of auxiliary lane provided upstream of the branch connection does not meet the minimum 0.5-mile requirement.
		E	Similar to Element 14D with the exception that EB-980 connector shifted further to the north to maximized the length of auxiliary lane just upstream of the branch connection.	Increased distance from Posey Tube, the Oak-to-9th development, and Laney College to the NB-880 access point. Due to the limited corridor right-of-way available to accommodate a parallel EB-980 connector, there is no room on 6th Street to accommodate the new NB-880 off-ramp to Webster Street (Ramp has to end at Harrison Street). Spacing between freeway-to-freeway interchange and the local interchange is less than the required 2 miles. Freeway-bound traffic would need to use 8th Street, thereby impacting traffic circulation in Chinatown. Length of auxiliary lane provided upstream of the branch connection does not meet the minimum 0.5-mile requirement.
		F	EB-980 begins 1,250' north of the new NB-880 Webster Street off-ramp New NB-880 off-ramp to Webster Street begins 1,250' north of the existing NB-880 off-ramp to Oak Street. Existing Jackson Street on-ramp to NB-880 eliminated Jackson Street on-ramp connects to EB-980 only New NB-880 On-ramp from Market Street.	Increased distance from Posey Tube, the Oak-to-9th development, and Laney College to the NB-880 access point. Freeway-bound traffic would need to use 8th Street, thereby impacting traffic circulation in Chinatown. New on-ramp at a freeway-to-freeway connector. Spacing between freeway-to-freeway interchange and the local interchange is less than the required 2 miles. Auxiliary lane is needed between the new EB-980 on-ramp from Jackson Street and the existing EB-980 off-ramp to 11th Street to provide the required weaving distance.
		G	NB-880 realigned to the east between the existing Webster Street off-ramp and the existing Market Street off-ramp. The new EB-980 connector exits from the left of the realigned NB-880. Webster Street off-ramp remains in the existing location. Jackson Street on-ramp connects to NB-880 only Existing Jackson Street on-ramp to NB-980 eliminated	Increased distance from Posey Tube, the Oak-to-9th development, and Laney College to the EB-980 access point. Freeway-bound traffic would need to use 8th Street, thereby impacting traffic circulation in Chinatown. Vertical clearance of NB-880 over local streets does not meet the required standard at either conform. Spacing between freeway-to-freeway interchange and the local interchange is less than the required 2 miles. Due to limited corridor width, constructability of the new EB-980 flyover across NB-880 live traffic will be a major challenge.

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04-ALA-260 PM 1.1/1.9
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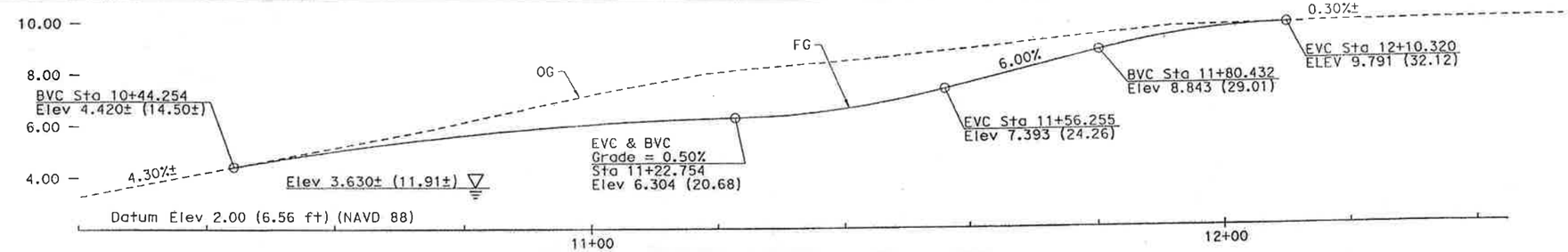
I-880/Broadway-Jackson Interchange Project

PSR-PDS

Attachment G

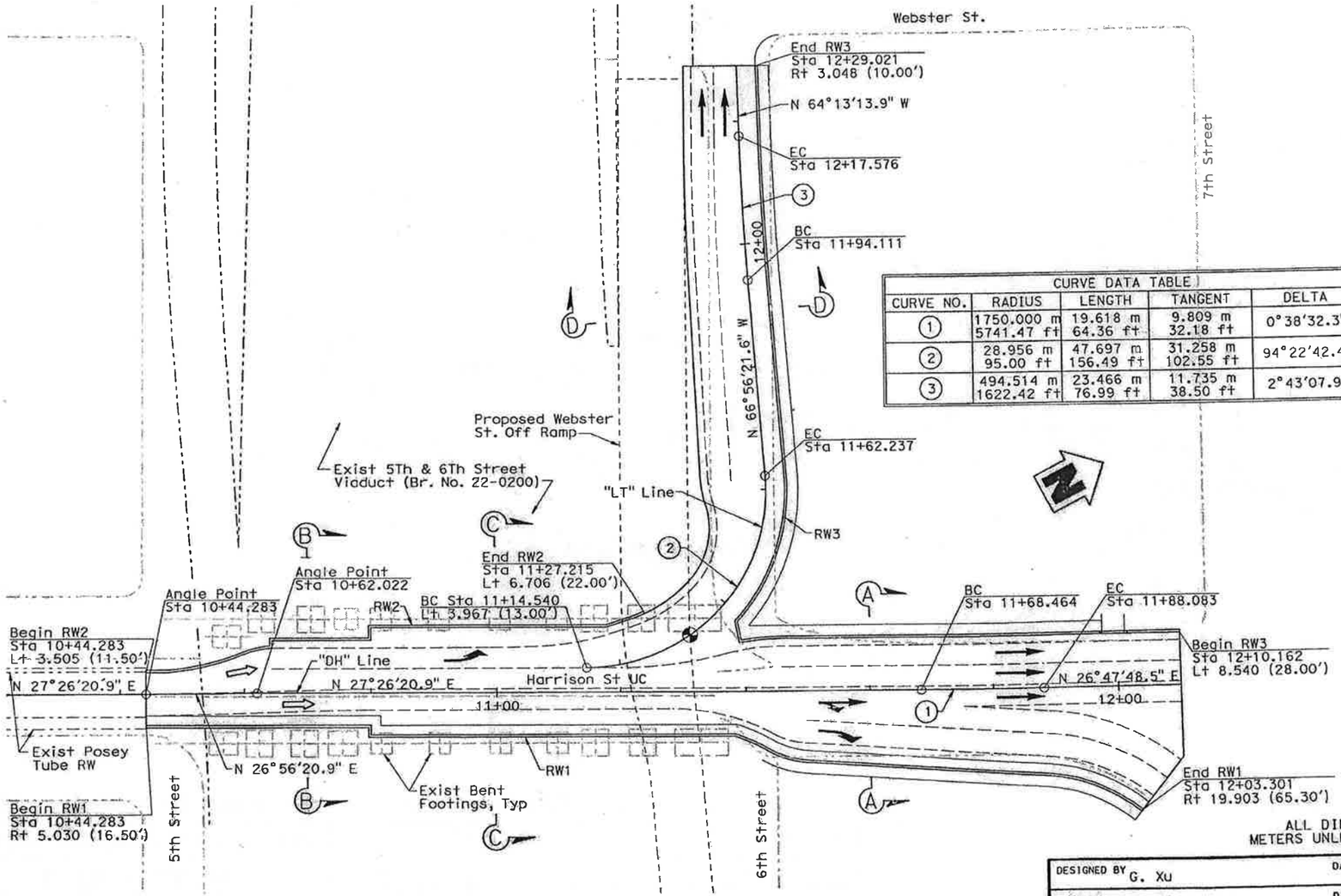
Structures Advanced Planning Study – Structural and Staging Plans

PREPARED FOR THE STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION



PROFILE GRADE ALONG "DH" LINE

1:400 (H); 1:100 (V)



PLAN

1:400

CURVE DATA TABLE				
CURVE NO.	RADIUS	LENGTH	TANGENT	DELTA
①	1750.000 m 5741.47 ft	19.618 m 64.36 ft	9.809 m 32.18 ft	0°38'32.3"
②	28.956 m 95.00 ft	47.697 m 156.49 ft	31.258 m 102.55 ft	94°22'42.4"
③	494.514 m 1622.42 ft	23.466 m 76.99 ft	11.735 m 38.50 ft	2°43'07.9"

Caltrans Metric

DIST.	COUNTY	ROUTE	KILOMETER POST TOTAL PROJECT
04	Ala	880	

MGE ENGINEERING, INC
7415 GREENHAVEN DRIVE, SUITE 100
SACRAMENTO, CA 95831

KIMLEY-HORN AND ASSOCIATES, INC
200 CROW CANYON PLACE, SUITE 410
SAN RAMON, CA 94583

DEPRESSED SECTION COST ESTIMATE

Date of Estimate = 07/31/09

Total Length = 280.730 m (921.00 ft)

Unit Length Cost Including 10% Mobilization and 25% Contingency = $20,660/m ($6,297/ft)

Total = $5,800,000

LEGEND

- ⇨ Indicates Direction of Travel
- ---- Indicates Traffic Lane
- —— Indicates New Structural
- (#) Indicates Curve Designation
- Indicates Point of Minimum Vertical Clearance

Note:

1. For Sections A-A, B-B, C-C and D-D see "Sheet 2 of 2".

ALL DIMENSIONS ARE IN METERS UNLESS OTHERWISE SHOWN

DESIGN OVERSIGHT

SIGN OFF DATE

DESIGNED BY G. Xu	DATE 05/05/10	G. Xu PROJECT ENGINEER
DRAWN BY X. Sun	DATE 05/05/10	
CHECKED BY R. Sennett	DATE 05/05/10	
APPROVED R. Sennett	DATE 05/05/10	

FILE => &REQUEST

ADVANCE PLANNING STUDY

HARRISON ST DEPRESSED SECTION

SHEET 1 OF 2

BRIDGE NO.	CU 04249
SCALE: As Noted	EA 0G360K

TIME PLOTTED => &TIME
DATE PLOTTED => &DATE
USERNAME => &USER

&ADVANCE PLANNING STUDY SHEET (METRIC) (REV. 6/21/04)

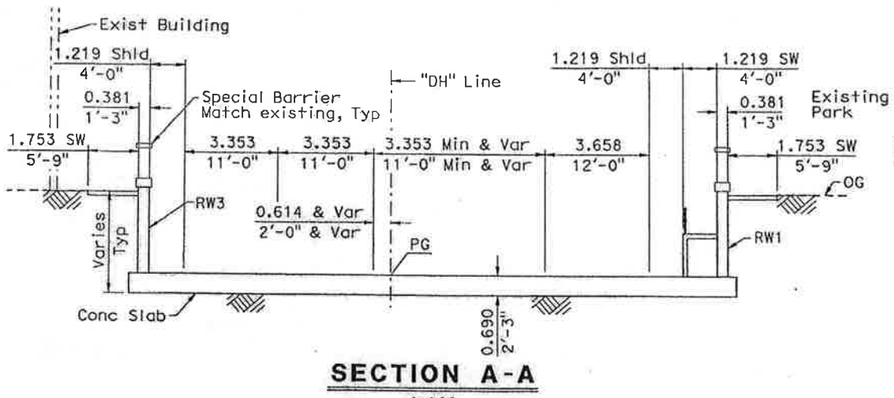
PREPARED FOR THE STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

Caltrans Metric

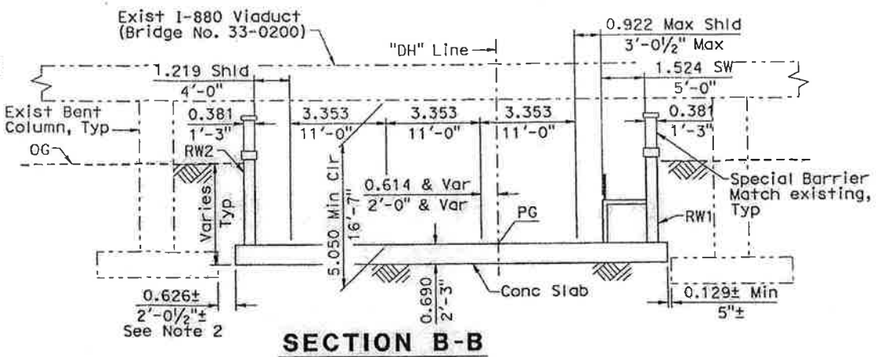
DIST.	COUNTY	ROUTE	KILOMETER POST TOTAL PROJECT
04	Ala	880	

MGE ENGINEERING, INC
7415 GREENHAVEN DRIVE, SUITE 100
SACRAMENTO, CA 95831

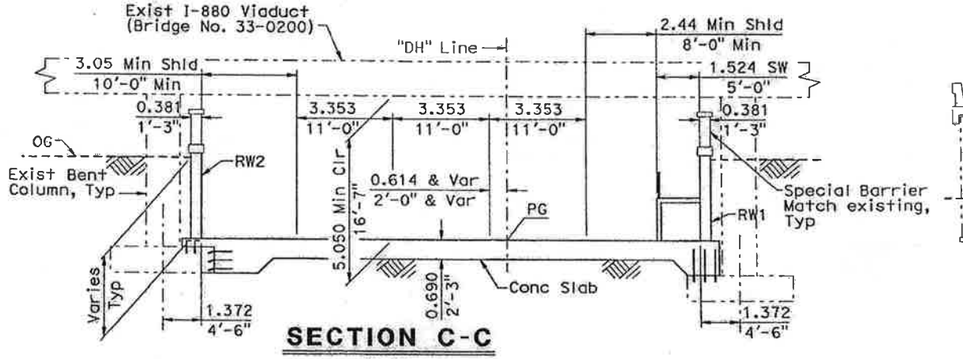
KIMLEY-HORN AND ASSOCIATES, INC
200 CROW CANYON PLACE, SUITE 410
SAN RAMON, CA 94583



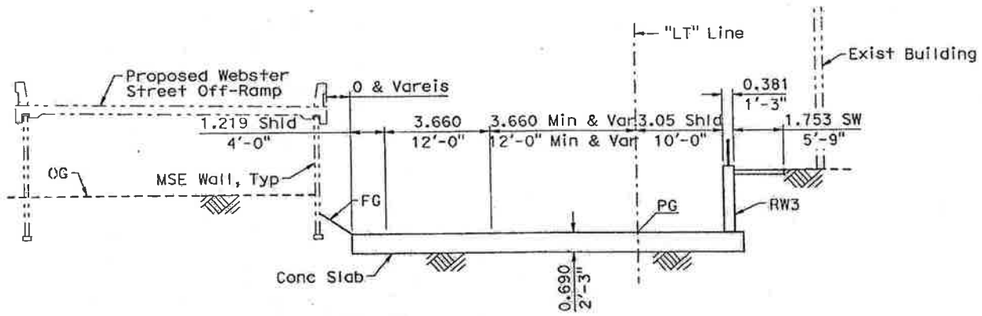
SECTION A-A
1:100



SECTION B-B
1:100



SECTION C-C
1:100



SECTION D-D
1:100

Notes:

1. For location of Sections A-A, B-B and C-C, see "Sheet 1 of 2".
2. Clearance to Existing footing reduces to less than a foot further down station.

ALL DIMENSIONS ARE IN METERS UNLESS OTHERWISE SHOWN

ADVANCE PLANNING STUDY

DESIGNED BY	G. Xu	DATE	05/05/10
DRAWN BY	X. Sun	DATE	05/05/10
CHECKED BY	R. Sennett	DATE	05/05/10
APPROVED	R. Sennett	DATE	05/05/10

G. Xu
PROJECT ENGINEER

HARRISON ST DEPRESSED SECTION

SHEET 2 OF 2

BRIDGE NO.	CU 04249
SCALE: As Noted	EA 0G360K

DESIGN OVERSIGHT
SIGN/OFF DATE

ADVANCE PLANNING STUDY SHEET (METRIC) (REV. 6/21/04)

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USERNAME => $USER

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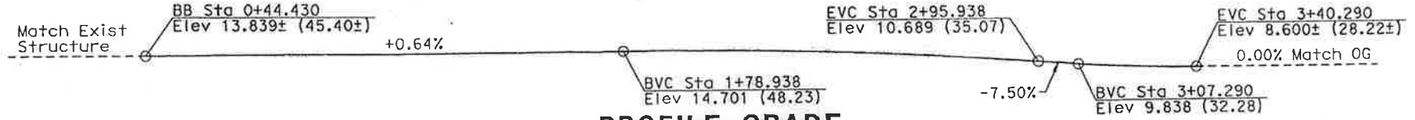
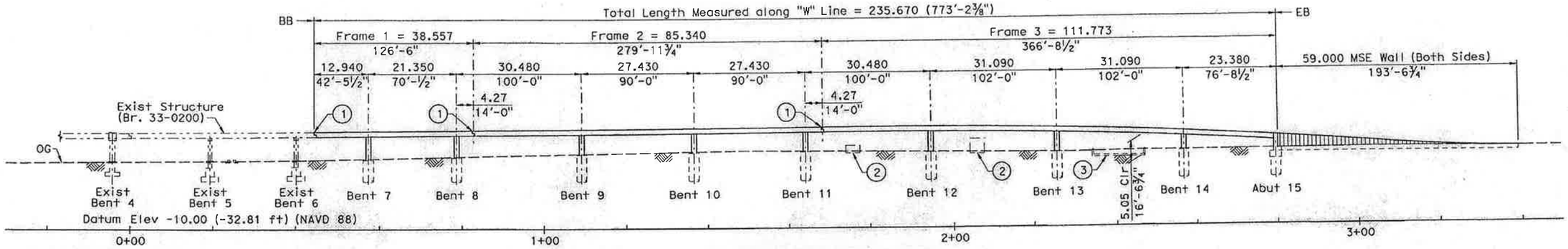
PREPARED FOR THE STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION



PROFILE GRADE

No Scale



DEVELOPED ELEVATION

1:500

VEHICULAR TRAFFIC
1. ___ New alignment. No traffic at the site
2. ___ Traffic will be detoured away from the site.
3. ___ Traffic will be carried on the structure. And Stage construction will not be required
4. X Traffic will pass under the structure on Castro Street
   - A. ___ No falsework allowed over traffic.
   - B. X Falsework opening(s) required:

	Temporary Vertical Clearance	Width of Traffic Opening
N Bnd.	4.877 (16'-0")	7.925 (26'-0")
S Bnd.		
Two-Way		

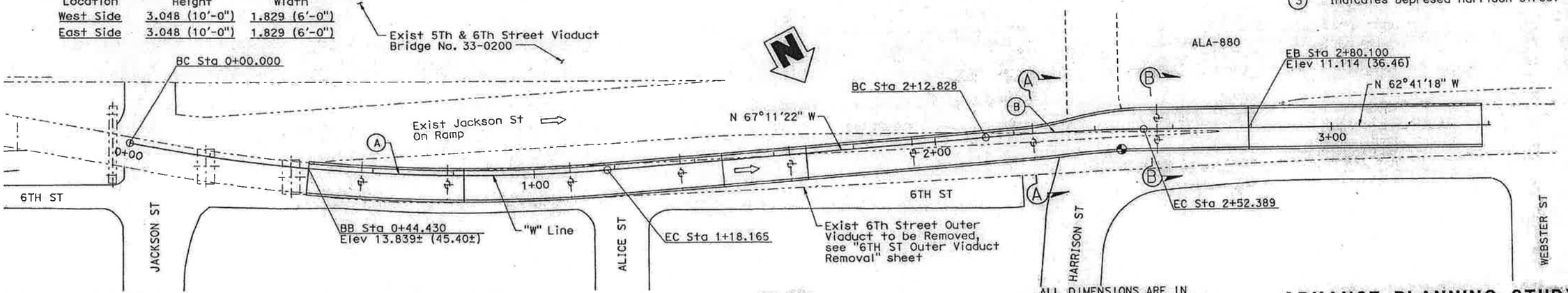
   - C. ___ Temporary traffic lane reduction needed for footing excavation.

PEDESTRIAN TRAFFIC
Falsework opening(s) required on Harrison Street

Location	Height	Width
West Side	3.048 (10'-0")	1.829 (6'-0")
East Side	3.048 (10'-0")	1.829 (6'-0")

CURVE DATA TABLE				
CURVE NO.	RADIUS	LENGTH	TANGENT	DELTA
(A)	430.000 m 1410.76 ft	118.165 m 387.68 ft	59.457 m 195.07 ft	15°44'42.0"
(B)	503.60 m 1652.23 ft	39.561 m 129.79 ft	19.791 m 64.93 ft	04°30'03.6"

LEGEND
- ⇨ Indicates Direction of Travel
- ——— Indicates New Construction
- - - - Indicates Existing Structure
- ◕ Indicates Point of Minimum Vertical Clearance
- (1) Indicates Hinge Location
- (2) Indicates Existing Utility Headwall to Remain
- (3) Indicates Depresed Harrison Street



PLAN

1:500

Notes:
1. For Sections A-A and B-B, see "Sheet 2 of 2".
2. For 'Cost Estimate', see "Sheet 2 of 2".

ALL DIMENSIONS ARE IN METERS UNLESS OTHERWISE SHOWN

DESIGN OVERSIGHT

SIGN OFF DATE

ADVANCE PLANNING STUDY SHEET (METRIC) (REV. 6/21/04)

DESIGNED BY		DATE
G. Xu		01/29/10
DRAWN BY		DATE
X. Sun		01/29/10
CHECKED BY		DATE
R. Sennett		01/29/10
APPROVED		DATE
R. Sennett		01/29/10

G. Xu
PROJECT ENGINEER

Caltrans Metric

DIST.	COUNTY	ROUTE	KILOMETER POST TOTAL PROJECT
04	Ala	880	

MGE ENGINEERING, INC
7415 GREENHAVEN DRIVE, SUITE 100
SACRAMENTO, CA 95831

KIMLEY-HORN AND ASSOCIATES, INC
200 CROW CANYON PLACE, SUITE 410
SAN RAMON, CA 94583

ADVANCE PLANNING STUDY

WEBSTER STREET OFF-RAMP

SHEET 1 OF 2

BRIDGE NO.	CU 04249
SCALE: As Noted	EA 0G360K

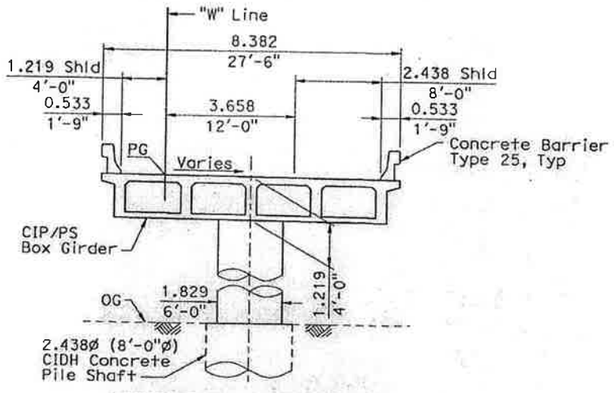
FILE => $REQUEST

DATE PLOTTED => $DATE

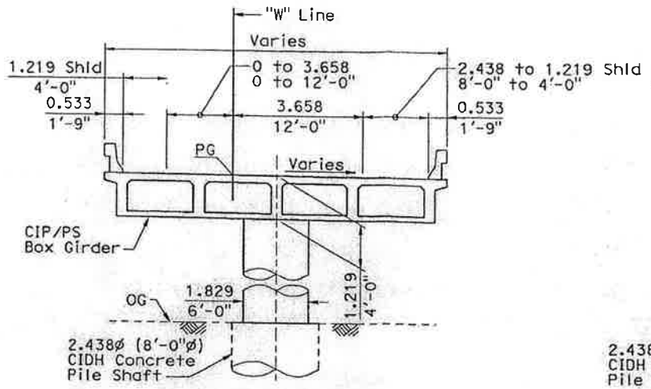
TIME PLOTTED => $TIME

USERNAME => $USER

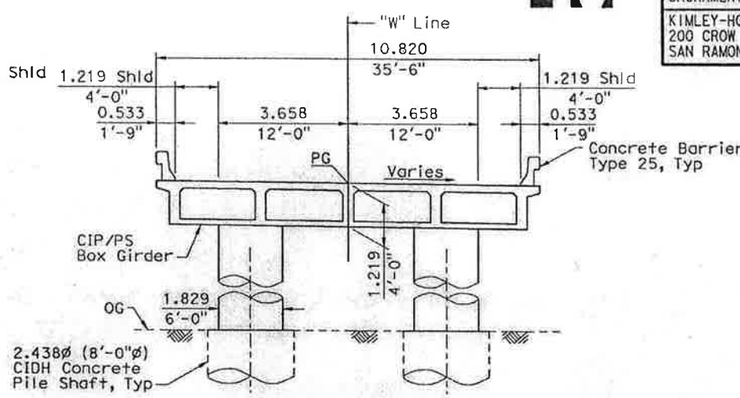
PREPARED FOR THE STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION



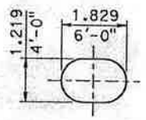
TYPICAL SECTION
1:80



SECTION A-A
1:80



SECTION B-B
1:80



COLUMN SECTION
1:80

BRIDGE COST ESTIMATE

Date of Estimate = 07/31/09
Structure Depth = 1.219 m (4'-0")
Length = 235.670 m (773'-2⅜")
Width = Varies
Area = 1855 m^2 (19967 ft^2)
Cost / Area Including 10% Mobilization and 25% Contingency = $2,690.03/$m^2$ ($249.91/$ft^2$)
Total = $4,990,000

MSE WALL COST ESTIMATE

Date of Estimate = 07/31/09
Wall Area = 148 m^2 (1593 ft^2)
Cost / Area Including 10% Mobilization and 25% Contingency = $891.89/$m^2$ ($82.86/$ft^2$)
Total = $132,000

Note:

1. For locations of Sections A-A and B-B, see "Sheet 1 of 2".

ALL DIMENSIONS ARE IN METERS UNLESS OTHERWISE SHOWN

DESIGNED BY	G. Xu	DATE	01/29/10
DRAWN BY	X. Sun	DATE	01/29/10
CHECKED BY	R. Sennett	DATE	01/29/10
APPROVED	R. Sennett	DATE	01/29/10

G. Xu
PROJECT ENGINEER

DESIGN OVERSIGHT
SIGN OFF DATE

ADVANCE PLANNING STUDY SHEET (METRIC) (REV. 6/21/04)

FILE => $REQUEST

Caltrans Metric

DIST.	COUNTY	ROUTE	KILOMETER POST TOTAL PROJECT
04	Ala	880	

MGE ENGINEERING, INC
7415 GREENHAVEN DRIVE, SUITE 100
SACRAMENTO, CA 95831

KIMLEY-HORN AND ASSOCIATES, INC
200 CROW CANYON PLACE, SUITE 410
SAN RAMON, CA 94583

ADVANCE PLANNING STUDY

WEBSTER STREET OFF-RAMP

SHEET 2 OF 2

BRIDGE NO.	CU 04249
SCALE: As Noted	EA 0G360K

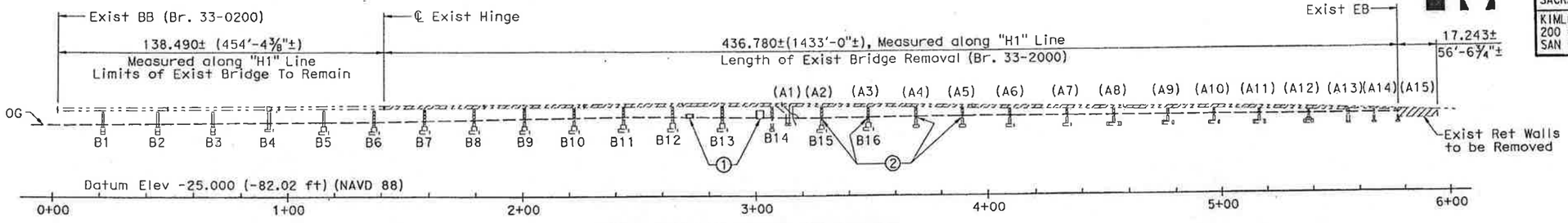
TIME PLOTTED => $TIME
DATE PLOTTED => $DATE
USERNAME => $USER

PREPARED FOR THE STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

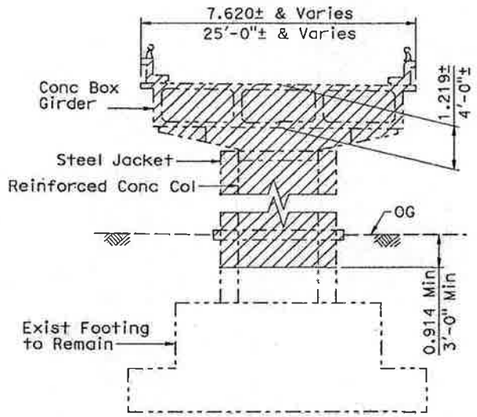
DIST.	COUNTY	ROUTE	KILOMETER POST TOTAL PROJECT
04	Ala	880	

MGE ENGINEERING, INC
7415 GREENHAVEN DRIVE, SUITE 100
SACRAMENTO, CA 95831

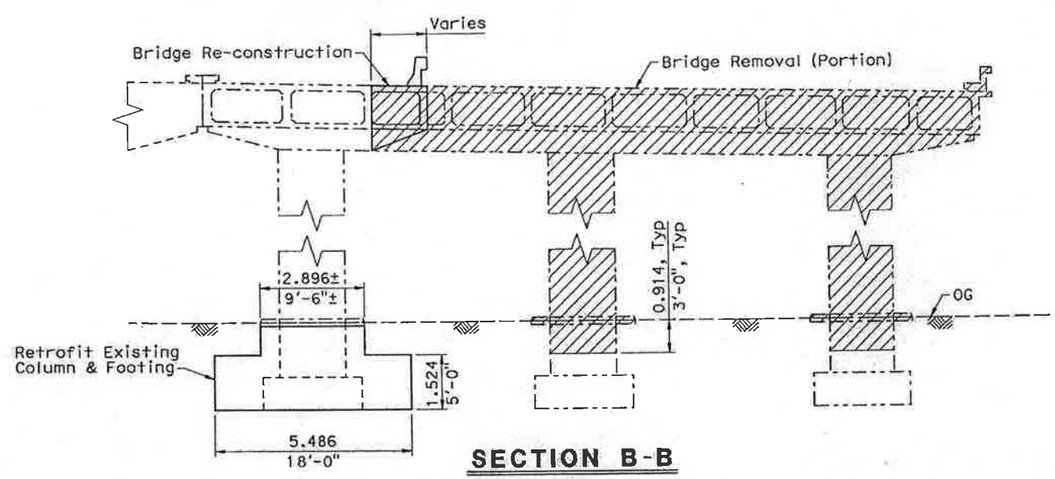
KIMLEY-HORN AND ASSOCIATES, INC
200 CROW CANYON PLACE, SUITE 410
SAN RAMON, CA 94583



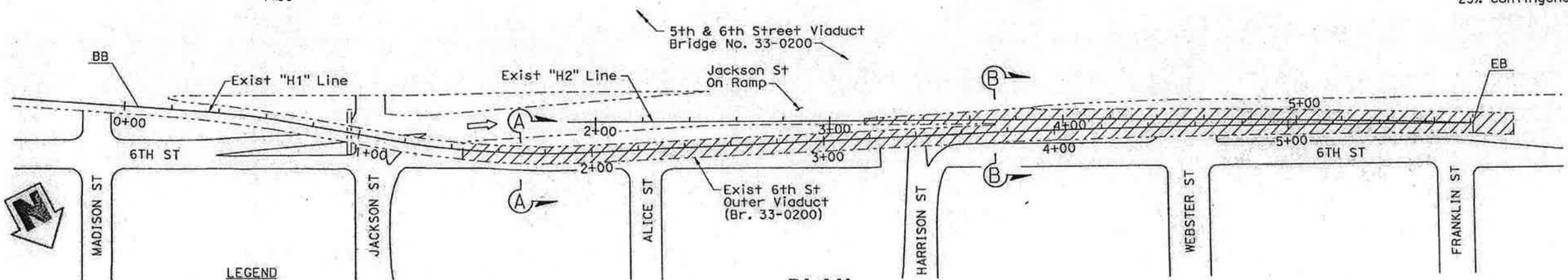
DEVELOPED ELEVATION
1:1000



SECTION A-A
1:80



SECTION B-B
1:80



PLAN
1:1000

LEGEND

⇨	Indicates Direction of Travel
----	Indicates Exist Structure
▨	Indicates Bridge Removal
①	Indicates Exist Utility Headwalls to Remain
②	Indicates Existing Bents 2 through 5 to be Retrofitted Prior to Superstructure Demolition
B1 to B16	Indicates Exist Bents Along "H1" Line (Br. 33-0200)
(A1) to (A15)	Indicates Exist Abuts and Bents Along "H2" Line (Br. 33-0200)

BRIDGE REMOVAL COST ESTIMATE

Date of Estimate	=	07/31/09
Structure Depth	=	1.219± m (4'-0"±)
Length	=	436.780± m (1433'-0"±)
Width	=	Varies
Area	=	3,808 m² (40,989 ft²)
Cost / Area Including 10% Mobilization and 25% Contingency	=	$200.11/m² ($18.59/ft²)
Total	=	$762,000

BENT RETROFIT COST ESTIMATE

Date of Estimate = 07/31/09

Cost Including 10% Mobilization and 25% Contingency = $1,600,000

ALL DIMENSIONS ARE IN METERS UNLESS OTHERWISE SHOWN

ADVANCE PLANNING STUDY

DESIGNED BY	G. Xu	DATE 01/29/10
DRAWN BY	X. Sun	DATE 01/29/10
CHECKED BY	R. Sennett	DATE 01/29/10
APPROVED	R. Sennett	DATE 01/29/10

G. Xu
PROJECT ENGINEER

6TH ST OUTER VIADUCT REMOVAL

SHEET 1 OF 1

BRIDGE NO. 33-0200	CU 04249
SCALE: As Noted	EA 0G360K

DESIGN OVERSIGHT

SIGN OFF DATE

ADVANCE PLANNING STUDY SHEET (METRIC) (REV. 6/21/04)

FILE => $REQUEST

DATE PLOTTED => $DATE

TIME PLOTTED => $TIME

USERNAME => $USER

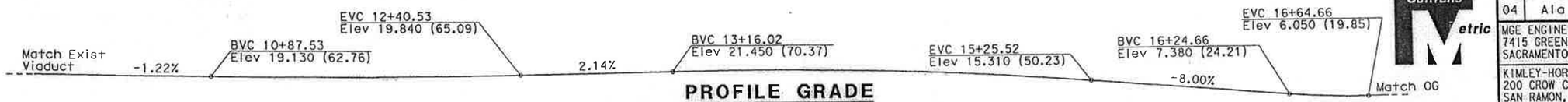
PREPARED FOR THE STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

DIST.	COUNTY	ROUTE	KILOMETER POST TOTAL PROJECT
04	Ala	880	

MGE ENGINEERING, INC
7415 GREENHAVEN DRIVE, SUITE 100
SACRAMENTO, CA 95831

KIMLEY-HORN AND ASSOCIATES, INC
200 CROW CANYON PLACE, SUITE 410
SAN RAMON, CA 94583

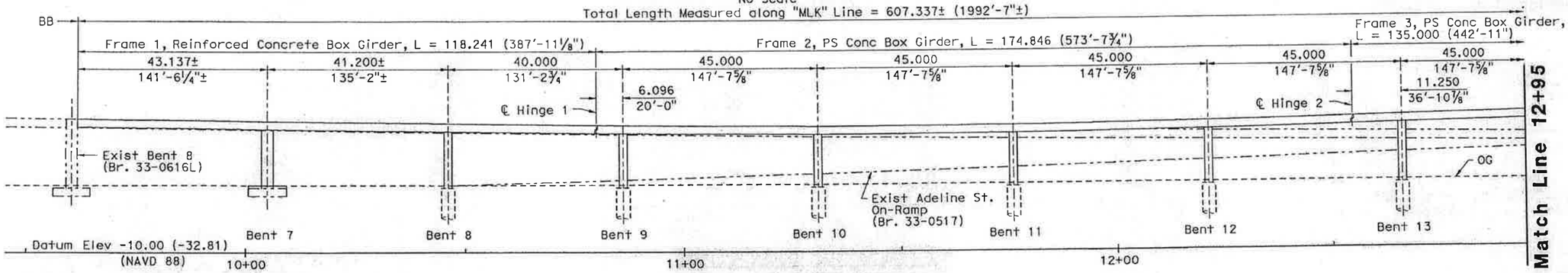
Caltrans Metric



PROFILE GRADE

No Scale

Total Length Measured along "MLK" Line = 607.337± (1992'-7"±)



DEVELOPED ELEVATION

1:500

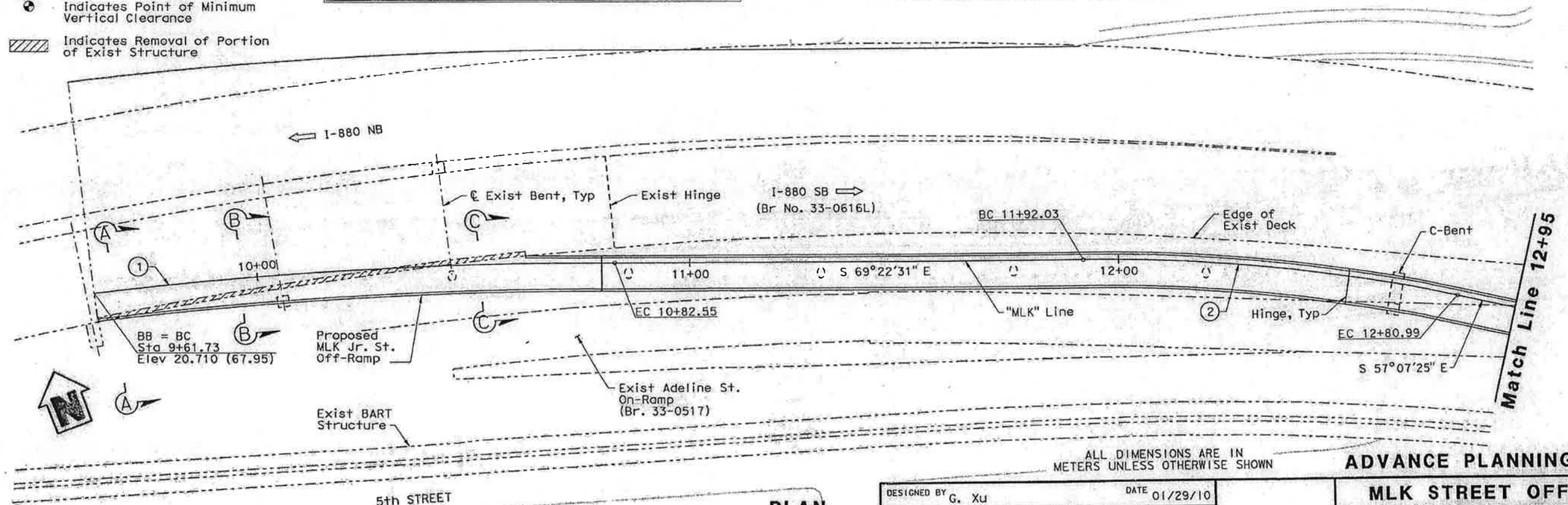
LEGEND

- ⇨ Indicates Direction of Travel
- ——— Indicates New Construction
- ----- Indicates Existing Structure
- (#) Indicates Curve Designation
- ◕ Indicates Point of Minimum Vertical Clearance
- ▨ Indicates Removal of Portion of Exist Structure

CURVE DATA TABLE				
CURVE NO.	RADIUS	LENGTH	TANGENT	DELTA
①	920.000 m 3018.37 ft	120.820 m 396.39 ft	60.500 m 198.49 ft	7°31'28"
②	416.000 m 1364.83 ft	88.950 m 291.83 ft	44.650 m 146.49 ft	12°15'06"

NOTES:

1. For Sections A-A, B-B, C-C and Typical Section, see "SHEET 3 OF 3".
2. For Cost Estimate, see "SHEET 3 OF 3".



PLAN

1:500

ALL DIMENSIONS ARE IN METERS UNLESS OTHERWISE SHOWN

ADVANCE PLANNING STUDY

DESIGNED BY G. Xu	DATE 01/29/10	G. Xu PROJECT ENGINEER
DRAWN BY X. Sun	DATE 01/29/10	
CHECKED BY R. Sennett	DATE 01/29/10	
APPROVED R. Sennett	DATE 01/29/10	

MLK STREET OFF-RAMP

SHEET 1 OF 3

BRIDGE NO.	CU 04249
SCALE: As Noted	EA 0G360K

DESIGN OVERSIGHT

SIGN OFF DATE

ADVANCE PLANNING STUDY SHEET (METRIC) (REV. 6/21/04)

FILE => $REQUEST

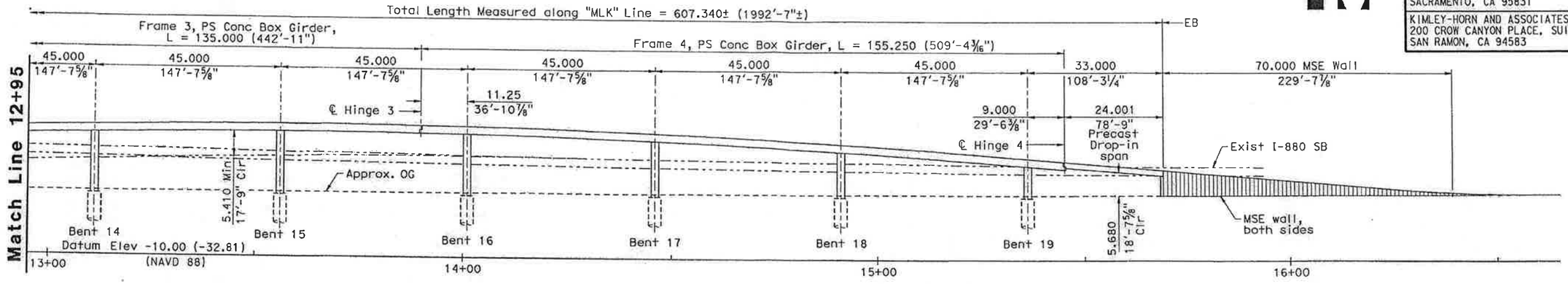
DATE PLOTTED => $DATE TIME PLOTTED => $TIME USERNAME => $USER

PREPARED FOR THE STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

DIST.	COUNTY	ROUTE	KILOMETER POST TOTAL PROJECT
04	Ala	880	

MGE ENGINEERING, INC
7415 GREENHAVEN DRIVE, SUITE 100
SACRAMENTO, CA 95831

KIMLEY-HORN AND ASSOCIATES, INC
200 CROW CANYON PLACE, SUITE 410
SAN RAMON, CA 94583



DEVELOPED ELEVATION
1:500

LEGEND

- ⇨ Indicates Direction of Travel
- ——— Indicates New Construction
- - - - Indicates Existing Structure
- (#) Indicates Curve Designation
- Indicates Point of Minimum Vertical Clearance
- Indicates Removal of Portion of Exist Structure

CURVE DATA TABLE				
CURVE NO.	RADIUS	LENGTH	TANGENT	DELTA
③	487.68 m 1600.00 ft	78.43 m 257.32 ft	39.30 m 128.94 ft	9°12'53"
④	1003.60 m 3292.65 ft	87.62 m 287.47 ft	43.84 m 143.83 ft	5°00'09"

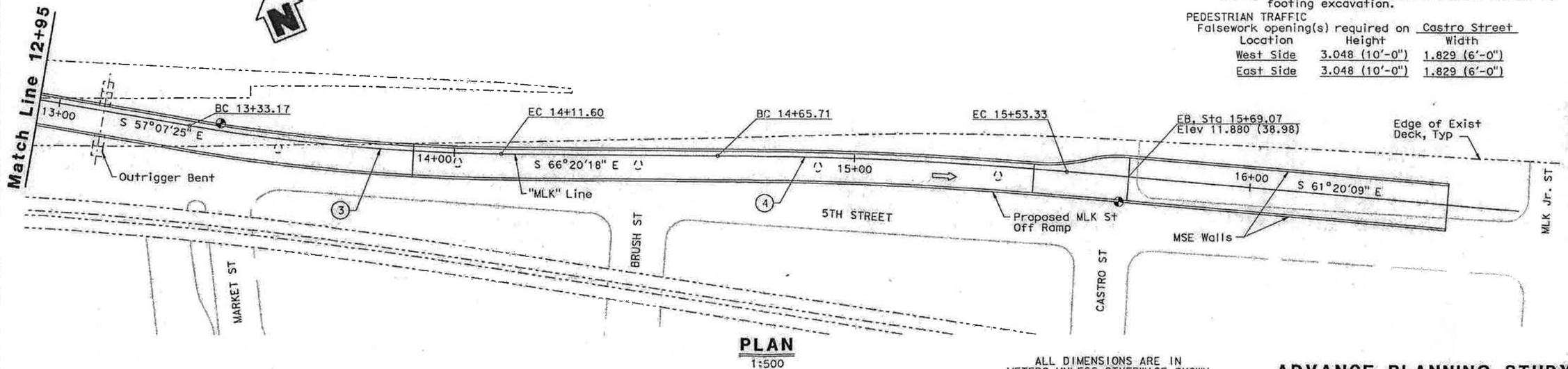
VEHICULAR TRAFFIC
1. ___ New alignment. No traffic at the site
2. ___ Traffic will be detoured away from the site.
3. ___ Traffic will be carried on the structure. And Stage construction will not be required
4. X Traffic will pass under the structure on Castro Street
   A. ___ No falsework allowed over traffic.
   B. X Falsework opening(s) required:

	Temporary Vertical Clearance	Width of Traffic Opening
N Bnd.	4.877 (16'-0")	7.925 (26'-0")
S Bnd.		
Two-Way		

   C. ___ Temporary traffic lane reduction needed for footing excavation.

PEDESTRIAN TRAFFIC
Falsework opening(s) required on Castro Street

Location	Height	Width
West Side	3.048 (10'-0")	1.829 (6'-0")
East Side	3.048 (10'-0")	1.829 (6'-0")



PLAN
1:500

ALL DIMENSIONS ARE IN METERS UNLESS OTHERWISE SHOWN

ADVANCE PLANNING STUDY

DESIGNED BY	G. Xu	DATE	01/29/10
DRAWN BY	X. Sun	DATE	01/29/10
CHECKED BY	R. Sennett	DATE	01/29/10
APPROVED	R. Sennett	DATE	01/29/10

G. Xu
PROJECT ENGINEER

MLK STREET OFF-RAMP

SHEET 2 OF 3

BRIDGE NO.	CU 04249
SCALE: As Noted	EA 0G360K

DESIGN OVERSIGHT

SIGN OFF DATE

ADVANCE PLANNING STUDY SHEET (METRIC) (REV. 6/21/04)

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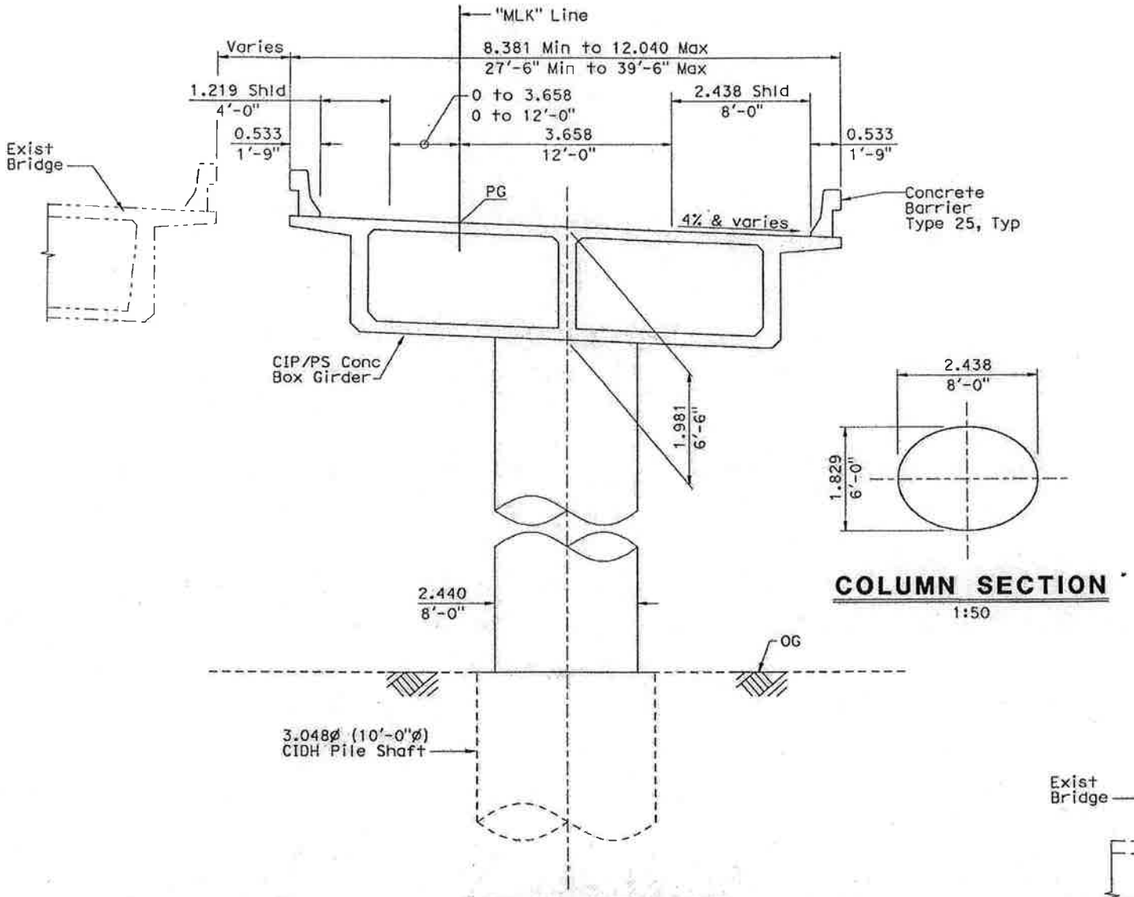
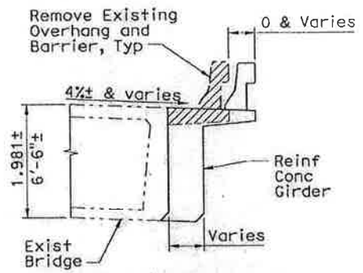
USERNAME => $USER DATE PLOTTED => $DATE TIME PLOTTED => $TIME

PREPARED FOR THE STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

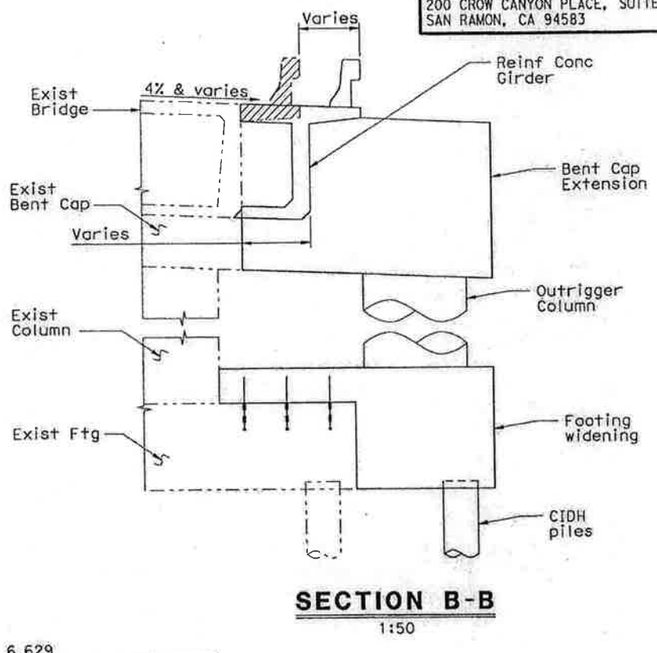


TYPICAL SECTION
1:50

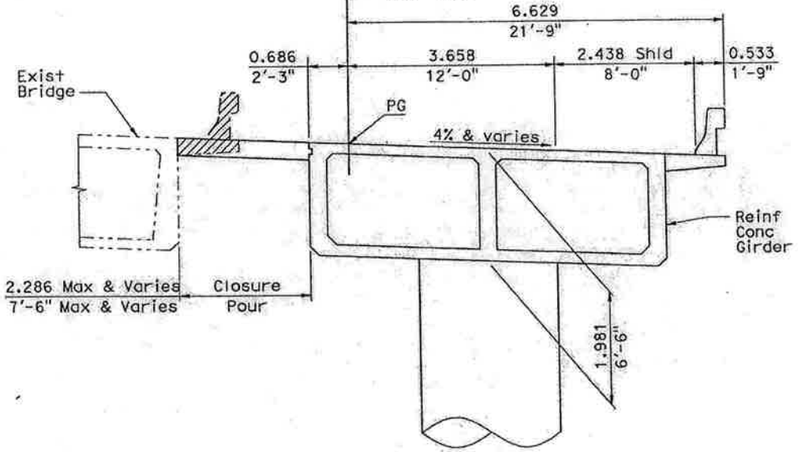
COLUMN SECTION
1:50



SECTION A-A
1:50



SECTION B-B
1:50



SECTION C-C
1:50

Note:

1. For location of Sections A-A, B-B and C-C, see "Sheet 1 of 3".

BRIDGE COST ESTIMATE

Date of Estimate	= 07/31/09
Bridge Removal	= $5,000
Structure Depth	= 1.98 m (6.50 ft)
Length	= 607.34 m (1992.58 ft)
Width	= Varies
Area	= 5090 m^2 (54788 ft^2)
Cost / Area Including 10% Mobilization and 25% Contingency	= $2,689.98/$m^2$ ($249.91/$ft^2$)
Total	= $13,697,000

MSE WALL COST ESTIMATE

Date of Estimate	= 07/31/09
Wall Area	= 462 m^2 (4970 ft^2)
Cost / Area Including 10% Mobilization and 25% Contingency	= $889.61/$m^2$ ($82.65/$ft^2$)
Total	= $441,000

DESIGN OVERSIGHT

SIGN OFF DATE

ADVANCE PLANNING STUDY SHEET (METRIC) (REV. 6/21/04)

ALL DIMENSIONS ARE IN METERS UNLESS OTHERWISE SHOWN

DESIGNED BY	G. Xu	DATE	01/29/10
DRAWN BY	X. Sun	DATE	01/29/10
CHECKED BY	R. Sennett	DATE	01/29/10
APPROVED	R. Sennett	DATE	01/29/10

G. Xu
PROJECT ENGINEER

Caltrans Metric

DIST.	COUNTY	ROUTE	KILOMETER POST TOTAL PROJECT
04	Ala	880	

MGE ENGINEERING, INC
7415 GREENHAVEN DRIVE, SUITE 100
SACRAMENTO, CA 95831

KIMLEY-HORN AND ASSOCIATES, INC
200 CROW CANYON PLACE, SUITE 410
SAN RAMON, CA 94583

ADVANCE PLANNING STUDY

MLK STREET OFF-RAMP

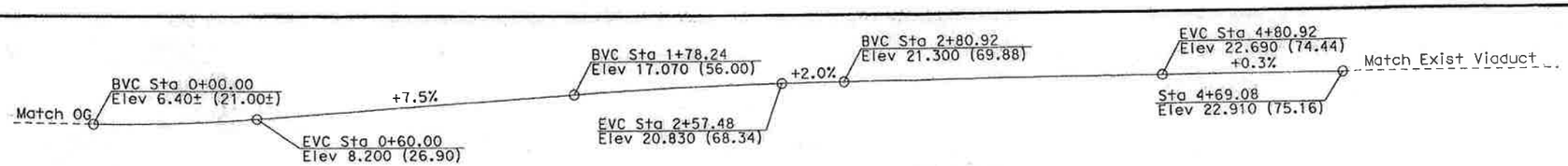
SHEET 3 OF 3

BRIDGE NO.	CU 04249
SCALE: As Noted	EA 0G360K

USERNAME => $USER DATE PLOTTED => $DATE TIME PLOTTED => $TIME

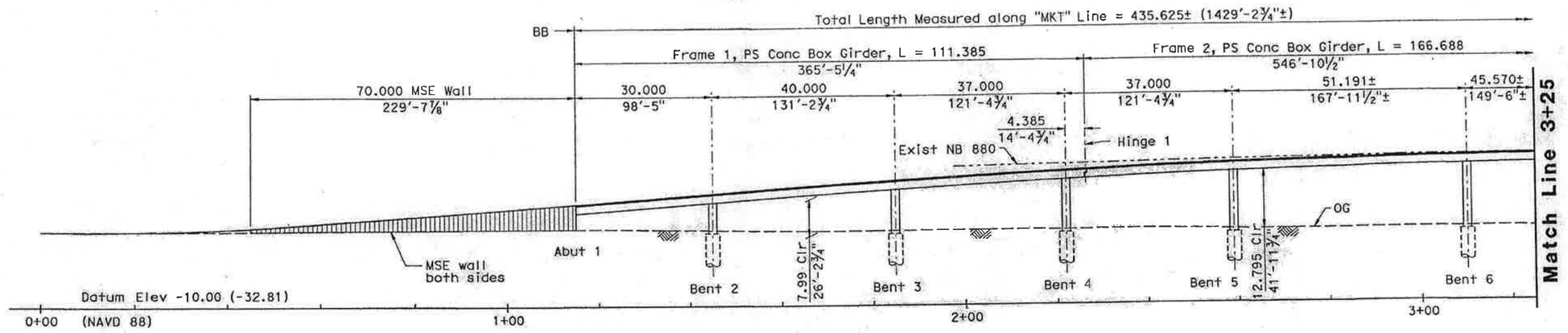
FILE => $REQUEST

PREPARED FOR THE STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION



PROFILE GRADE

No Scale



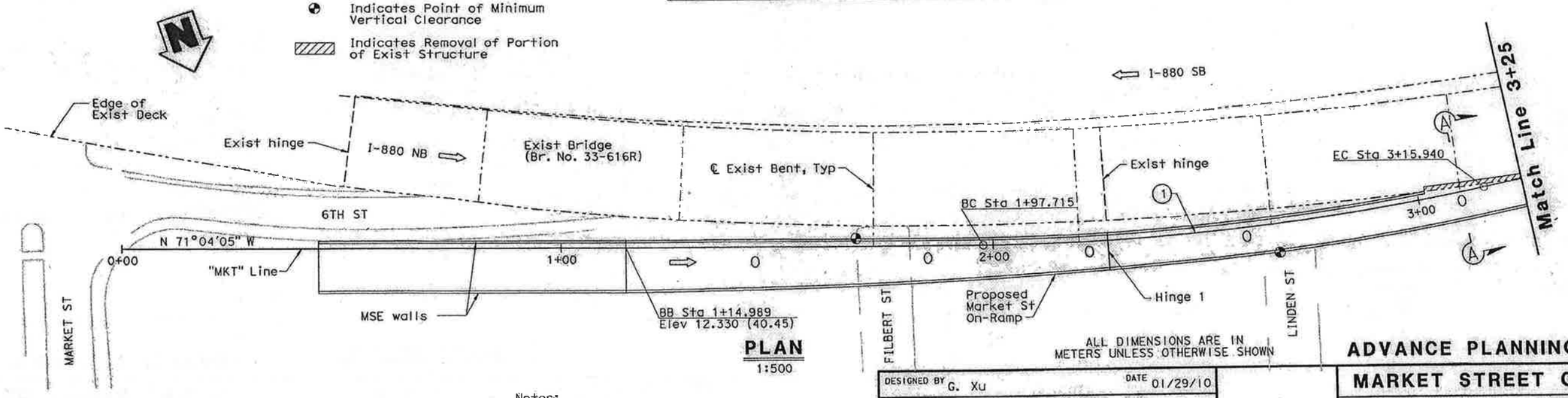
DEVELOPED ELEVATION

1:500

LEGEND

- ⇨ Indicates Direction of Travel
- ——— Indicates New Construction
- - - - Indicates Existing Structure
- (#) Indicates Curve Designation
- Indicates Point of Minimum Vertical Clearance
- Indicates Removal of Portion of Exist Structure

CURVE DATA TABLE				
CURVE NO.	RADIUS	LENGTH	TANGENT	DELTA
(1)	580.000 m 1902.89 ft	118.225 m 387.88 ft	59.318 m 194.61 ft	11°40'44"



PLAN

1:500

ALL DIMENSIONS ARE IN METERS UNLESS OTHERWISE SHOWN

Notes:

1. For Section A-A and Typical Section, see "SHEET 3 OF 3".
2. For Cost Estimate, see "SHEET 2 OF 3".

DIST.	COUNTY	ROUTE	KILOMETER POST TOTAL PROJECT
04	Ala	880	

MGE ENGINEERING, INC
7415 GREENHAVEN DRIVE, SUITE 100
SACRAMENTO, CA 95831

KIMLEY-HORN AND ASSOCIATES, INC
200 CROW CANYON PLACE, SUITE 410
SAN RAMON, CA 94583

DESIGN OVERSIGHT

SIGN OFF DATE

ADVANCE PLANNING STUDY SHEET (METRIC) (REV. 6/21/04)

DESIGNED BY	G. Xu	DATE 01/29/10
DRAWN BY	X. Sun	DATE 01/29/10
CHECKED BY	R. Sennett	DATE 01/29/10
APPROVED	R. Sennett	DATE 01/29/10

G. Xu
PROJECT ENGINEER

ADVANCE PLANNING STUDY

MARKET STREET ON-RAMP

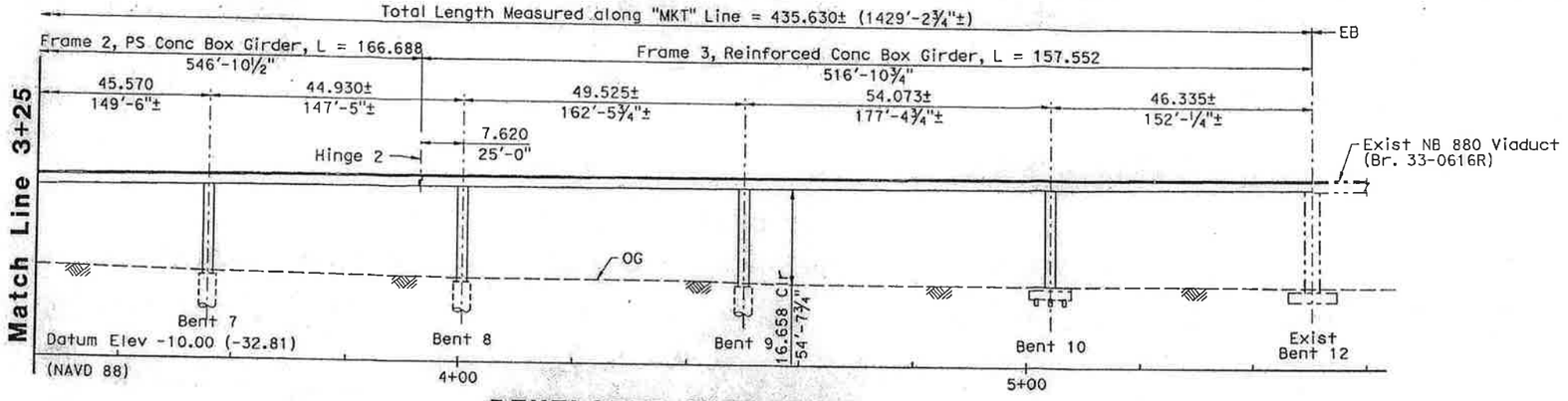
SHEET 1 OF 3

BRIDGE NO.	CU 04249
SCALE: As Noted	EA 0G360K

FILE => $REQUEST

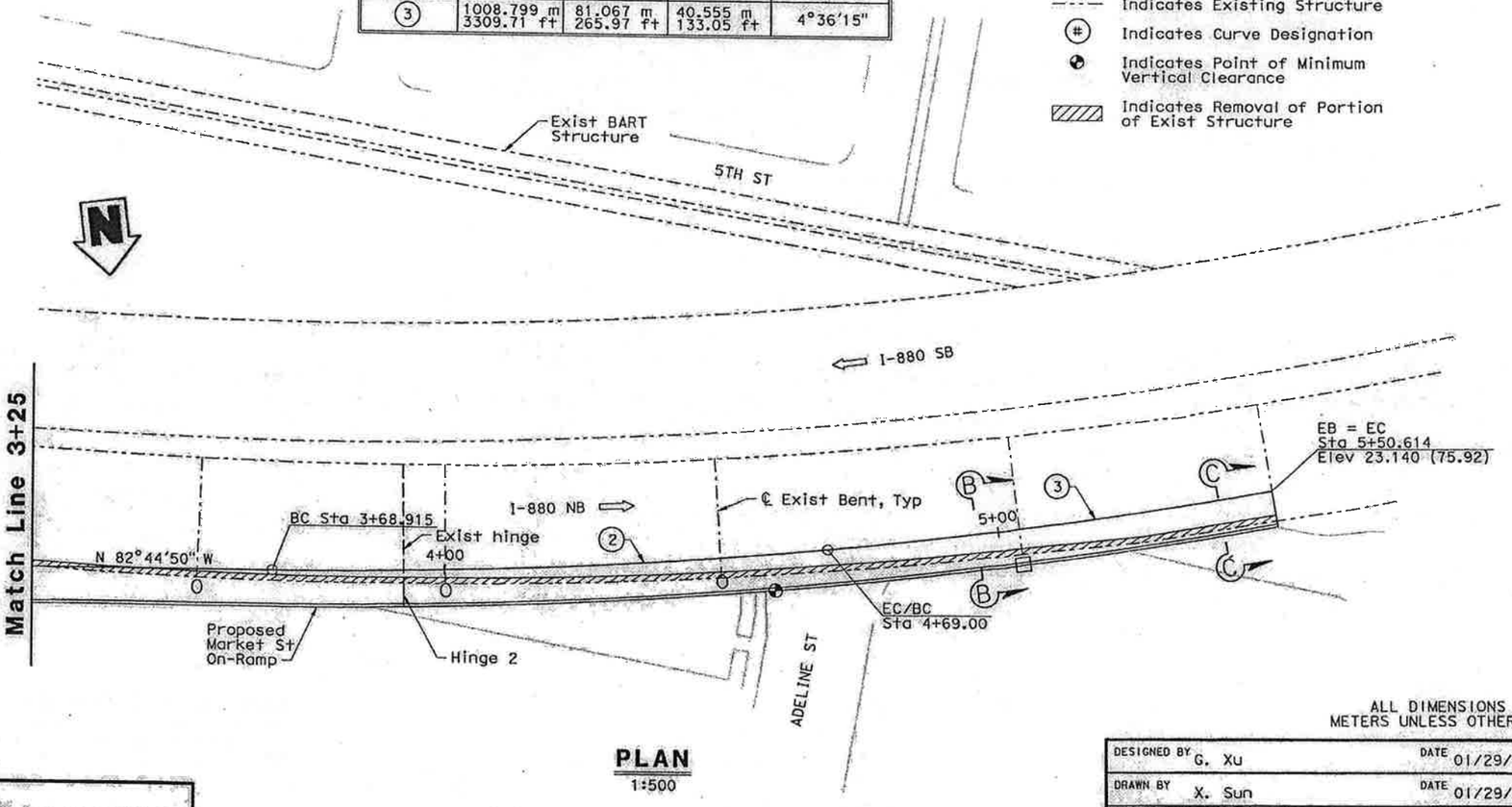
USERNAME => $USER DATE PLOTTED => $DATE TIME PLOTTED => $TIME

PREPARED FOR THE STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION



DEVELOPED ELEVATION
1:500

CURVE DATA TABLE				
CURVE NO.	RADIUS	LENGTH	TANGENT	DELTA
②	1011.599 m 3318.89 ft	100.170 m 328.64 ft	50.126 m 164.46 ft	5°40'25"
③	1008.799 m 3309.71 ft	81.067 m 265.97 ft	40.555 m 133.05 ft	4°36'15"



PLAN
1:500

LEGEND

- ⇨ Indicates Direction of Travel
- ——— Indicates New Construction
- - - - Indicates Existing Structure
- (#) Indicates Curve Designation
- ◐ Indicates Point of Minimum Vertical Clearance
- ▨ Indicates Removal of Portion of Exist Structure

VEHICULAR TRAFFIC
1. ___ New alignment. No traffic at the site
2. ___ Traffic will be detoured away from the site.
3. ___ Traffic will be carried on the structure. And Stage construction will not be required
4. X Traffic will pass under the structure on Castro Street
   - A. ___ No falsework allowed over traffic.
   - B. X Falsework opening(s) required:

	Temporary Vertical Clearance	Width of Traffic Opening
N Bnd.	4.877 (16'-0")	7.925 (26'-0")
S Bnd.		
Two-Way		

   - C. ___ Temporary traffic lane reduction needed for footing excavation.

PEDESTRIAN TRAFFIC
Falsework opening(s) required on Adeline Street

Location	Height	Width
West Side	3.048 (10'-0")	1.829 (6'-0")
East Side	3.048 (10'-0")	1.829 (6'-0")

Bridge Cost Estimate

Date of Estimate	= 07/31/09
Bridge Removal	= $11,000
Structure Depth	= 1.98 m (6.50 ft)
Length	= 435.61 m (1429.17 ft)
Width	= Varies
Area	= 3650 m² (39288.27 ft²)
Cost / Area Including 10% Mobilization and 25% Contingency	= $2690.14/m² ($250/ft²)
Total	= $9,830,000

MSE Wall Cost Estimate

Date of Estimate	= 07/31/09
Wall Area	= 497.0 m² (5344 ft²)
Cost / Area Including 10% Mobilization and 25% Contingency	= $883.30/m² ($82.15/ft²)
Total	= $439,000

Note:
1. For Sections B-B and C-C, see "SHEET 3 OF 3".

ALL DIMENSIONS ARE IN METERS UNLESS OTHERWISE SHOWN

DIST.	COUNTY	ROUTE	KILOMETER POST TOTAL PROJECT
04	Ala	880	

MGE ENGINEERING, INC
7415 GREENHAVEN DRIVE, SUITE 100
SACRAMENTO, CA 95831

KIMLEY-HORN AND ASSOCIATES, INC
200 CROW CANYON PLACE, SUITE 410
SAN RAMON, CA 94583

DESIGN OVERSIGHT
SIGN OFF DATE
ADVANCE PLANNING STUDY SHEET (METRIC) (REV. 6/21/04)

DESIGNED BY G. Xu	DATE 01/29/10	G. Xu, PROJECT ENGINEER
DRAWN BY X. Sun	DATE 01/29/10	
CHECKED BY R. Sennett	DATE 01/29/10	
APPROVED R. Sennett	DATE 01/29/10	

FILE => $REQUEST

ADVANCE PLANNING STUDY
MARKET STREET ON-RAMP
SHEET 2 OF 3

BRIDGE NO.	CU 04249
SCALE: As Noted	EA 0G360K

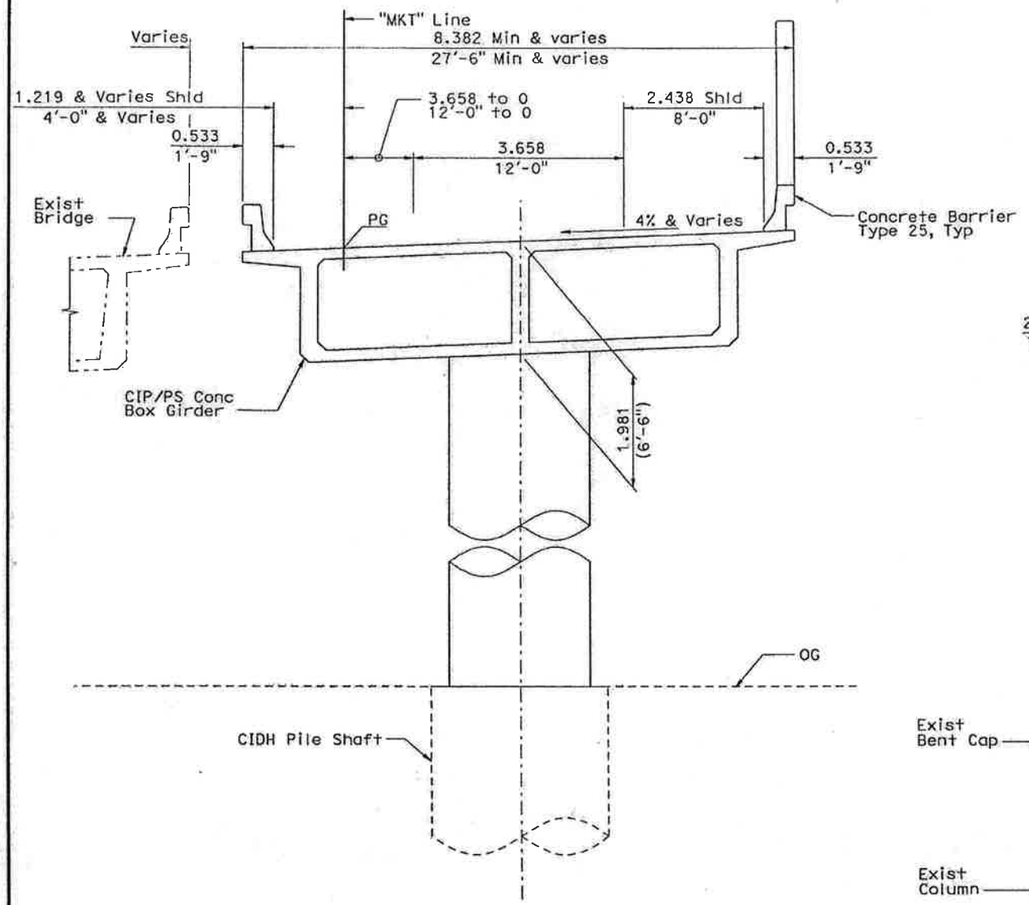
USERNAME => $USER DATE PLOTTED => $DATE TIME PLOTTED => $TIME

PREPARED FOR THE STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

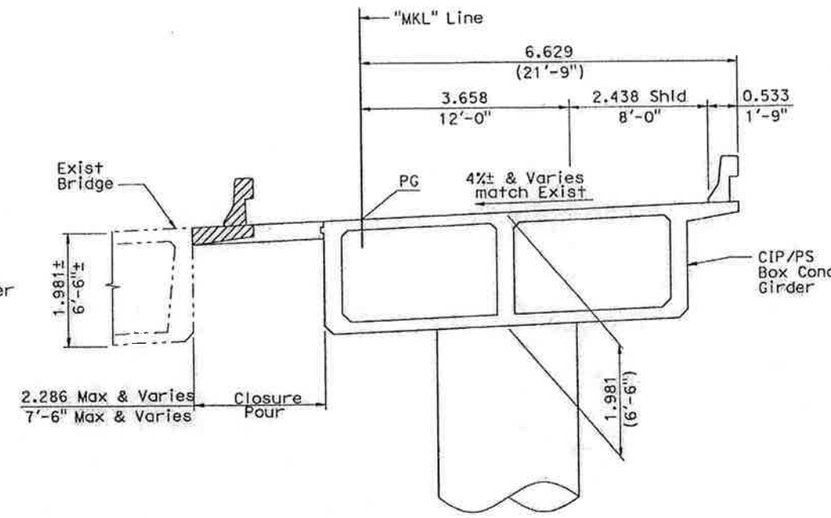
DIST.	COUNTY	ROUTE	KILOMETER POST TOTAL PROJECT
04	Ala	880	

MGE ENGINEERING, INC
7415 GREENHAVEN DRIVE, SUITE 100
SACRAMENTO, CA 95831

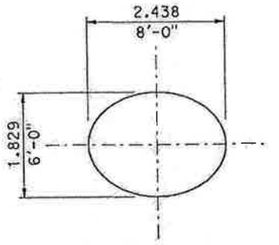
KIMLEY-HORN AND ASSOCIATES, INC
200 CROW CANYON PLACE, SUITE 410
SAN RAMON, CA 94583



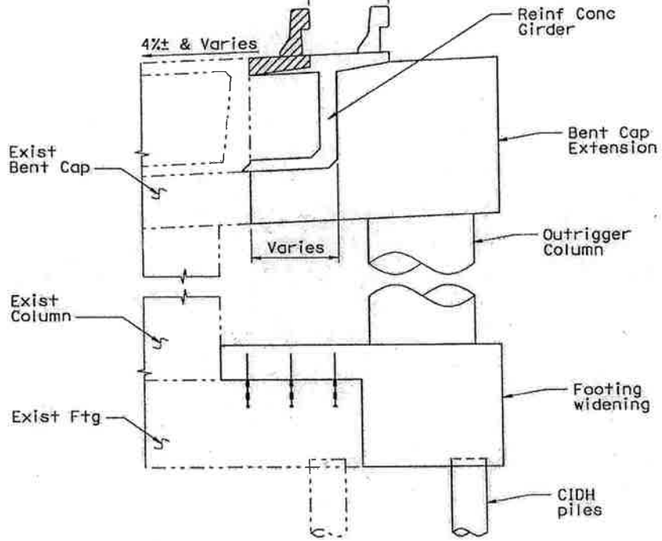
TYPICAL SECTION
1:50



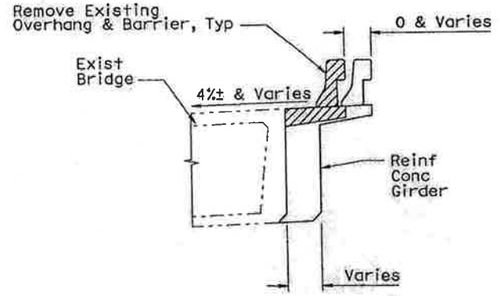
SECTION A-A
1:50



COLUMN SECTION
1:50



SECTION B-B
1:50



SECTION C-C
1:50

Notes:

1. For location of Section A-A, see "Sheet 1 of 3".
2. For location of Sections B-B and C-C, see "Sheet 2 fo 3".

ALL DIMENSIONS ARE IN METERS UNLESS OTHERWISE SHOWN

ADVANCE PLANNING STUDY

MARKET STREET ON-RAMP

SHEET 3 OF 3

DESIGNED BY	G. Xu	DATE	01/29/10
DRAWN BY	X. Sun	DATE	01/29/10
CHECKED BY	R. Sennett	DATE	01/29/10
APPROVED	R. Sennett	DATE	01/29/10

G. Xu
PROJECT ENGINEER

BRIDGE NO.	CU 04249
SCALE: As Noted	EA 0G360K

DESIGN OVERSIGHT

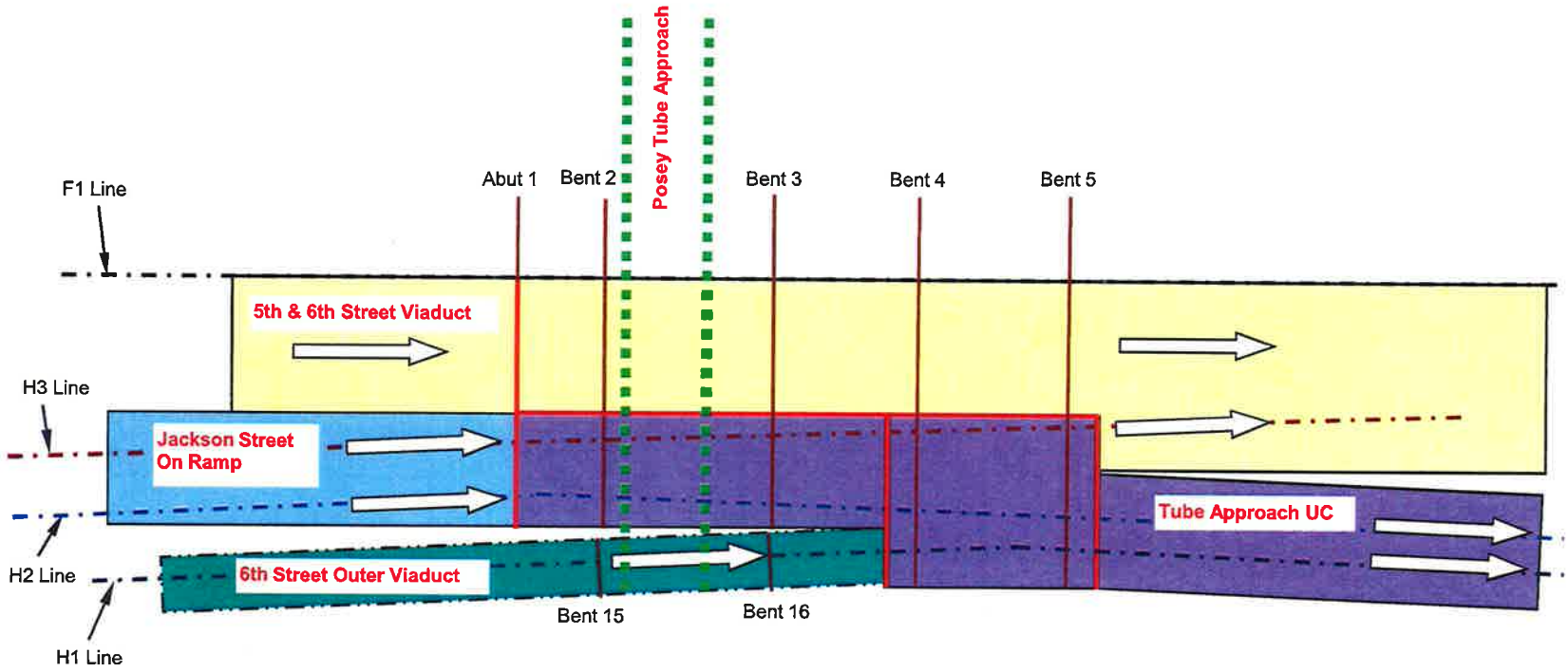
SIGN OFF DATE

ADVANCE PLANNING STUDY SHEET (METRIC) (REV. 6/21/04)

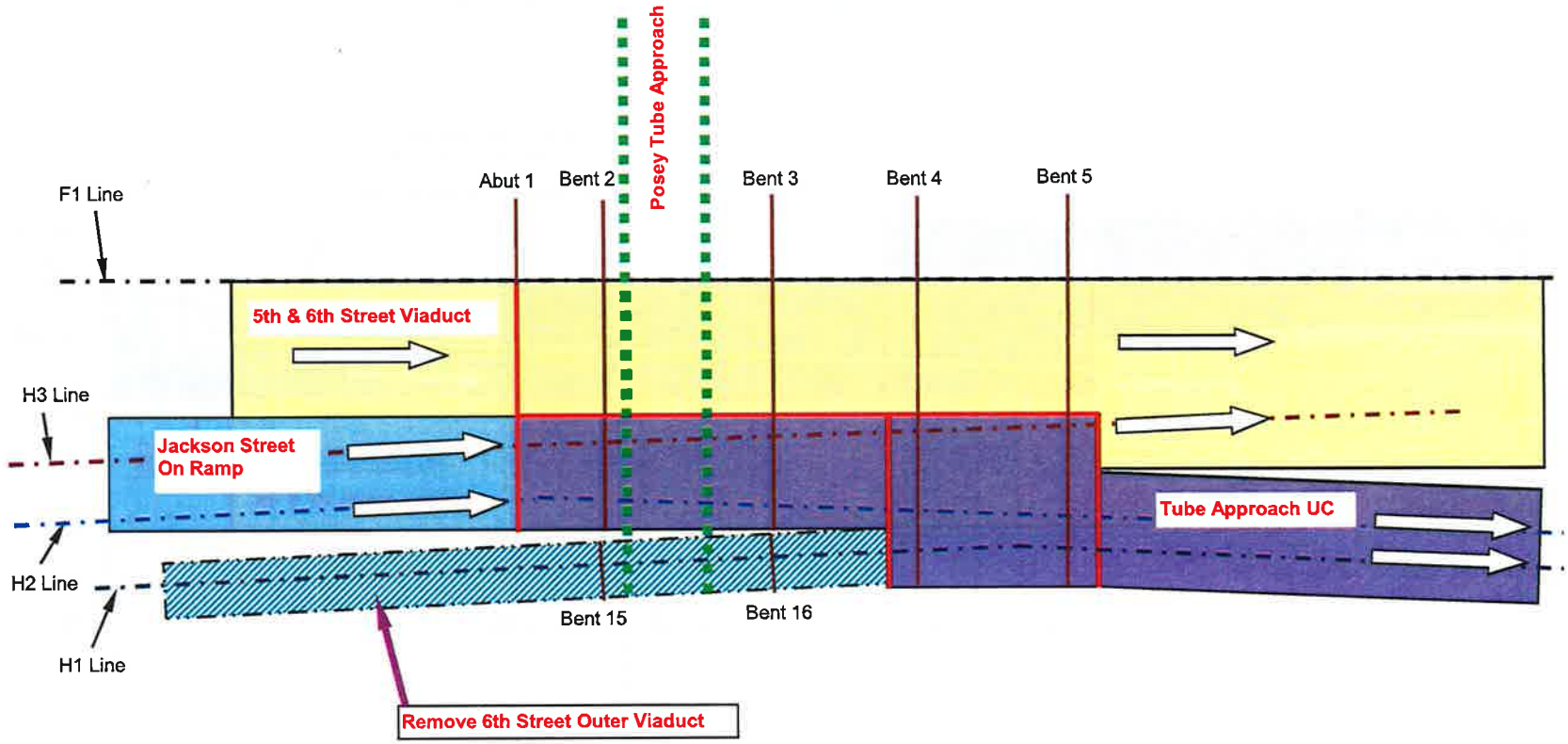
FILE -> $REQUEST

DATE PLOTTED -> $DATE
TIME PLOTTED -> $TIME
USERNAME -> $USER

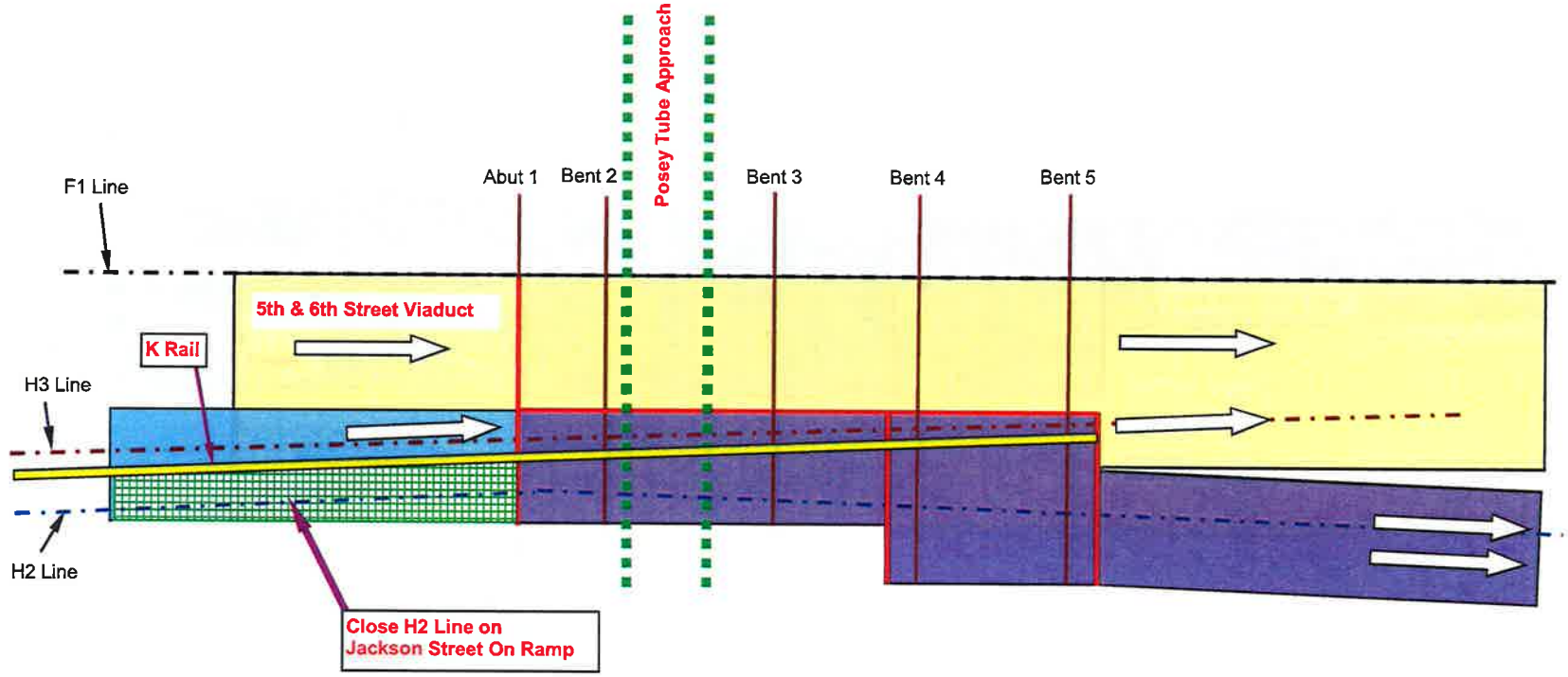
WS-1 WEBSTER STREET OFF-RAMP: STAGE CONSTRUCTION



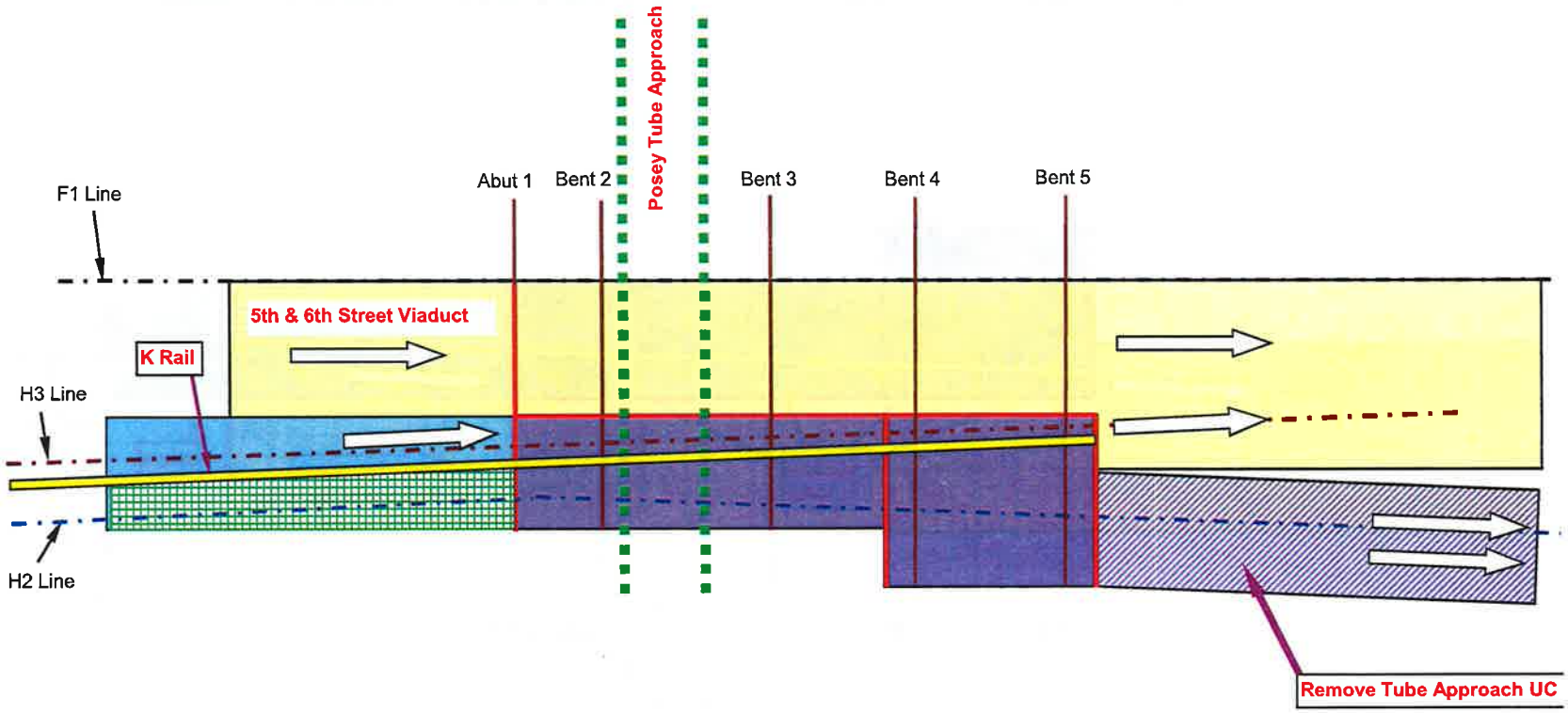
Existing Viaduct Layout at Posey Tube Approach Location



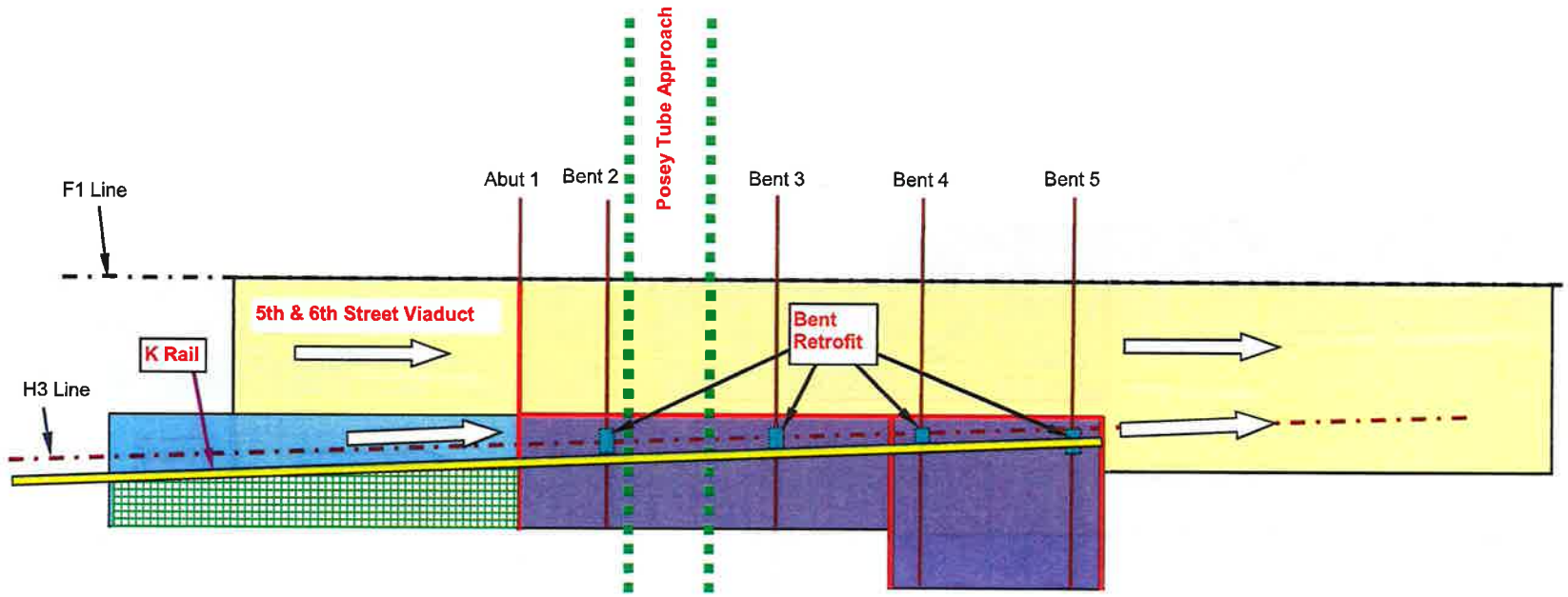
Stage 1: Remove 6th Street Outer Viaduct



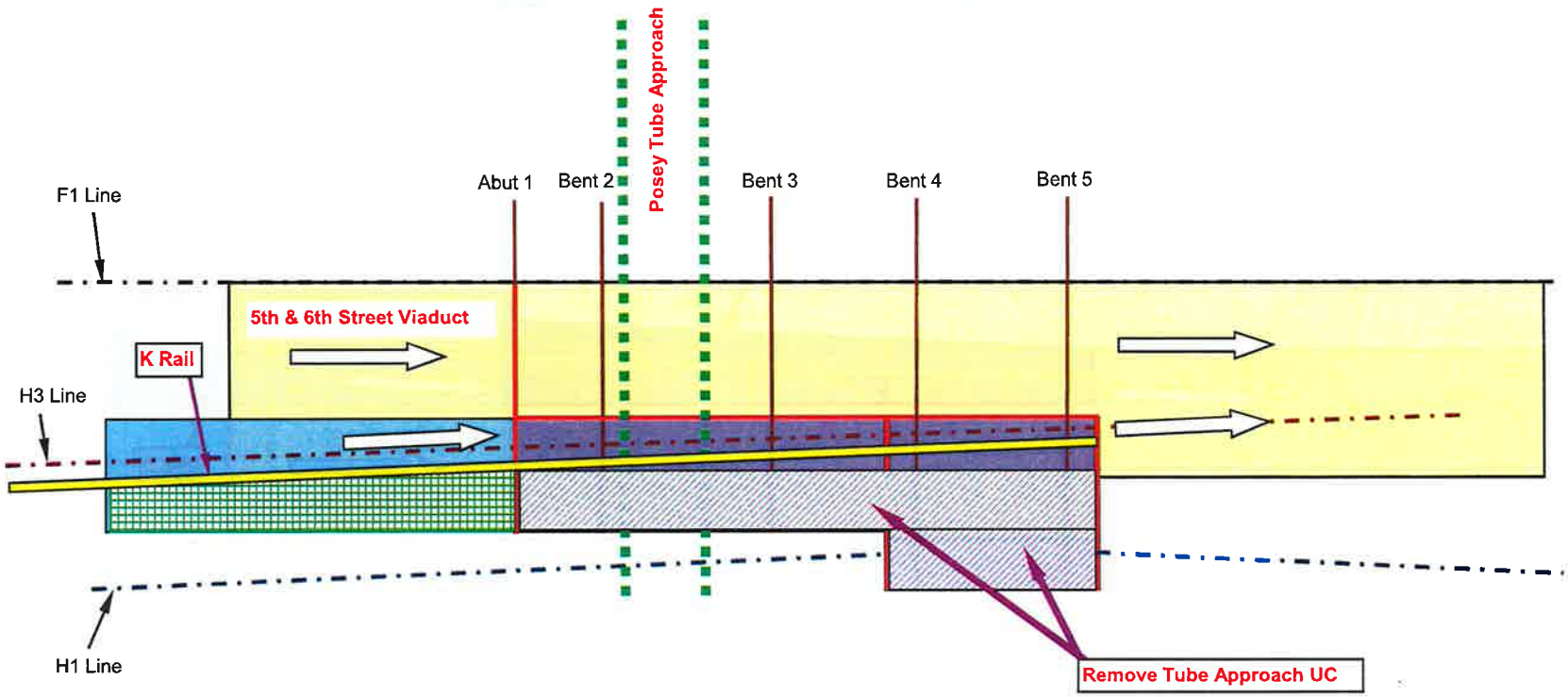
Stage 2: Close H2 Line on Jackson Street On Ramp



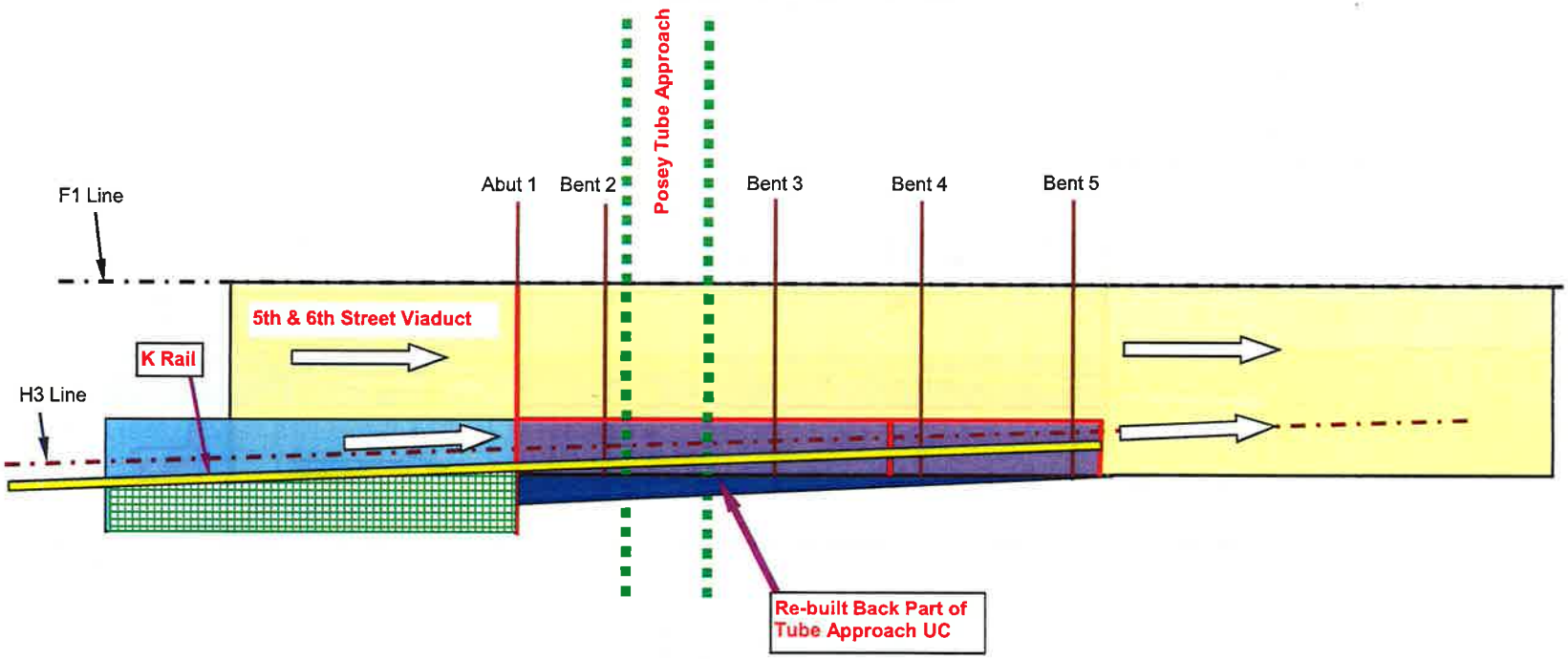
Stage 3: Remove Majority of Tube Approach UC



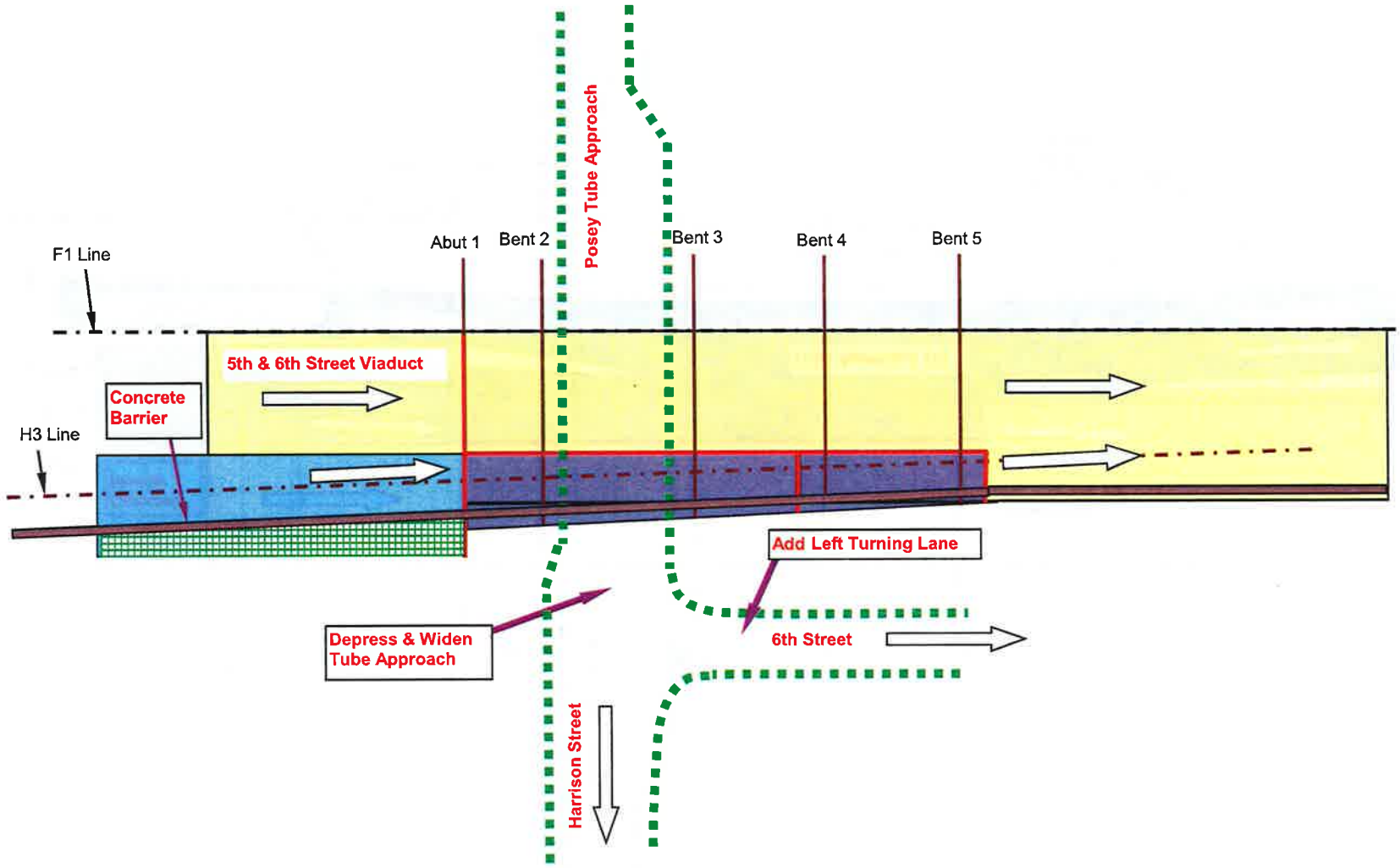
Stage 4: Retrofit Column in Bent 2, Bent 3, Bent 4 & Bent 5 (from "Pin" connection to "Fix" connection)



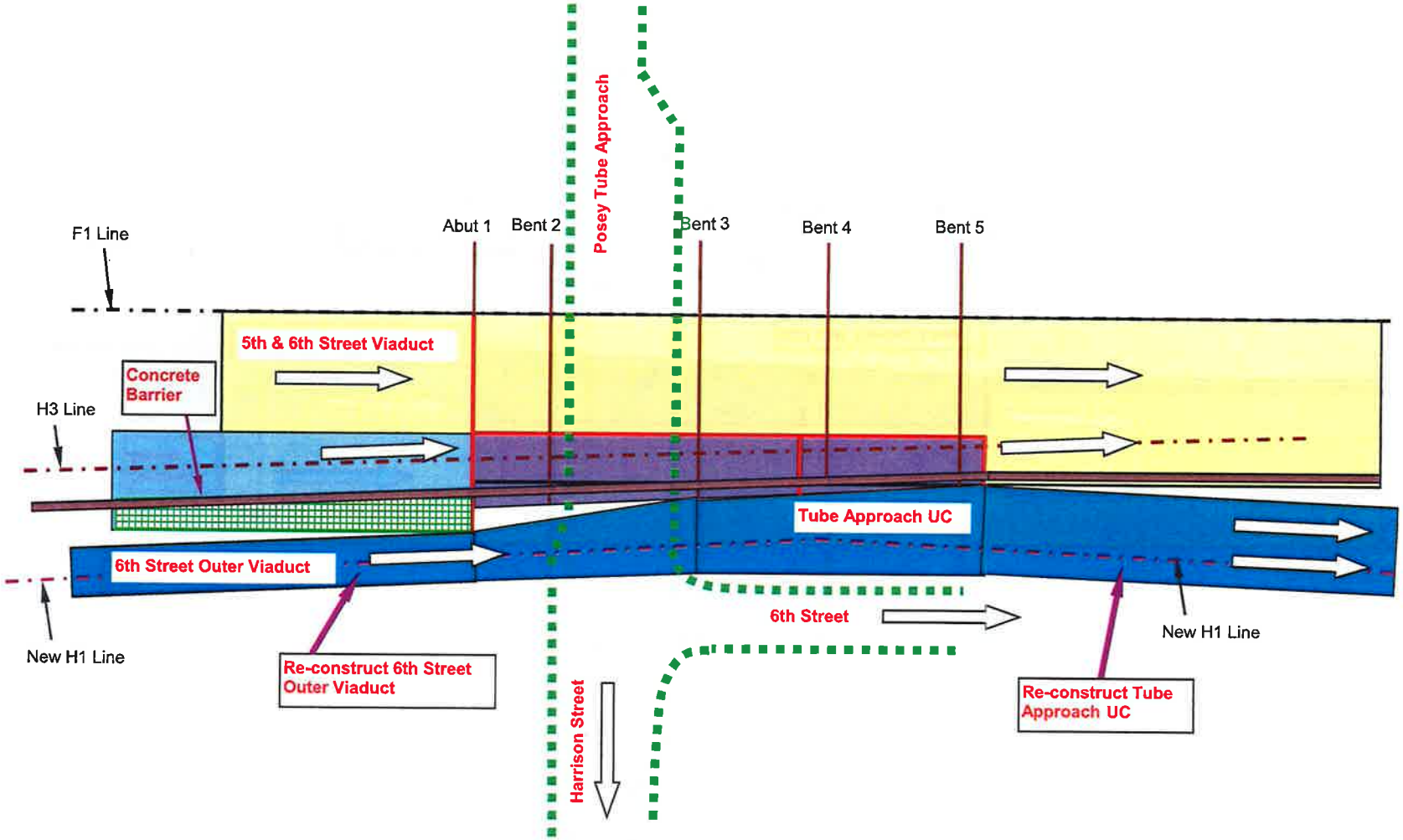
Stage 5: Remove Part of Tube Approach UC



Stage 6: Re-built Back Part of Tube Approach UC (only Exterior Girder portion)



Stage 7: Depress & Widen Posey Tube Approach, Add Left Turning Lane



Stage 8: Re-construct 6th Street Outer Viaduct & Tube Approach UC

DEPRESSED SECTION OF HARRISON STREET
STAGE CONSTRUCTION

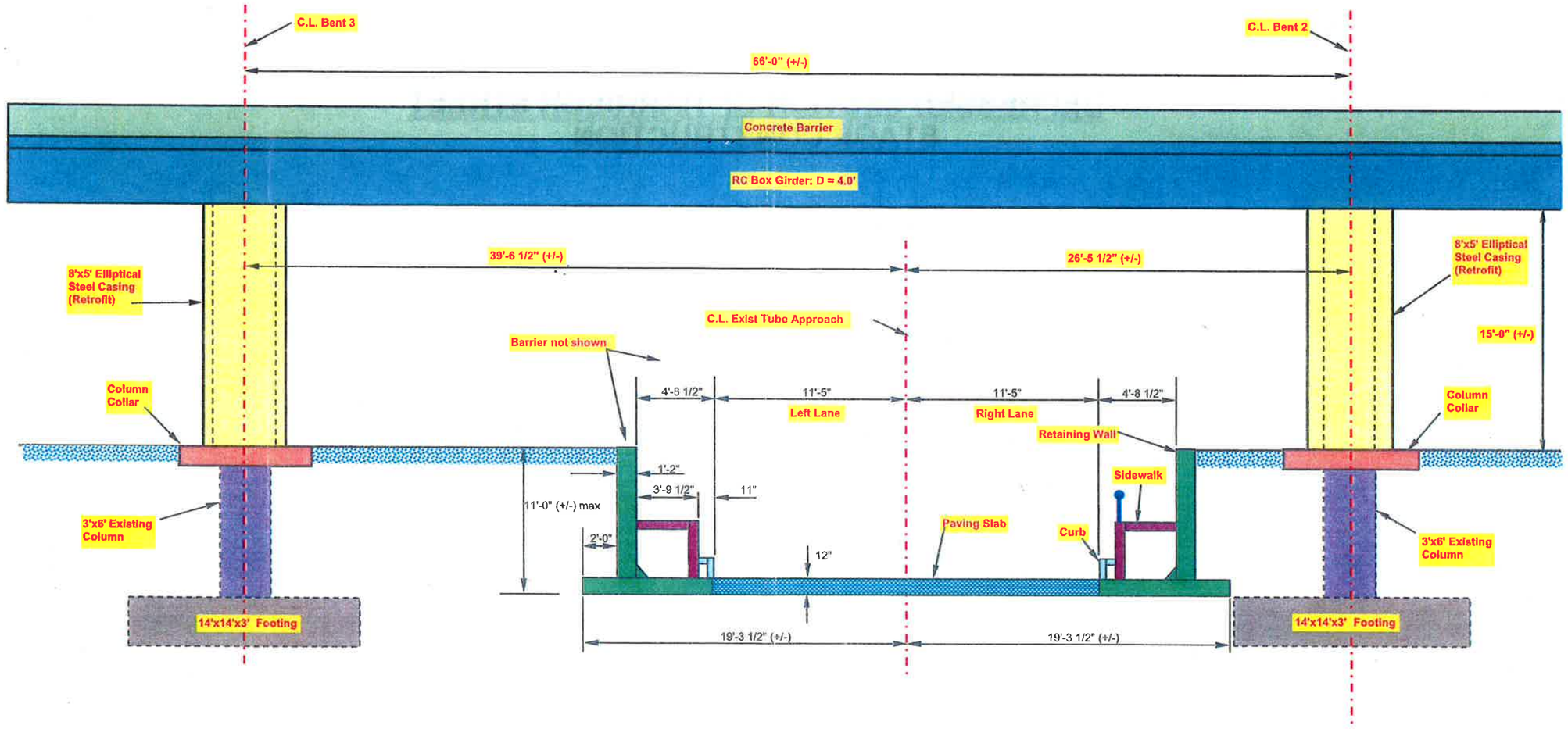
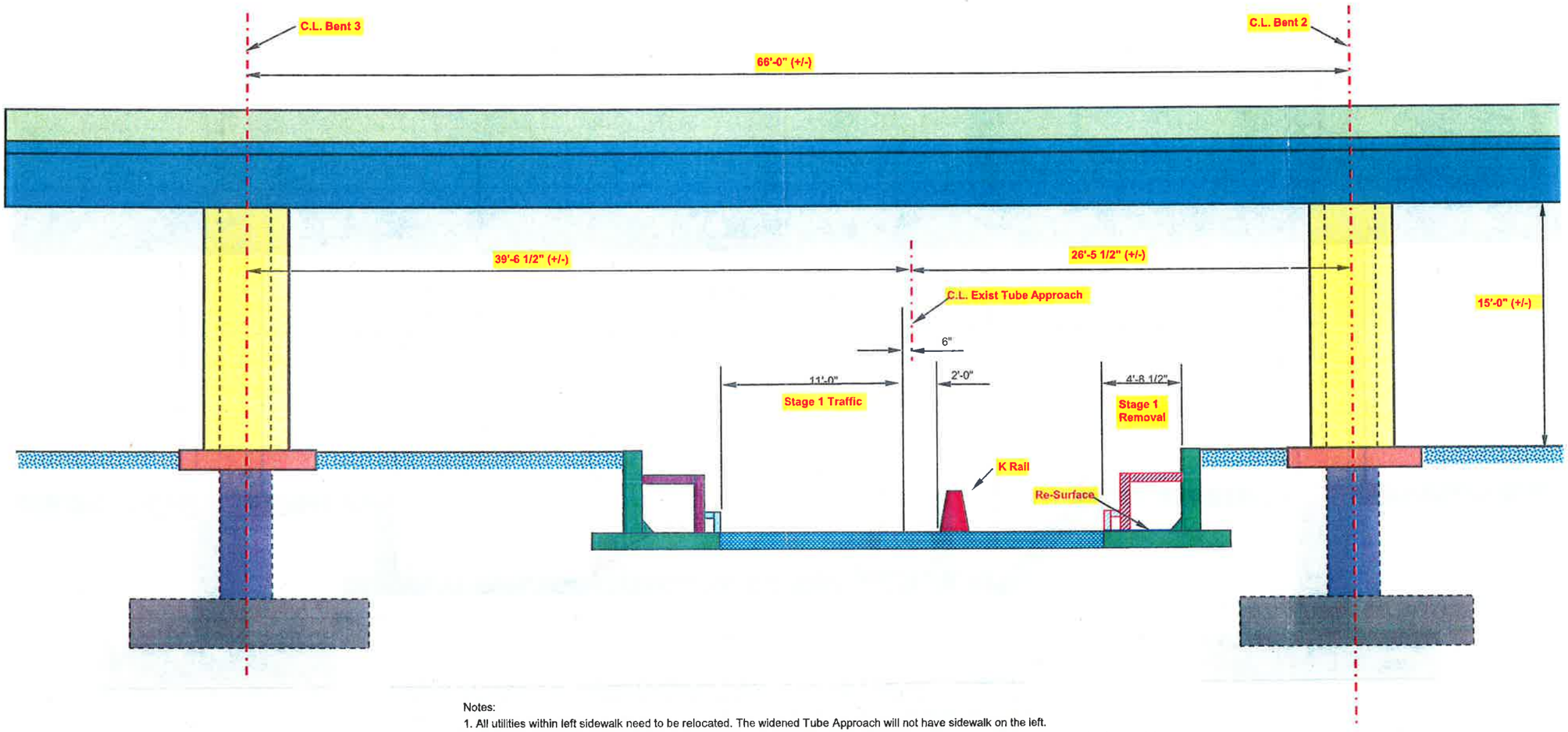
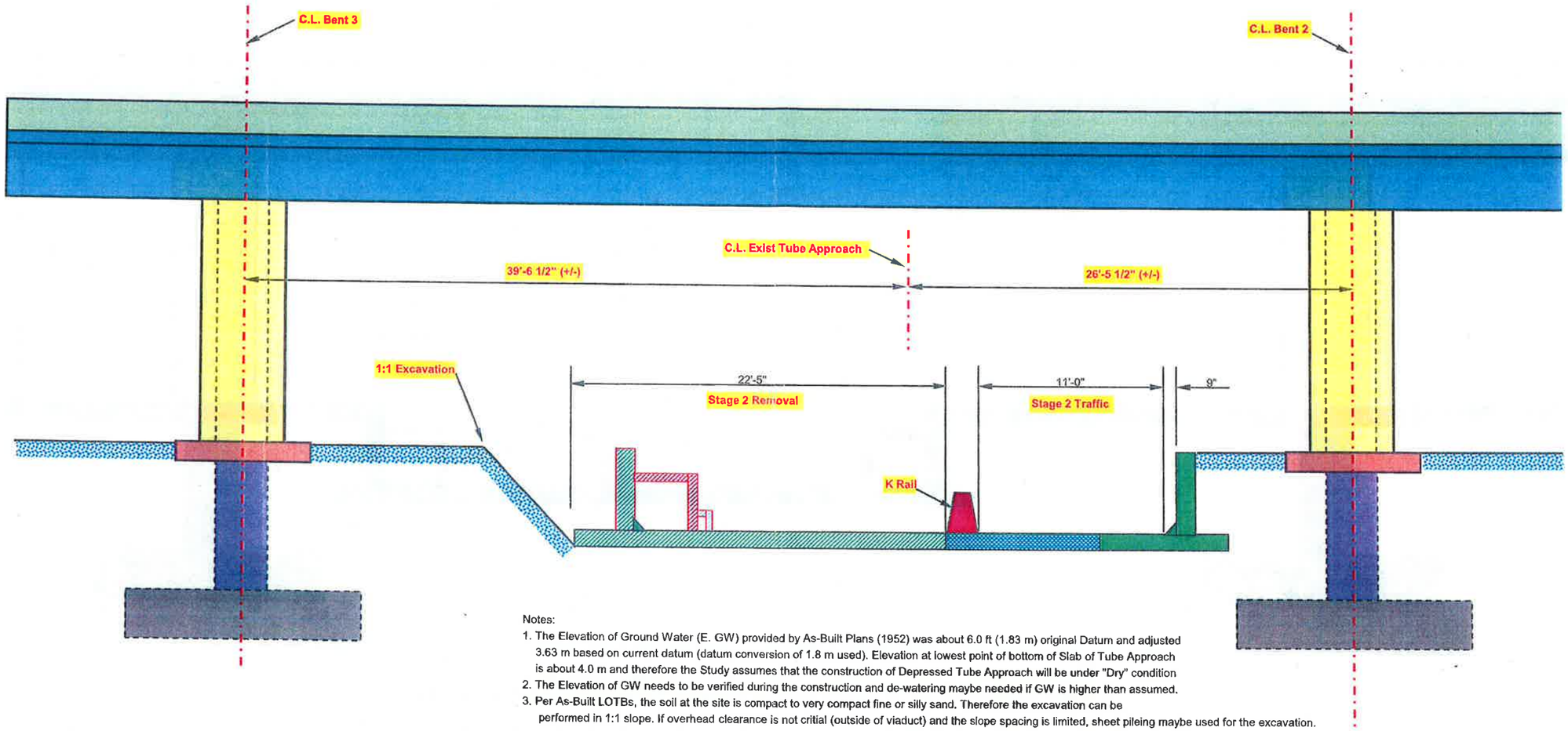


Figure 1. Typical Section - Existing Tube Approach



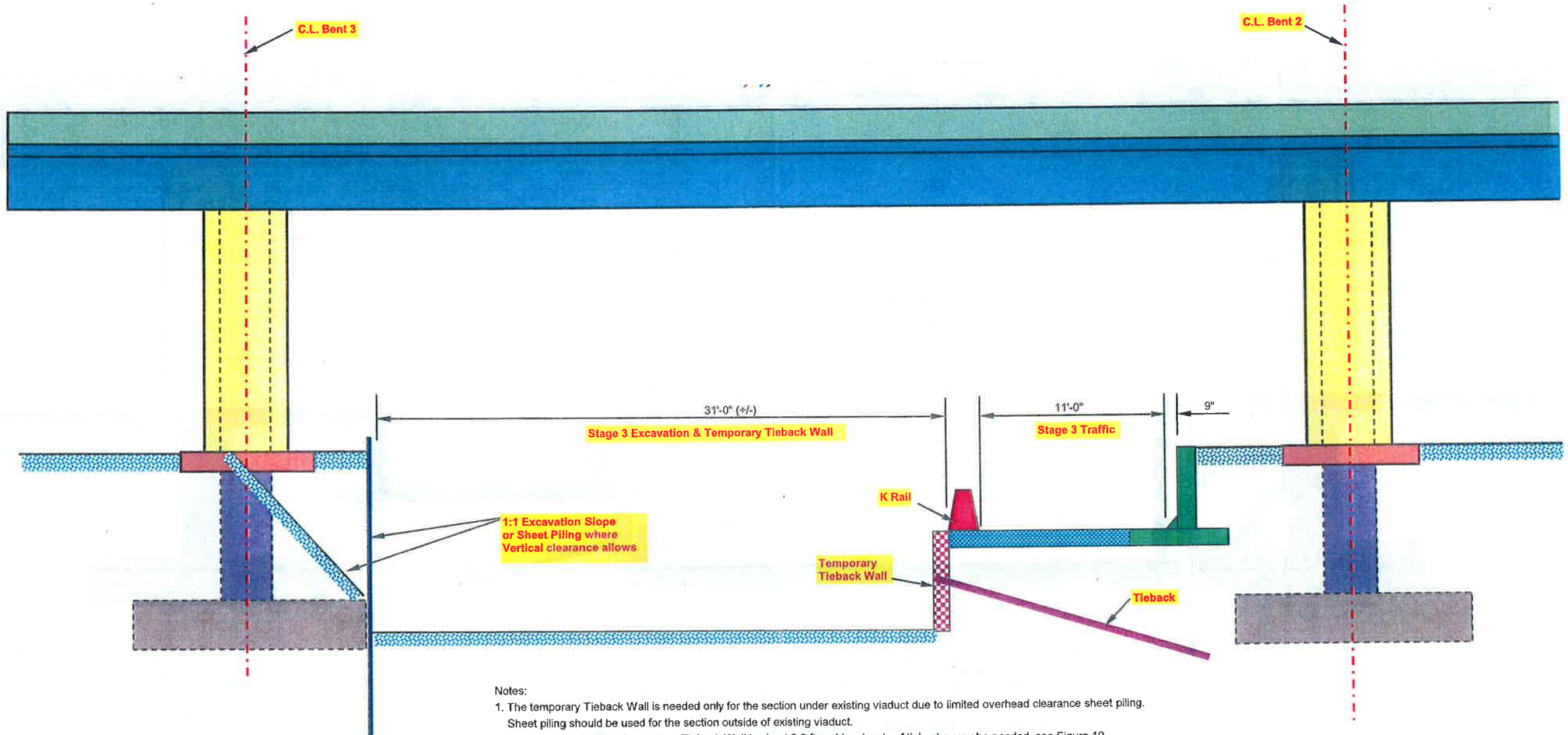
Notes:
1. All utilities within left sidewalk need to be relocated. The widened Tube Approach will not have sidewalk on the left.
2. All utilities within right sidewalk need to be temporarily relocated and re-installed after the Tube Approach Widening/Deprssing is complete

Figure 2. Stage 1 - Remove Right Lane Sidewalk and Curb, Re-Surface This Portion of Slab



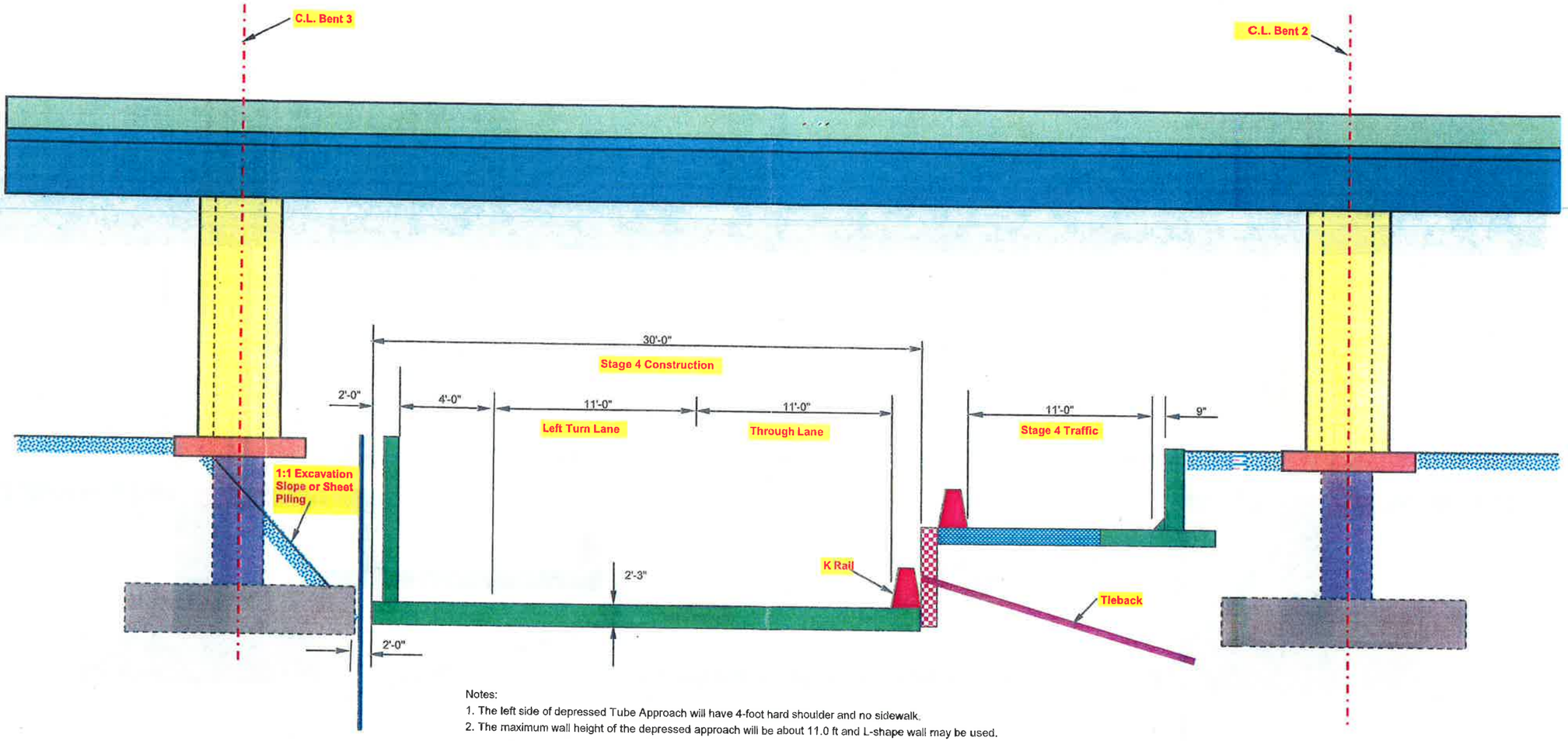
Notes:
1. The Elevation of Ground Water (E. GW) provided by As-Built Plans (1952) was about 6.0 ft (1.83 m) original Datum and adjusted 3.63 m based on current datum (datum conversion of 1.8 m used). Elevation at lowest point of bottom of Slab of Tube Approach is about 4.0 m and therefore the Study assumes that the construction of Depressed Tube Approach will be under "Dry" condition
2. The Elevation of GW needs to be verified during the construction and de-watering maybe needed if GW is higher than assumed.
3. Per As-Built LOTBs, the soil at the site is compact to very compact fine or silly sand. Therefore the excavation can be performed in 1:1 slope. If overhead clearance is not critial (outside of viaduct) and the slope spacing is limited, sheet pileing maybe used for the excavation.

Figure 3. Stage 2 - Remove Left Lane Tube Approach (Wall, Slab, Sidewalk, Curb)



Notes:
1. The temporary Tieback Wall is needed only for the section under existing viaduct due to limited overhead clearance sheet piling. Sheet piling should be used for the section outside of existing viaduct.
2. The maximum height of temporary Tieback Wall is about 9.0 ft and two levels of tiebacks may be needed, see Figure 10 for illustration of clearance requirement during tieback wall construction.

Figure 4. Stage 3 - Construct a Temporary Tieback Wall (Max. High = 9.0' +/-)



Notes:
1. The left side of depressed Tube Approach will have 4-foot hard shoulder and no sidewalk.
2. The maximum wall height of the depressed approach will be about 11.0 ft and L-shape wall may be used.

Figure 5. Stage 4 - Depress, Widen Tube Approach Left Lane

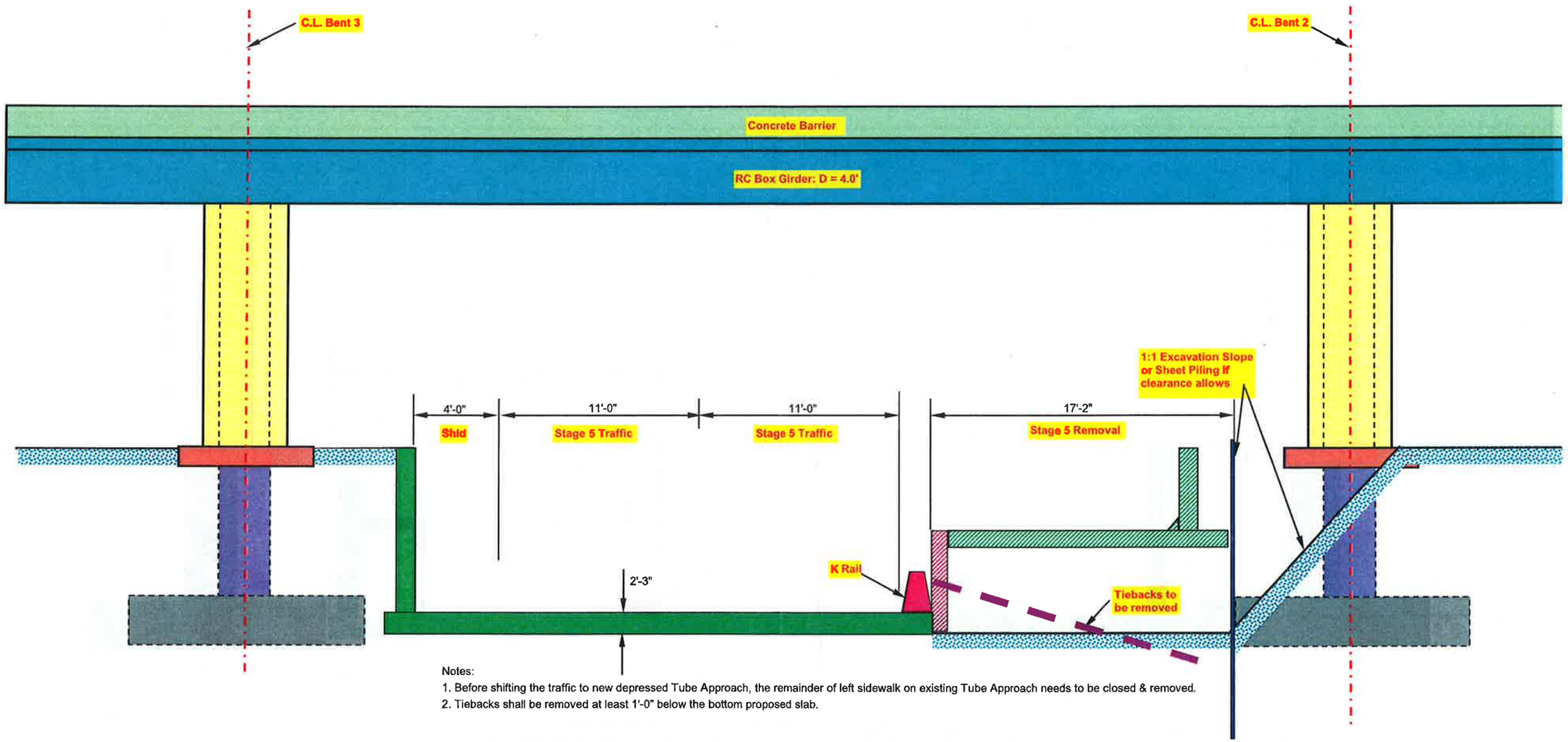
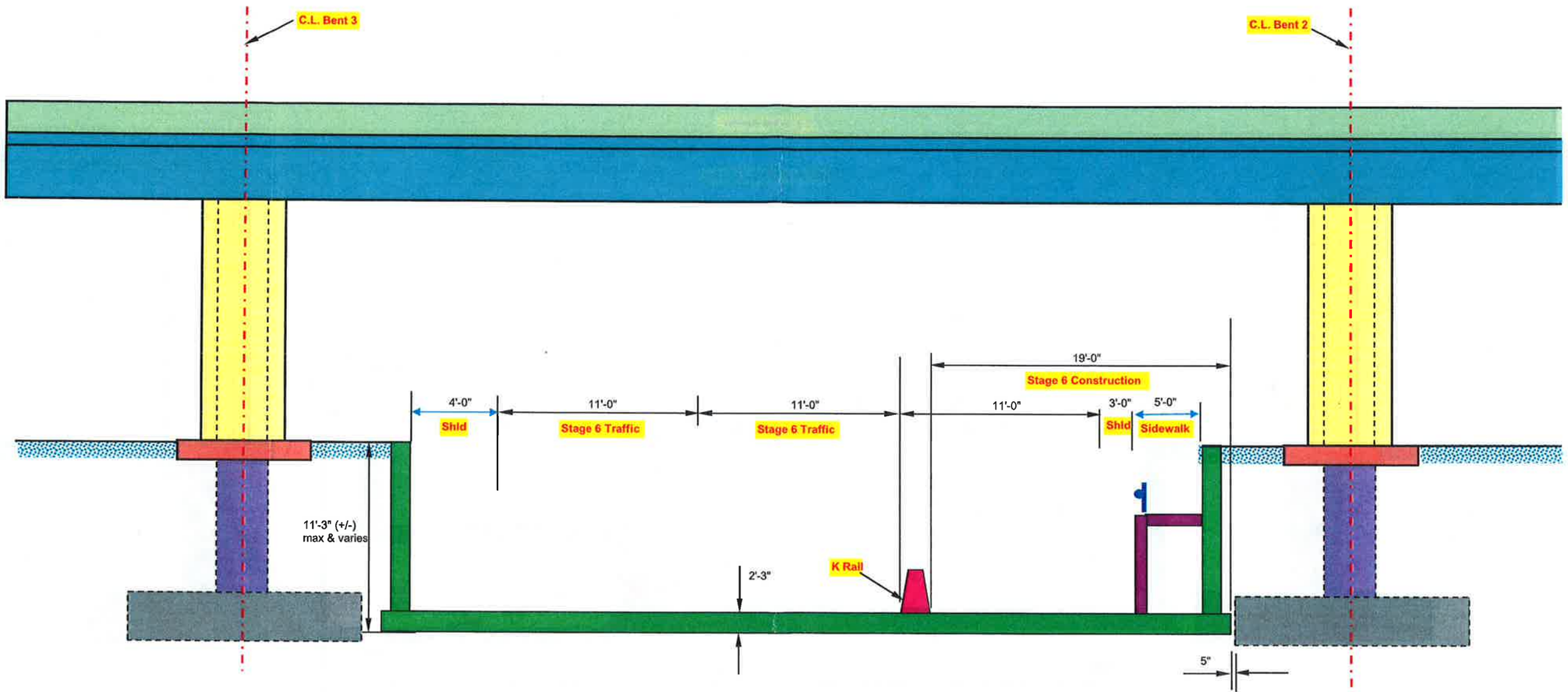
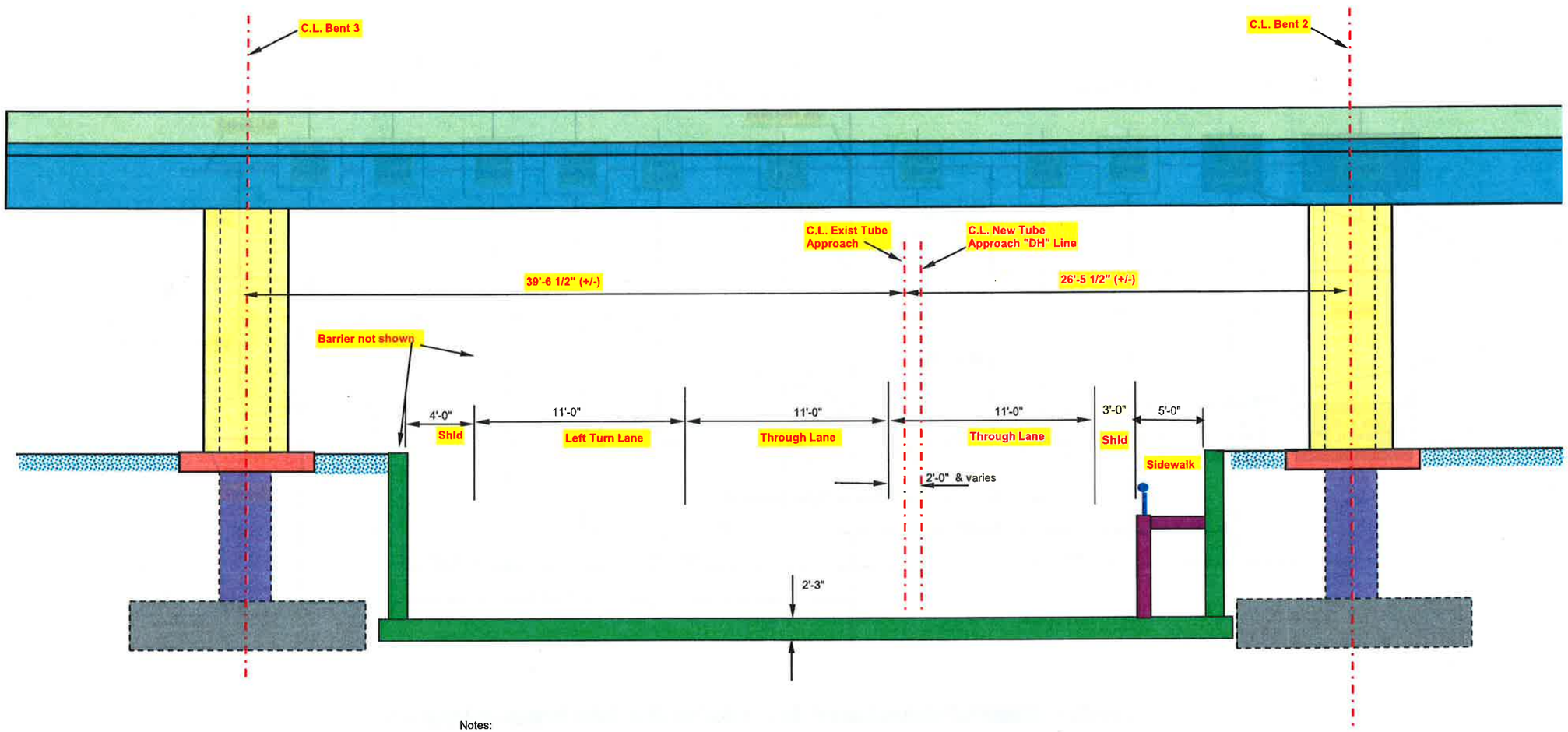


Figure 6. Stage 5 - Remove Right Lane Tube Approach, Remove Temporary Tieback



Notes:
1. The space between right retaining wall and Bent 2 footing is adequate for construction, although limited.
2. A Sidewalk will be constructed at right side, the temporarily relocated utilities can be re-installed back into the sidewalk box.

Figure 7. Stage 6 - Construct New Right Lane Tube Approach



Notes:
1. There will be 6" shift towards left from existing Center Line (C.L.) of Tube Approach to new Center Line (C.L.) of Tube Approach

Figure 8. Typical Section - Depressed & Widened New Tube Approach

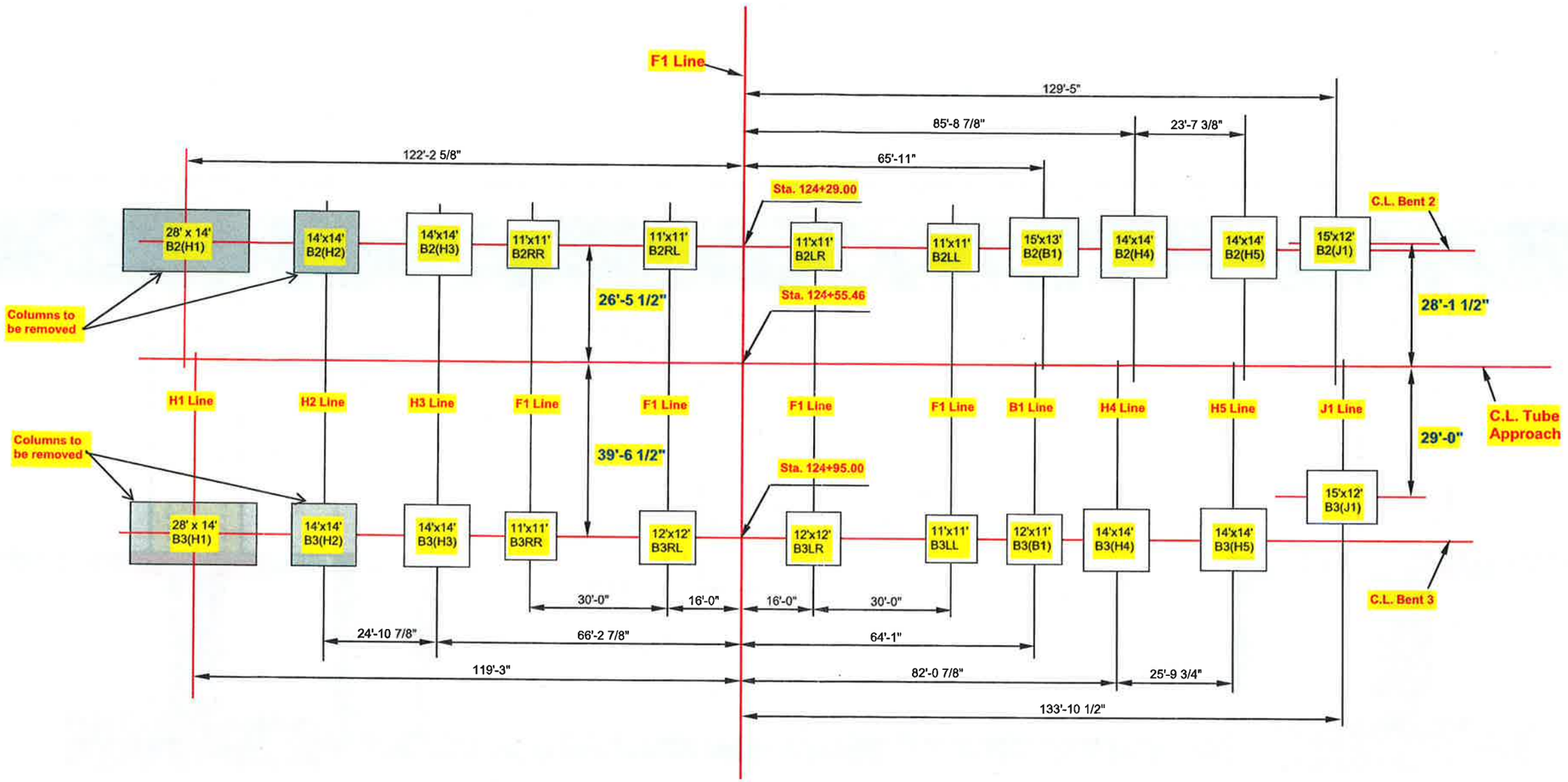
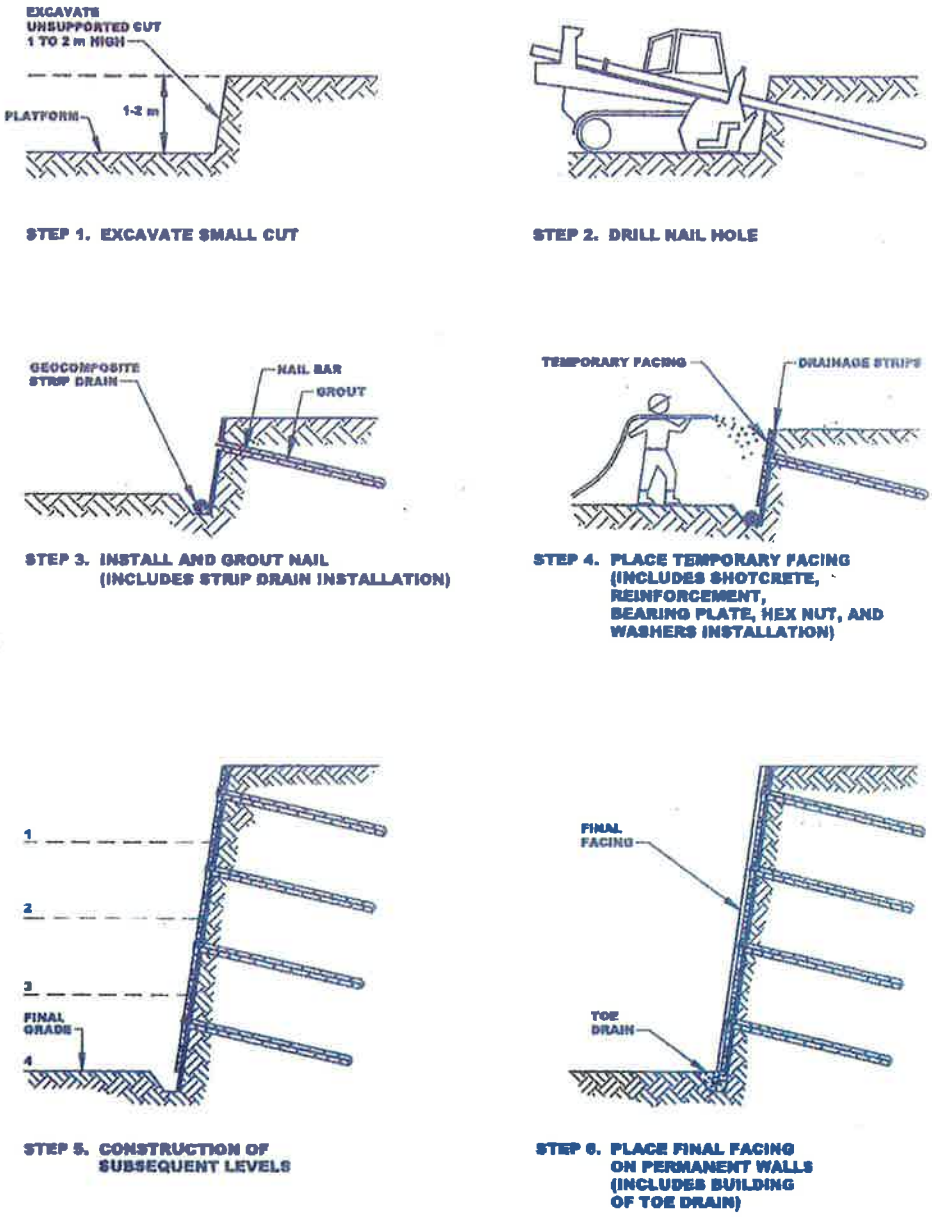


Figure 9. Existing Footing Layout (Bent 2 & Bent 3) at Tube Approach Location



Modified after Porterfield et al. (1994).

Figure 2.2: Typical Soil Nail Wall Construction Sequence.

Variations of the steps described above may be necessary to accommodate additional preparation tasks or supplementary activities for specific project conditions. For example, shotcrete may be applied at each lift immediately after excavation and prior to nail hole drilling and installation,

Figure 10 - Extract from FHWA manual
(Report No. FHWA 0-1F-03-017)

04-ALA-880 PM 31.0/32.4
04-ALA-260 PM 1.1/1.9
Program Code 20.30.600.624
EA 04-0G360K
March 2011

I-880/Broadway-Jackson Interchange Project

PSR-PDS

Attachment H

Preliminary Project Cost Estimates

KIMLEY-HORN & ASSOCIATES, INC.

PSR-PDS Cost Estimate

District-County-Route	04-ALA-880 / 04-ALA-260
PM	880 PM 31.0/32.4
	260 PM 1.1/1.9
EA	04-0G360K
Program Code	20.30.600.624

PROJECT DESCRIPTION:

Limits I-880 in Oakland from Broadway to Jackson Street

Proposed Improvement (Scope) Improve traffic flow and safety to Jack London Square and downtown Oakland

Alternate Build Alternative

SUMMARY OF PROJECT COST ESTIMATE

TOTAL ROADWAY ITEMS	$	34,840,000
TOTAL STRUCTURE ITEMS	$	37,534,000
SUBTOTAL CONSTRUCTION COSTS	$	72,374,000
TOTAL RIGHT OF WAY ITEMS	$	12,190,400
TOTAL PROJECT CAPITAL OUTLAY COSTS (2010 DOLLARS)	$	84,564,400
TOTAL PROJECT CAPITAL OUTLAY COSTS (2015 DOLLARS)	$	107,928,000

Reviewed by District Program Manager N/A
(Signature)

Approved by Project Manager Stanley B Gee Date 3/9/2011
(Signature)

Phone No. (510) 286-4935

District-County-Route	04-ALA-880 / 04-ALA-260
PM	880 PM 31.0/32.4
	260 PM 1.1/1.9
EA	04-0G360K
Program Code	20.30.600.624

I. ROADWAY ITEMS:

Section 1 Earthwork	Quantity	Unit	Unit Price	Item Cost	Section Cost
Roadway Excavation	12,520	CY	$ 35.00	$ 438,200	
Imported Borrow	5,434	CY	$ 85.00	$ 461,890	
Clearing & Grubbing	1	LS	$ 80,000	$ 80,000	
Develop Water Supply	0			$ -	
Top Soil Reapplication	0			$ -	
Stepped Slopes and Slope Rounding (Contour Grading)	0			$ -	
Remove Pavement	5,390	SF	$ 3.00	$ 16,170	
				Subtotal Earthwork	$ 996,260

Section 2 Pavement Structural Section*	Quantity	Unit	Unit Price	Item Cost	Section Cost
PCC Pavement (0.7' Depth)	3,757	CY	$ 380.00	$ 1,427,660	
PCC Pavement (___ Depth)	0			$ -	
Asphalt Concrete	0	TON	$ 120.00	$ -	
Lean Concrete Base	0			$ -	
Cement-Treated Base	0			$ -	
Treated Permeable Base	0			$ -	
Aggregate Sub base	3,460	CY	$ 45.00	$ 155,700	
Pavement Reinforcing Fabric	0			$ -	
Edge Drains	0			$ -	
Aggregate Base	4,286	CY	$ 45.00	$ 192,870	
				$ -	
				$ -	
				Subtotal Pavement Structural Section	$ 1,776,230

Section 3 Drainage	Quantity	Unit	Unit Price	Item Cost	Section Cost
Large Drainage Facilities	0			$ -	
Storm Drains	0			$ -	
Pumping Plants	0			$ -	
Project Drainage (X-Drains, overside, etc.)	1	LS	$ 2,940,000	$ 2,940,000	(6.0% OF Road+NewStruct)
				$ -	
				$ -	
				$ -	
				Subtotal Drainage	$ 2,940,000

*0.7' of PCC, 0.8' of AB, and 1.33' ASB pavement section assumed for estimate purposes only.
Actual pavement section will be determined in later phase of the project.

District-County-Route	04-ALA-880 / 04-ALA-260
PM	880 PM 31.0/32.4
	260 PM 1.1/1.9
EA	04-0G360K
Program Code	20.30.600.624

Section 4 Specialty Items	Quantity	Unit	Unit Price	Unit Cost	Section Cost
Retaining Walls (MSE)	12,725	SF	$ 60.00	$ 763,500	
Noise Barriers	0			$ -	
Barriers and Guardrails	1,040	LF	$ 76.00	$ 79,040	
Equipment/Animal Passes	0			$ -	
Temporary Construction Site Water Pollution Control	1	LS	$ 870,000	$ 870,000	
Hazardous Waste Mitigation Work	1	LS	$ 1,500,000	$ 1,500,000	
Environmental Compliance	1	LS	$ 650,000	$ 650,000	
Resident Engineer Office Space	2	YRS	$ 1,050,000	$ 2,100,000	
Remove Retaining Walls	6,400	SF	$ 10	$ 64,000	
Treatment BMPs	1	LS	105,000	$ 105,000	
Temporary Ramp	22,170	SF	$ 250	$ 5,542,500	
Demolition of Structures	1	LS	150,000	150,000	
				$ -	
				Subtotal Specialty Items	$ 11,824,040

Section 5 Traffic Items	Quantity	Unit	Unit Price	Unit Cost	Section Cost
Lighting	1	LS	$ 525,000	$ 525,000	
Traffic Delineation Items	28,046	LF	$ 3.50	$ 98,161	
Traffic Signals	4	EA	$ 250,000.00	$ 1,000,000	
Overhead Sign Structures	2	EA	$ 100,000.00	$ 200,000	
Roadside Signs	45	EA	$ 1,500.00	$ 67,500	
Traffic Control Systems	1	LS	$ 675,000	$ 675,000	
Transportation Management Plan	1	LS	$ 1,035,000	$ 1,035,000	
Temporary Detection System	0			$ -	
Staging	0			$ -	
Furnish Overhead Sign Panel	1	EA	$ 10,000.00	$ 10,000	
Temporary Lighting	1	LS	$ 100,000	$ 100,000	
Traffic Operations System (TOS)	1	LS	$ 220,000	$ 220,000	
Ramp Metering Equipment	1	LS	$ 300,000	$ 300,000	
				Subtotal Traffic Items	$ 4,230,661

District-County-Route	04-ALA-880 / 04-ALA-260
PM	880 PM 31.0/32.4
	260 PM 1.1/1.9
EA	04-0G360K
Program Code	20.30.600.624

Section 6 Planting and Irrigation	Quantity	Unit	Unit Price	Unit Cost	Section Cost
Highway Planting	0			$ -	
Replacement Planting	0			$ -	
Irrigation Modification	0			$ -	
Relocate Existing Irrigation Facilities	0			$ -	
Irrigation Crossovers	0			$ -	
				$ -	
				$ -	
				$ -	
			Subtotal Planting and Irrigation Section		$ -

Section 7 Roadside Management and Safety Section	Quantity	Unit	Unit Price	Unit Cost	Section Cost
Vegetation Control Treatments	0			$ -	
Gore Area Pavement	0			$ -	
Pavement beyond the gore area	0			$ -	
Miscellaneous Paving	0			$ -	
Erosion Control	1	LS	$ 353,300.00	$ 353,300	
Slope Protection	0			$ -	
Side Slopes/Embankment Slopes	0			$ -	
Maintenance Vehicle Pull Outs	0			$ -	
Off-freeway Access (gates, stairway, etc.)	0			$ -	
Roadside Facilities (Vista Points, Transit, Park and Ride, etc.)	0			$ -	
Relocating roadside facilities/features	0			$ -	
				$ -	
				$ -	
			Subtotal Roadside Management and Safety Section		$ 353,300

TOTAL SECTIONS: 1 thru 7 **$ 22,120,491**

District-County-Route	04-ALA-880 / 04-ALA-260
PM	880 PM 31.0/32.4
	260 PM 1.1/1.9
EA	04-0G360K
Program Code	20.30.600.624

Section 8 Minor Items

$ 22,120,491 (Subtotal Sections 1 thru 7) x (5%)= $ 1,106,000

TOTAL MINOR ITEMS **$ 1,106,000**

Section 9 Roadway Mobilization

$ 23,226,491 (Subtotal Sections 1 thru 8) x (15%)= $ 3,484,000

TOTAL ROADWAY MOBILIZATION **$ 3,484,000**

Section 10 Roadway Additions

Supplemental Work

$ 23,226,491 (Subtotal Sections 1 thru 8) x (5%)= $ 1,161,300

Contingencies

$ 23,226,491 (Subtotal Sections 1 thru 8) x (30%)= $ 6,967,900

TOTAL ROADWAY ADDITIONS **$ 8,129,200**

TOTAL ROADWAY ITEMS (Subtotal Sections 1 thru 10) **$ 34,839,691**

Estimate Prepared By Daniel Carley (Print Name) Phone# 925-398-4886 Date 12/10/2010

Estimate Checked By Kenneth Chan (Print Name) Phone# 925-398-4858 Date 12/10/2010

District-County-Route	04-ALA-880 / 04-ALA-260
PM	880 PM 31.0/32.4
	260 PM 1.1/1.9
EA	04-0G360K
Program Code	20.30.600.624

II. STRUCTURE ITEMS:

	Structure (1)	Structure (2)	Structure (3)	Structure (4)	Structure (5)	Structure (6)
Bridge Name	I-880 NB On-Ramp	I-880 NB Off-Ramp	Broadway Off-Ramp	Tube Approach UC	Depressed Section	I-880 SB Off-Ramp
Structure Type	CP/PS Box Girder	CP/PS Box Girder	Removal	Column Retrofit	Monolithic Ret. Walls	CP/PS Box Girder
Width (out to out) - (m)	Varies	Varies	Varies	4 Columns	Varies	Varies
Span Lengths - (m)	1,430.00	775.00	1,435.00	-	-	1,990.00
Total Area - (m^2)	39,290.00	20,000.00	41,000.00	-	-	54,790.00
Footing Type (pile/spread)	CIDH/CISS Pile	CIDH/CISS Pile		-	-	CIDH/CISS Pile
Cost Per m^2 (incl. 10% mobilization and 20% contingency)	$ 250.00	$ 250.00	$ 18.60	$ 467,500.00	-	$ 250.00
Total Cost for Structure	$ 9,823,000	$ 5,000,000	$ 763,000	$ 1,870,000	$ 6,380,000	$ 13,698,000

SUBTOTAL STRUCTURES ITEMS **$ 37,534,000**
(Sum of Total Cost for Structures)

Railroad Related Costs:

SUBTOTAL STRUCTURES ITEMS **$ -**

TOTAL STRUCTURES ITEMS **$ 37,534,000**
(Sum of Structures Items plus Railroad Items)

COMMENTS:

Estimate Prepared By Daniel Carley (Print Name) Phone# 925-398-4886 Date 12/10/2010

District-County-Route	04-ALA-880 / 04-ALA-260
PM	880 PM 31.0/32.4
	260 PM 1.1/1.9
EA	04-0G360K
Program Code	20.30.600.624

III RIGHT OF WAY ITEMS:

	ESCALATED VALUE
A. Acquisition, including excess lands, damages to remainder(s) and Goodwill	$ 9,500,000
B. Utility Relocation (State share)	$ 2,270,400
C. Relocation Assistance	$ 380,000
D. Clearance/Demolition	$ -
E. Title and Escrow Fees	$ 30,000
F. 401 Certification Fees	$ 10,000

TOTAL RIGHT OF WAY ITEMS (Escalated Value) **$ 12,190,400**

Anticipated Date of Right of Way Certification (Date of which Values are Escalated)

F. Construction Contract Work

Brief Description of Work:

Right of Way Branch Cost Estimate for Work* $ -

*This dollar amount is to be included in the Roadway and/or Structures Items of Work, as appropriate. Do not include in Right of Way Items.

COMMENTS:

Estimate Prepared By Daniel Carley (Print Name) Phone# 925-398-4886 Date 3/2/2011

04-ALA-880 PM 31.0/32.4
04-ALA-260 PM 1.1/1.9
Program Code 20.30.600.624
EA 04-0G360K
March 2011

I-880/Broadway-Jackson Interchange Project

PSR-PDS

Attachment I

Right-of-Way Data Sheets

To: District Office Chief
R/W Local Public Agency Services

Date: February 16, 2011

Co. ALA Rte. 880 PM 31.0/32.4
Expense Authorization

Attention: Julie McDaniel, District Senior R/W Agent
Local Public Agency Services

Subject: **RIGHT OF WAY DATA SHEET- LOCAL PUBLIC AGENCY SERVICES**

Project Description: I-880 Broadway-Jackson PSR-PDS (Market Street On-Ramp; Two Lane Left Turn from Harrison Street to 6th Street)

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

The information in this data sheet was developed by Kimley-Horn & Associates

I. ***Right of Way Engineering***

Will right of way engineering be required for this project?

- No
- Yes _X_ (Submit a copy of the *Right of Way Engineering, Surveys and Mapping Services checklist for Special Funded Projects.* This checklist includes but is not limited ti the following items.

(The following items will be provided during the PA/ED and PS&E phase.)

- Hard copy (base map) X
- Appraisal map X
- Acquisition Documents X
- Property Transfer Documents X
- R/W Record Map X
- Record of Survey X

II. ***Engineering Surveys***

1. Is any surveying or photogrammetric mapping required?

No _____ Yes __X__ (Complete the following)

2. Datum Requirements

Yes __X__ Project will adhere to the following criteria.

- Horizontal - datum policy is NAD 83, CA-HPGN, EPOCH 1991.35.
- Vertical - datum policy is NAVD 88.
- Units - English is required.

No _____ Provide an explanation on additional page.

3. Will land survey monument perpetuation be scoped into the project, if required?

Yes X

No _____ Provide explanation on additional page.

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

Are there any property rights required within the proposed project limits?
No ____ Yes __X__ (Complete the following)

	Partial Take	Full Take	Total Cost Parcel	Estimate
A. Number of Vacant Land Parcels	1	0	1	$ 9,500
B. Number of Single Family Residential Units	0	0	0	$ 0
C. Number of Multi-Family Residential Units	3	0	3	$ 2,305,500
D. Number of Commercial/Industrial Parcels	4	4	8	$ 7,184,000
E. Number of Farm/Agricultural Parcels	0	0	0	$ 0
F. Permanent and/or Temporary Easements	0	0	0	$ 0
G. Other Parcels (define in "Remarks" Section)	0	0	0	$ 0
Totals	8	4	12	$ 9,500,000

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

Parcels 001-0189-013 & 001-0189-014-01 (fronting 6th Street and impacted by the restricted access scenario), are a portion of a larger parcel consisting of 35,500 total square feet of land intended for a 382 unit, high rise residential development.

Access along Harrison Street is currently restricted, therefore no damages due to access restrictions are estimated for Parcels 001-0189-010 & 001-0189-011 fronting Harrison Street.

The properties identified in C. are located in a multi-family residential zoned area.

The properties identified in D. are located in an industrial zoned area.

There are several existing Caltrans airspace leases that may be impacted as a result of the proposed project. Whether these potential impacts will be permanent and/or temporary is undetermined at this time.

IV. ***Dedications***

Are there any property rights which 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? __N/A_____

V. ***Excess Lands / Relinquishments***

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

No __X___ Yes _____ (Provide an explanation on additional page.)

VI. ***Relocation Information***

Are relocation displacements anticipated?

No _____ Yes __X__ (Complete the following)

A.	Number of Single Family Residential Units Estimated RAP Payments	0	$ 0
B.	Number of Multi-Family Residential Units Estimated RAP Payments	0	$ 0
C.	Number of Business/Nonprofit Estimated RAP Payments	5	$ 380,000
D.	Number of Farms Estimated RAP Payments	0	$ 0
E.	Other (define in the "Remarks" section) Estimated RAP Payments	0	$ 0
	Totals	5	$ 380,000

VII. ***Utility Relocation Information***

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

No ____ Yes _X___ (Complete the following)

		Estimated Relocation Expense		
Facility	Owner	State Obligation	Local Obligation	Utility Owner Obligation
Water lines	EBMUD		$670,000	
Sewer lines	City of Oakland		$650,000	
Electrical lines	PG&E		$168,800	$168,800
Television	Comcast			$187,600
Telephone lines	Sprint			$187,600
Gas lines	PG&E		$118,800	$118,800
Totals		$ 0	$ 1,607,600	$ 662,800

Additional information concerning utility involvement on this project?

Freeway improvements involved. Freeway liability rule under section 703 of the Streets and Highway Code dictates.

This table reflects the estimated total financial obligation by the State. The final share of obligation between Local Agency and Utility Owner will be determined during the PA/ED and PS&E phases.

VIII. ***Rail Information***

Are railroad facilities or railroad rights of way affected?

No __X___ Yes _____ (Complete the following)

Describe railroad facilities or railroad rights of way affected.

Owner's Name	Transverse Crossing	Longitudinal Encroachment
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?

IX. *Clearance Information*

Are there improvements that require clearance?

No _X_ Yes ____ (Complete the following)

A. Number of Structures to be Demolished _____
Estimated Cost of Demolition

X. *Hazardous Materials/Waste*

Are there any site(s) and/or improvements(s) in the Project Limits that are known to contain *hazardous materials*? None ____ Yes _X_ (Explain in the "Remarks" section)

Are there any site(s) and/or improvement(s) in the Project Limits that are suspected to contain *hazardous waste*? None ____ Yes _X_ (Explain in the "Remarks" section)

XI. *Project Scheduling*

	Proposed lead time	Completion date
Preliminary Engineering, Surveys	6 (months)	July 2013
R/W Engineering Submittals	6 (months)	July 2014
R/W Appraisals/Acquisition	18 (months)	January 2015
Proposed Environmental Clearance	6 (months)	July 2013
Proposed R/W Certification	6 (months)	June 2015

XII. *Proposed Funding*

	Local++	State++	Federal++	Other
Acquisition	$9,500,000	$	$	$
Utilities	$1,607,600	$	$	$662,800
Relocation Assistance Program	$ 380,000	$	$	$
R/W Support	$ 400,000	$	$	$
Escrow	$ 30,000	$	$	$
Total	**$11,917,600**	$	$	**$662,800**

++ Proposed funding for Right of Way as shown is for current value and has not been escalated.

XIII. *Remarks*

There are five business relocations identified in Section VI. Three of the businesses are manufacturing/warehouse related, one is auto repair service garage, and one is used as a community center.

Several light industrial/commercial sites upgradient (to the north) of the project area, including numerous former cleaners, a truck stop, an auto parts store, and a gas station, are known to generate hazardous wastes, which may have come in contact with groundwater. Those wastes include petroleum hydrocarbons, MTBE, and tetrachloroethene (PCE). In addition, the freeway on- and off- ramps west of the I-980 interchange were built prior to the 1980s, and there is a potential for presence of asbestos-containing materials (ACM) and lead-based paint due to the age of these structures.

A site truck and bin storage lot and several auto repair facilities on 6th Street were suspected having hazardous materials contamination during the field visit conducted as part of the Phase I ISA. Groundwater in the area downgradient of these facilities may be impacted by petroleum hydrocarbon (TPH) and volatile organic chemicals (VOCs).

Project Sponsor – Alameda County Transportation Commission

Project Sponsor Consultant - Kimley-Horn and Associates, Inc

Right of Way Consultant – Associated Right of Way Services, Inc,

Acquisition, RAP, Escrow, and R/W Support costs estimated by Associated Right of Way Services, Inc.

Utility Costs estimated by Kimley-Horn and Associates, Inc.

Prepared by:

Steven L. Castellano, AR/WS
Right of Way Consultant
Associated Right of Way Services, Inc.

02/25/11
Date

Project Sponsor

Reviewed and Approved by:

Arthur L. Dao
ACTC Executive Director

03/03/2011
Date

Kenneth Chan, P.E.
Right of Way Utility Estimator
Kimley-Horn and Associates, Inc

2/24/2011
Date

Caltrans
Reviewed and approved based on information provided to date:

Caltrans District Branch Chief

3/15/11
Date

Local Public Agency Services

Division of Right of Way

STATE OF CALIFORNIA • DEPARTMENT OF TRANSPORTATION

UTILITY INFORMATION SHEET

(Form #)

EXHIBIT
4-EX-5 (REV 3/2004)

1. Name of utility companies involved in project:

East Bay Municipal Utilities District, Sprint, Comcast, Pacific Gas & Electric, City of Oakland

2. Types of facilities and agreements required:
Water lines and mains, gas lines, electrical lines, sewer lines, telephone and fiber optic lines, and cable TV lines

3. Is any facility a longitudinal encroachment in existing or proposed access controlled right of way? Explain.

No, existing utilities are located within Route 260 which is not access controlled.

Disposition of longitudinal encroachment(s):
☐ Relocation required.
☐ Exception to policy needed.
☒ Other. Explain.
Existing utilities are located within Route 260 which is not access controlled.

4. Additional information concerning utility involvements on this project, i.e., long lead time materials, growing or species seasons, customer service seasons (no transmission tower relocations in summer).

5. PMCS Input Information
Total estimated cost of State's obligation for utility relocation on this project:
$ 0

Note: Total estimated cost to include any Department obligation to relocate longitudinal encroachments in access controlled right of way and acquire any necessary utility easements.

Utility Involvements

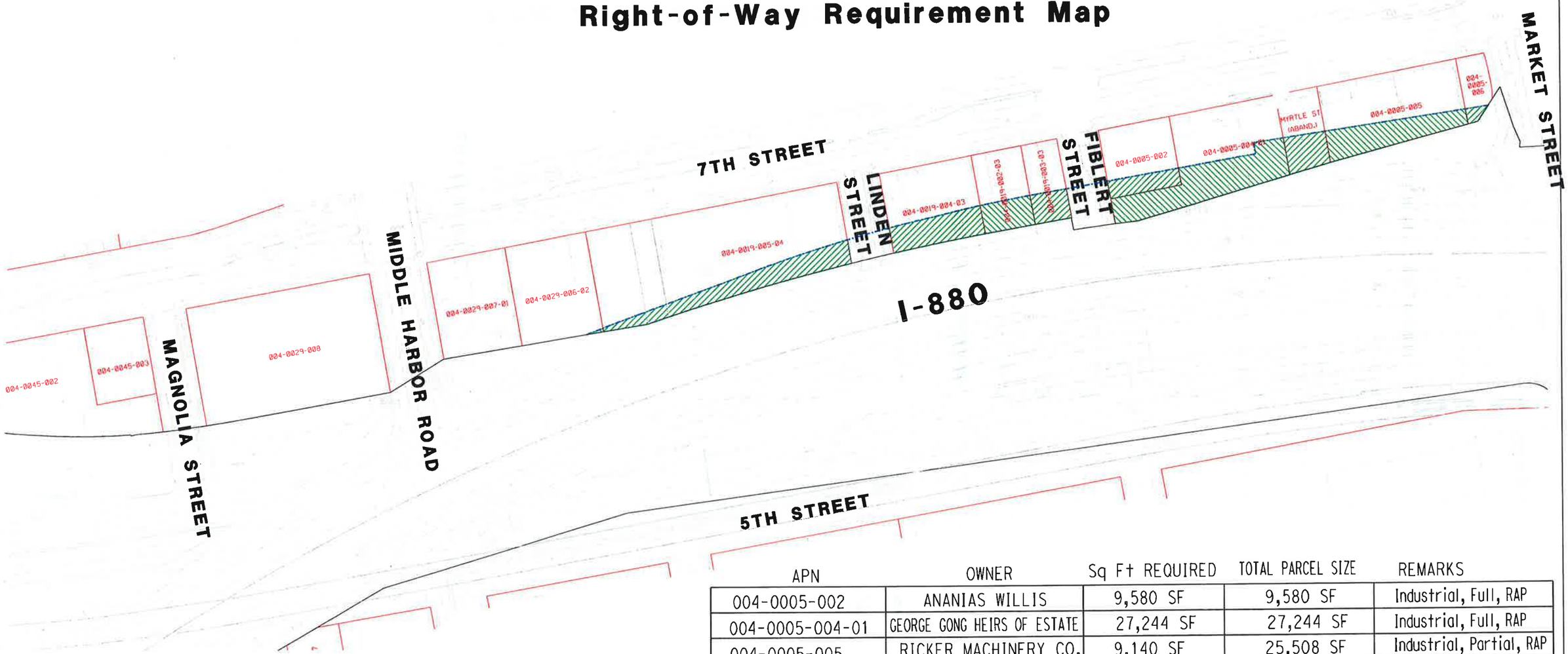
U4-1	17	U5-7	
-2		-8	
-3		-9	17
-4			

Prepared By:

Right of Way Utility Estimator
Kenneth Chan, P.E.
Kimley-Horn & Associates, Inc.

2/16/2011
Date

Broadway-Jackson PSR-PDS
Right-of-Way Requirement Map



LEGEND

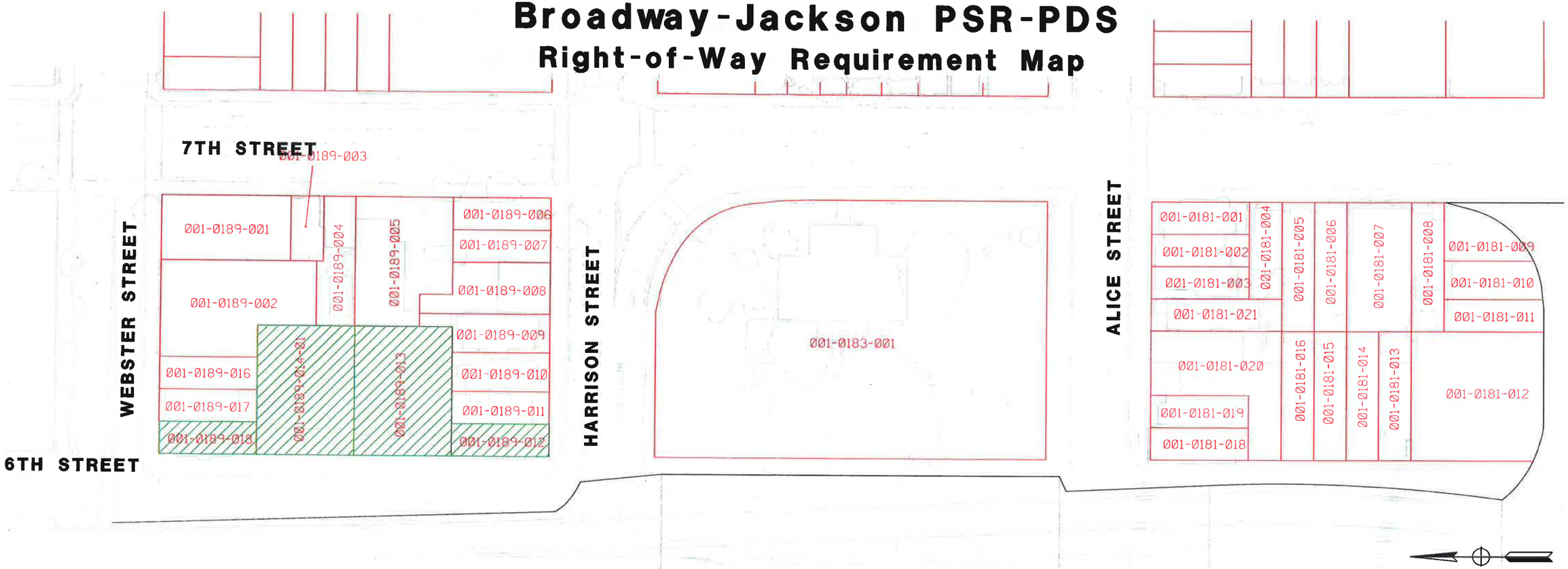
- PROPOSED RIGHT-OF-WAY
- EXISTING STATE RIGHT-OF-WAY
- EXISTING PROPERTY LINE
- AREA OF TAKE

APN	OWNER	Sq Ft REQUIRED	TOTAL PARCEL SIZE	REMARKS
004-0005-002	ANANIAS WILLIS	9,580 SF	9,580 SF	Industrial, Full, RAP
004-0005-004-01	GEORGE GONG HEIRS OF ESTATE	27,244 SF	27,244 SF	Industrial, Full, RAP
004-0005-005	RICKER MACHINERY CO.	9,140 SF	25,508 SF	Industrial, Partial, RAP
004-0005-006	CITY OF OAKLAND	470 SF	3,295 SF	Vacant Parcel
004-0019-004-03	SPRINT SPECTRUM	7,870 SF	51,012 SF	Industrial, Partial
004-0019-002-03	VINITHA & DAVID WATSON	18,799 SF	18,799 SF	Industrial, Full, RAP
004-0019-003-03	JOE AND EMILY WONG	2,840 SF	9,836 SF	Industrial, Partial
004-0019-005-04	OAKLAND BUSINESS ASSOCIATION	6,996 SF	6,996 SF	Industrial, Full, RAP
004-0029-006-02	SEAFARERS	60 SF	15,856 SF	Industrial, Partial

R/W-1

Kimley-Horn and Associates, Inc.

Broadway-Jackson PSR-PDS
Right-of-Way Requirement Map



LEGEND

- EXISTING STATE RIGHT-OF-WAY
- EXISTING PROPERTY LINE
- IMPACTED PARCEL (ACCESS RESTRICTION)

APN	OWNER	TOTAL PARCEL SIZE	REMARKS
001-0183-018	EDWARD AND WILLY WONG	1,875 SF	RESIDENTIAL, ACCESS RESTRICTION (PARTIAL)
001-0189-012	MIGUEL & KOCK HAM	1,875 SF	RESIDENTIAL, ACCESS RESTRICTION (PARTIAL)
001-0189-013 014-01	325 7TH STREET LLC	15,000 SF	RESIDENTIAL, ACCESS RESTRICTION (PARTIAL)

R/W-2

Kimley-Horn and Associates, Inc.

04-ALA-880 PM 31.0/32.4
04-ALA-260 PM 1.1/1.9
Program Code 20.30.600.624
EA 04-0G360K
March 2011

I-880/Broadway-Jackson Interchange Project

PSR-PDS

Attachment J

Storm Water Data Report (Cover Sheet)

Long Form - Storm Water Data Report

Dist-County-Route: 04-ALA-880 , 04-ALA-260

Post Mile (Kilometer Post) Limits:
PM 31.0/32.4 (KP 50.0/52.3), PM 1.1/1.9 (KP 1.8/3.1)

Project Type: Interchange Reconstruction

EA: 04-0G360K

RU: 04-249

Program Identification: STIP

Phase: ☒PID ☐PA/ED ☐PS&E

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

Is the project required to consider incorporating Treatment BMPs? ☒Yes ☐No

If yes, can Treatment BMPs be incorporated into the project? ☒Yes ☐No

If No, a Technical Data Report must be submitted to the RWQCB at least 60 days prior to PS&E Submittal. List submittal date: _____

Total Disturbed Soil Area: 5.63 Acres

Estimated Construction Start Date: August 2015 Construction Completion Date: March 2017

Notification of Construction (NOC) Date to be submitted: July 2015

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

Separate Dewatering Permit (if Yes, permit number) ☐Yes Permit #: _____ ☒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 data upon which recommendations, conclusions, and decisions are based. Professional Engineer or Landscape Architect stamp required at PS&E.

Kenneth Chan, *Registered Project Engineer/Landscape Architect* — 01/11/2011 Date

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

Stanley Gee, *Project Manager* — 1/11/11 Date

Robert Braga, *Designated Maintenance Representative* — 1/11/11 Date

David Vam, *Designated Landscape Architect Representative* — FOR 1/12/11 Date

Norman Gonsalves, *District/Regional SW Coordinator or Designee* — 01/20/2011 Date

04-ALA-880 PM 31.0/32.4
04-ALA-260 PM 1.1/1.9
Program Code 20.30.600.624
EA 04-0G360K
March 2011

I-880/Broadway-Jackson Interchange Project

PSR-PDS

Attachment K

Transportation Management Plan

State of California **Business, Transportation and Housing Agency**

Memorandum

To: Ronald Ho
Caltrans Traffic Management – Oakland
Caltrans District 4
111 Grand Ave
Oakland, CA 94612

Date: March 2, 2011

From: Kenneth Chan
Kimley-Horn and Associates, Inc.
Suite 370
6130 Stoneridge Mall Road
Pleasanton, CA 94588

Subject: REQUEST FOR TRANSPORTATION MANAGEMENT PLAN DATA SHEET

Project Data

PROJECT MANAGER **Kenneth Chan** **925-398-4840**
PROJECT ENGINEER **Daniel Carley** **925-398-4840**
DIST-EA: **0G360K** PROGRAM (HB1, HE11, etc.):
PROJECT COMMON NAME: **I-880/Broadway-Jackson Interchange Improvements**
CO-RTE-PM (KP): **04-ALA-880-PM 31.0/32.4** **04-ALA-260-PM 1.12/1.92**
LEGAL DESCRIPTION: **On Route I-880 & SR 260 between Oak Street (I-880) & Union Street (I-880) and 4th Street (SR-260) & 9th Street (SR-260)**
DETAILED WORK DESCRIPTION: **Project includes the following elements:** • **Reconstruct existing Broadway off-ramp from NB-880 to terminate at Webster Street/6th Street.** • **Depress Harrison Street (SR-260) by approximately 5-6 feet.** • **Construct new left-turn from Harrison Street to NB 6th Street.** • **Improve signal timing on 5th Street between Martin Luther King Way & Broadway and on 6th Street between Market Street and Broadway.** • **Construct new NB-880 on-ramp from Market Street.** • **Construct new SB-880 off-ramp to Martin Luther King Way.**
CONSTRUCTION COST ESTIMATE: **$84.6 million (including Right-of-Way costs)(2010 Dollars)** **$107.9 million (including Right-of-Way costs)(Escalated 2015 Dollars)**
PROJECT PHASE: PSR/PDS ☒ PR ☐ PS&E ☐ %

Traffic Impact Description

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

- ☒ Highway or freeway lanes – Temporary at night only
- ☒ Highway or freeway shoulders
- ☒ Freeway connectors – Temporary at night only
- ☒ Freeway off-ramps – Temporary at night only
- ☒ Freeway on-ramps – Temporary at night only
- ☒ Local streets

B) Major operations requiring traffic control and working days for each

Operation	# of working days
☐ Clearing and grubbing	
☒ Existing feature removal	60
☒ Excavation of embankments construction	60
☒ Structural section construction	60
☐ Drainage feature construction	
☒ Structures construction	100
☐ MBGR/Barrier construction	
☐ Striping	
☐ Electrical component construction	
☐ Other	
Total days requiring traffic control	280

C. Project staging description and # of working days required per stage:

Stage Description	# of working days per stage
1. Depress Harrison Street	140
2. Construct temporary structure from Broadway off-ramp to Broadway slip ramp.	80
3. Construct Webster off-ramp up to Harrison Street; Construct temporary touchdown at at Webster/6th Street.	120
4. Construct permanent touchdown at Webster Street; Demolish temporary ramp to Broadway.	80
5. Construct Left-turn to 6th Street, Demolish temporary ramp to Webster Street.	60
Total construction days	480

D. Have you considered any construction strategies that can restore existing number of lanes?

- ☒ Temporary Roadway Widening Structure Involvement?
  Yes __X__ No _____ if "yes", notify Project Manager
- ☒ Lane Restriping (Temporary narrow lane widths)
- ☒ Roadway Realignment (Detour around work area)
- ☐ Median and/or Right Shoulder Utilization
- ☐ Use of HOV lane as a Temporary Mixed Flow Lane
- ☐ Staging alternatives (Explain below)

Attachments

- Vicinity Map
- Typical Cross Section
- Layouts
- Staging or Traffic Handling Plan
- Draft PSR/PR
- Back up calculations for Section B.

Kenneth Chan
Project Design Engineer

925-398-4840
Contact Phone Number

Senior Engineer

TRANSPORTATION MANAGEMENT PLAN DATA SHEET
(Preliminary TMP Elements and Costs)

Co/Rte/PM 4-ALA-260-PM 1.12-1.92
4-ALA-880-PM 31.0-32.4 EA 0G360K Project Engineer Kenneth Chan

Project Limit On I-880 & SR-260 between Oak St. (I-880) & Union St. (I-880) and 4th St. (SR-260) & 9th St. (SR-260)

Project Description I-880/Broadway-Jackson Interchange Improvements

1) Public Information

☒	a. Brochures and Mailers	$10,000
☒	b. Press Release	$5,000
☒	c. Paid Advertising	$20,000
☒	d. Public Information Center/Kiosk	$10,000
☐	e. Public Meeting/Speakers Bureau	
☐	f. Telephone Hotline	
☒	g. Internet, E-mail	$5,000
☒	h. Notification to impacted groups (i.e. bicycle users, pedestrians with disabilities, others…)	$10,000
☒	i. Others Public Information Campaign	$100,00

2) Traveler Information Strategies

☐	a. Changeable Message Signs (Fixed)	$
☒	b. Changeable Message Signs (Portable)	$100,000
☒	c. Ground Mounted Signs	$20,000
☐	d. Highway Advisory Radio	$
☐	e. Caltrans Highway Information Network (CHIN)	
☒	f. Detour maps (i.e. bicycle, vehicle, pedestrian...etc)	$10,000
☐	g. Revised Transit Schedules/maps	
☒	h. Bicycle community information	$5,000
☐	i. Others _____	$

3) Incident Management

☒	a. Construction Zone Enhanced Enforcement Program (COZEEP)	$500,000
☒	b. Freeway Service Patrol (FSP)	$200,000
☐	c. Traffic Management Team	
☐	d. Helicopter Surveillance	$
☐	e. Traffic Surveillance Stations (Loop Detector and CCTV)	$
☐	f. Others _____	$

TMP Data Sheet (cont.)

4) Construction Strategies

☒	a. Lane Closure Chart	$5,000
☐	b. Reversible Lanes	
☐	c. Total Facility Closure	
☐	d. Contra Flow	
☐	e. Truck Traffic Restrictions	$
☒	f. Reduced Speed Zone	$5,000
☒	g. Connector and Ramp Closures	$10,000
☐	h. Incentive and Disincentive	$
☐	i. Moveable Barrier	$
☐	_____	
☐	k. Others _____	$

5) Demand Management

☐	a. HOV Lanes/Ramps (New or Convert)	$
☐	b. Park and Ride Lots	$
☐	c. Rideshare Incentives	$
☐	d. Variable Work Hours	
☐	e. Telecommute	
☐	f. Ramp Metering (Temporary Installation)	$
☐	g. Ramp Metering (Modify Existing)	$
☐	h. Others _____	$

6) Alternative Route Strategies

☐	a. Add Capacity to Freeway Connector	$
☒	b. Street Improvement (widening, traffic signal... etc)	$10,000
☐	c. Traffic Control Officers	$
☒	d. Parking Restrictions	$10,000
☐	e. Others _____	$

7) Other Strategies

☐	a. Application of New Technology	$
☐	e. Others _____	$

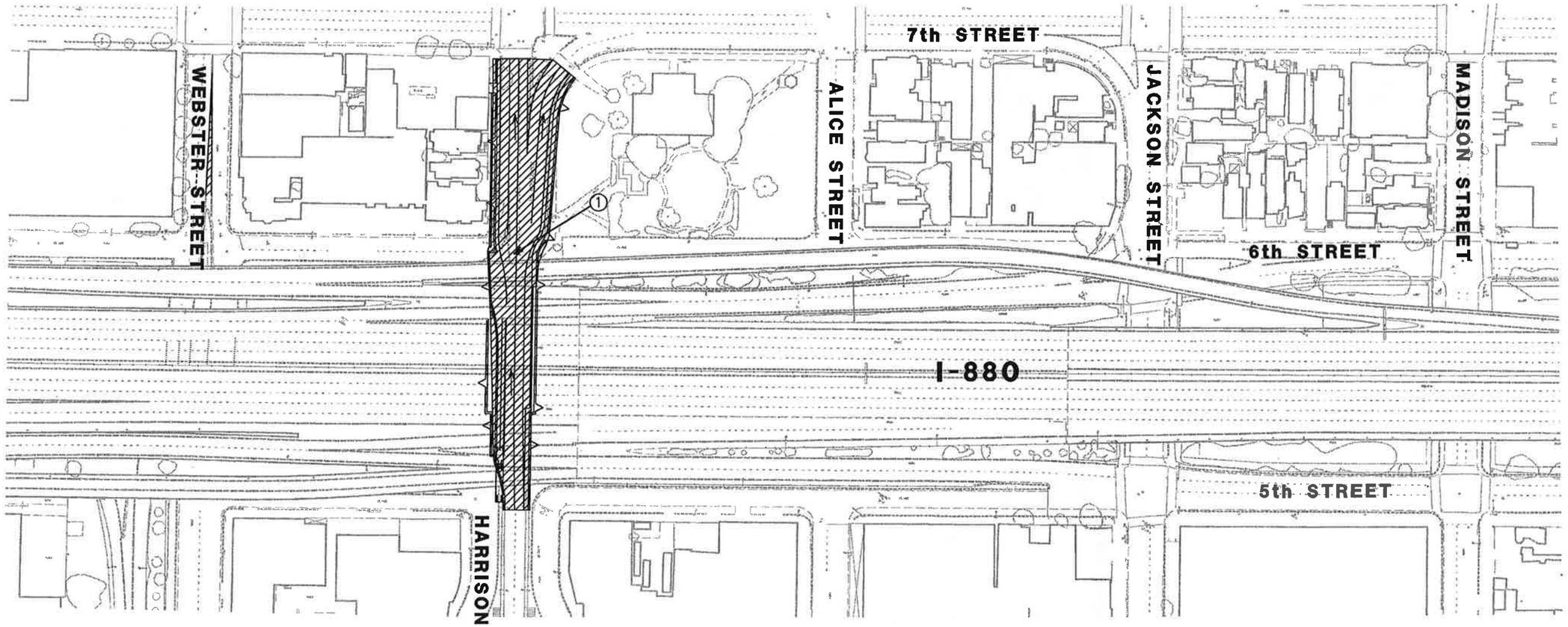
TOTAL ESTIMATED COST OF TMP ELEMENTS = $1,035,000

PREPARED BY Daniel Carley DATE 8-13-09

APPROVAL RECOMMENDED BY Oklah Alhayek DATE 9-23-09

Broadway-Jackson PSR-PDS

December 2010



① STAGE 1-DEPRESS HARRISON STREET

←DIRECTION OF TRAFFIC

AREA OF CONSTRUCTION

0m 20m 40m 60m 80m 100m

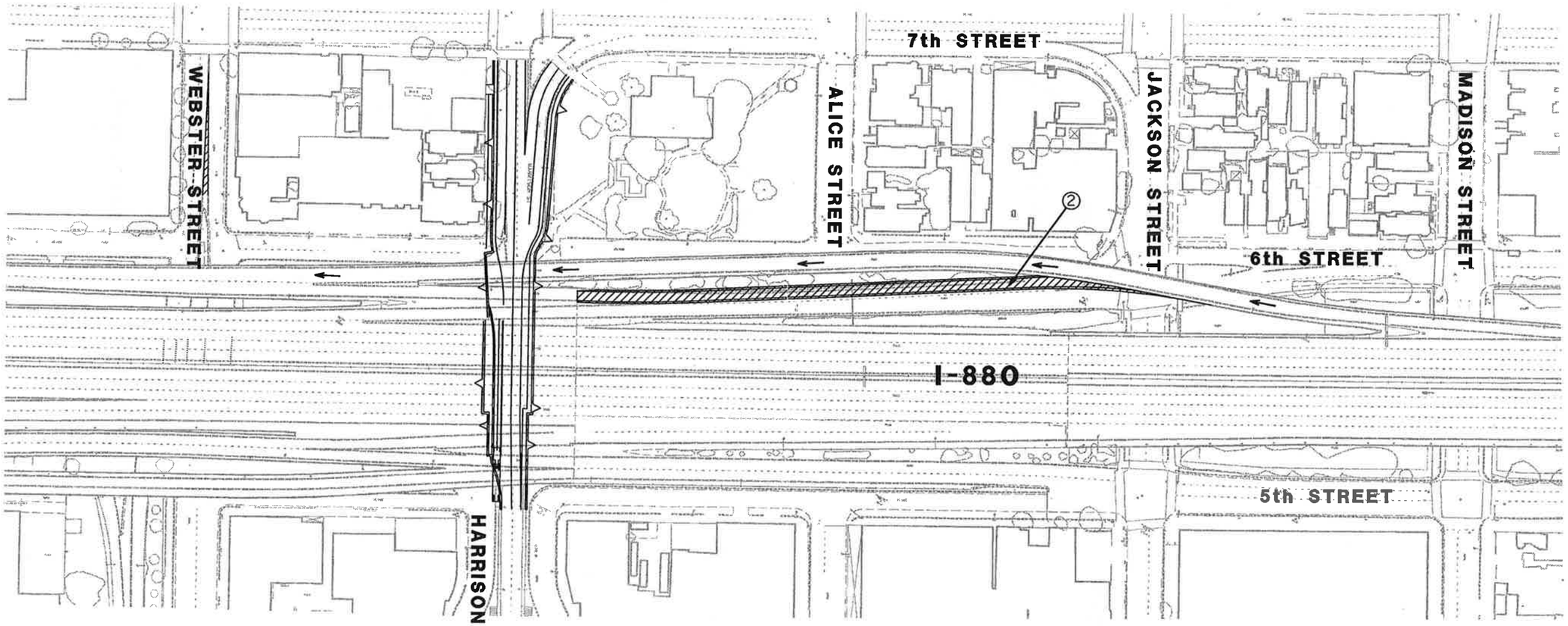
0' 100' 200' 300'

Staging Concept Stage 1

Kimley-Horn and Associates, Inc.

Broadway-Jackson PSR-PDS

December 2010



② STAGE 2 - CONSTRUCT TEMPORARY RAMP CONNECTING EXISTING BROADWAY OFF-RAMP TO BROADWAY SLIP RAMP

←DIRECTION OF TRAFFIC

AREA OF CONSTRUCTION

0m 20m 40m 60m 80m 100m

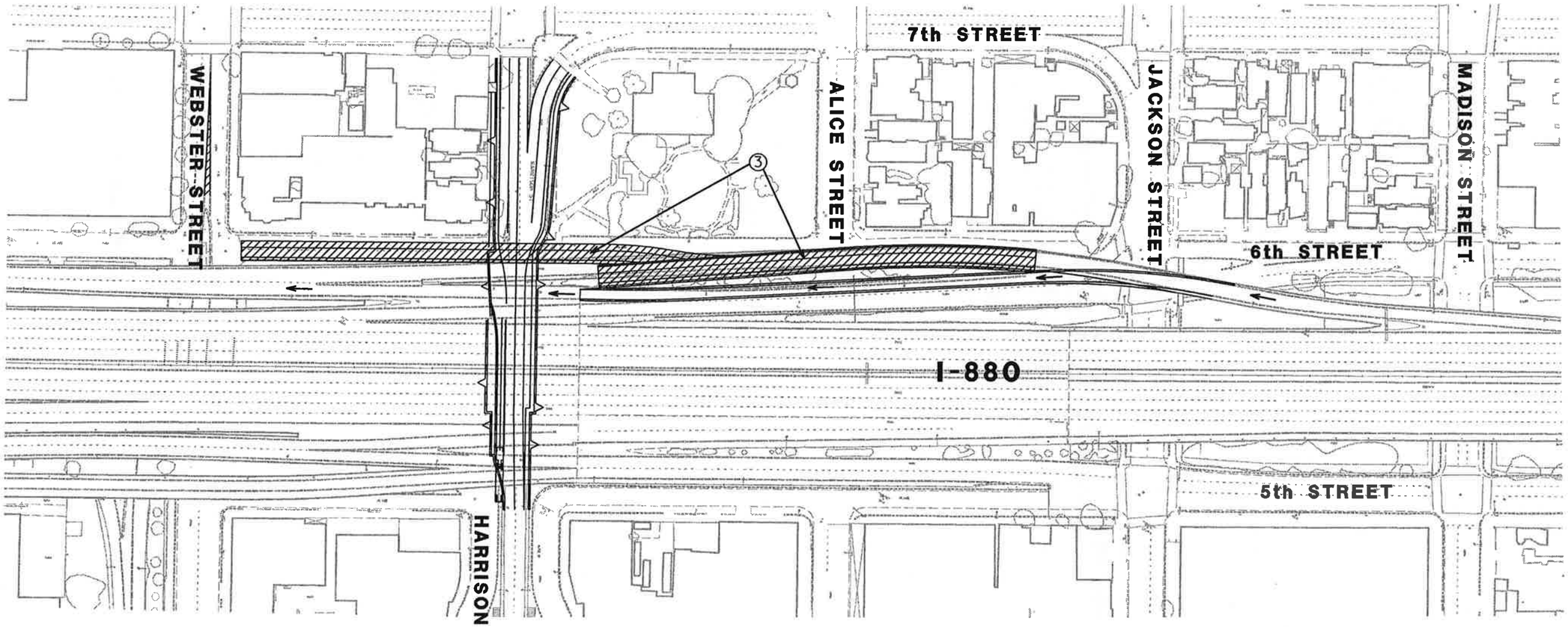
0' 100' 200' 300'

Staging Concept Stage 2

Kimley-Horn and Associates, Inc.

Broadway-Jackson PSR-PDS

December 2010



③ STAGE 3 - CONSTRUCT WEBSTER OFF-RAMP UP TO HARRISON STREET. CONSTRUCT TEMPORARY RAMP TO TOUCHDOWN AT WEBSTER STREET.

←DIRECTION OF TRAFFIC

AREA OF CONSTRUCTION

0m 20m 40m 60m 80m 100m

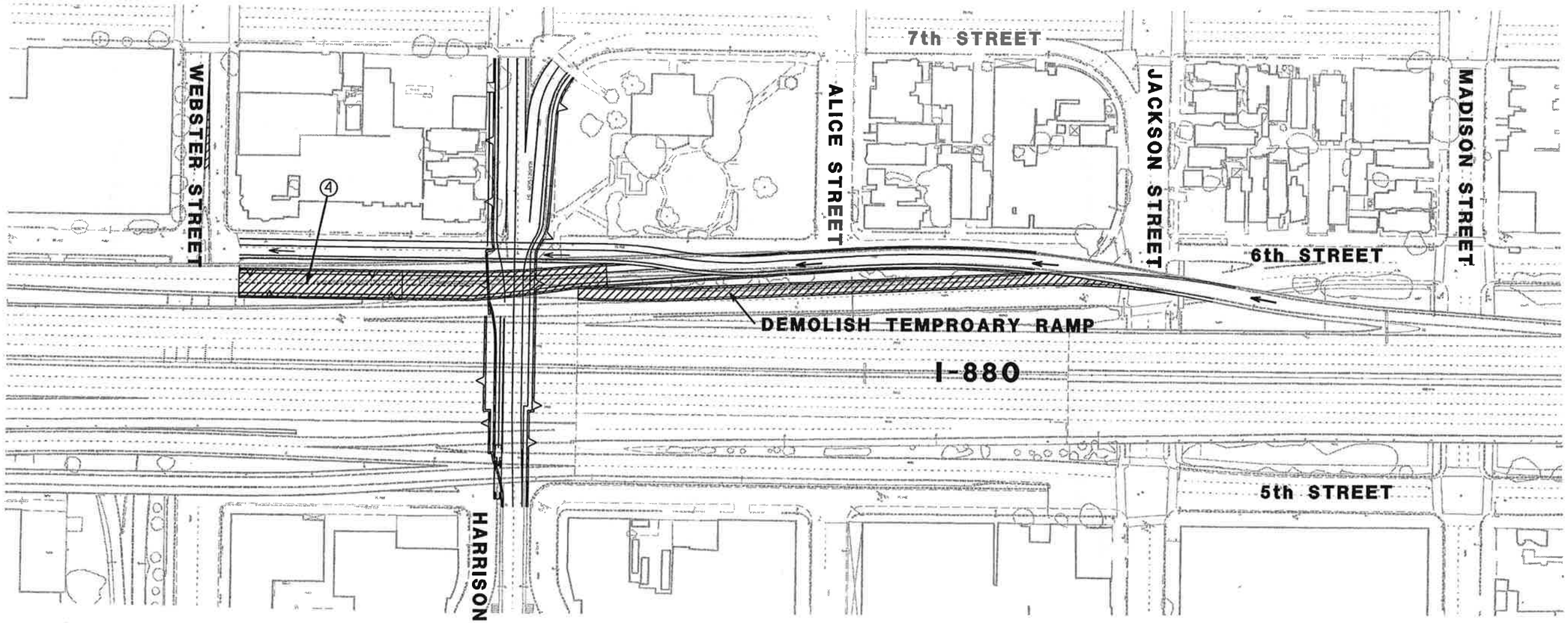
0' 100' 200' 300'

Staging Concept Stage 3

Kimley-Horn and Associates, Inc.

Broadway-Jackson PSR-PDS

December 2010



④ STAGE 4-CONSTRUCT TOUCHDOWN TO WEBSTER STREET. DEMOLISH TEMPORARY RAMP TO BROADWAY SLIP RAMP.

←DIRECTION OF TRAFFIC

AREA OF CONSTRUCTION

0m 20m 40m 60m 80m 100m

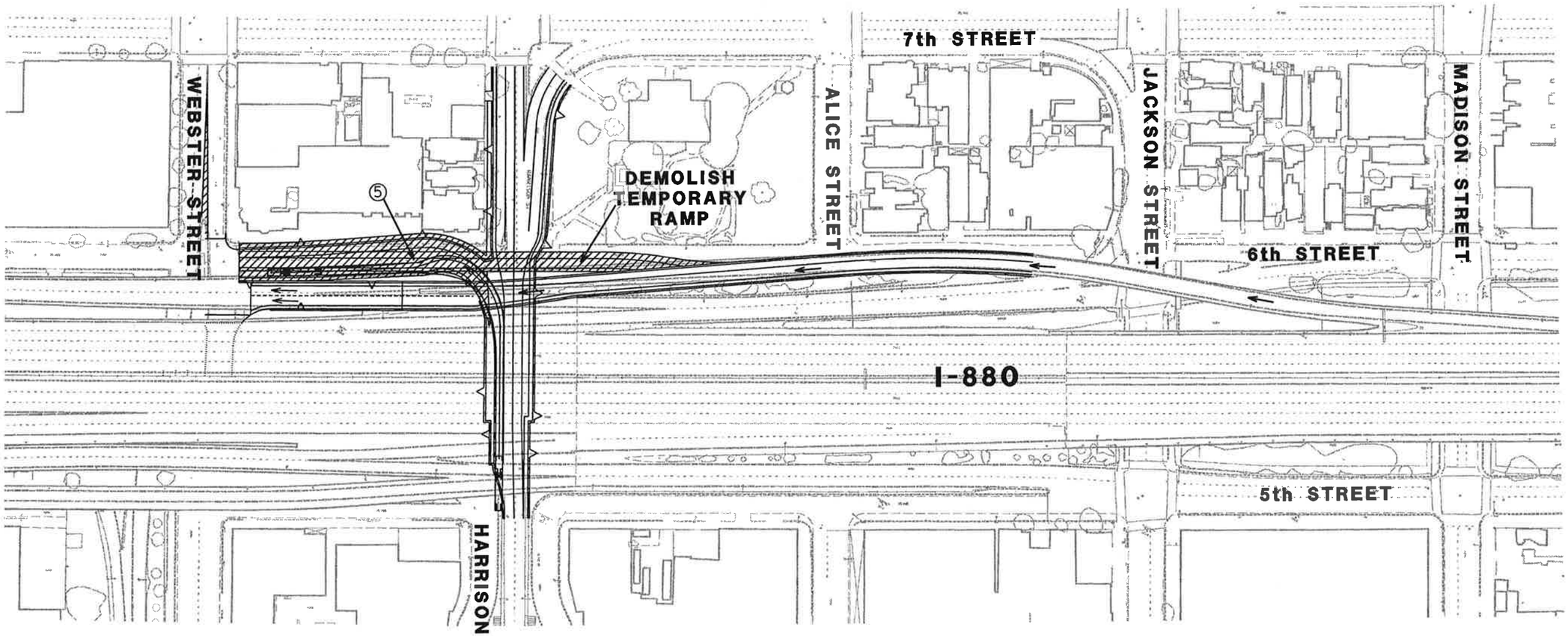
0' 100' 200' 300'

Staging Concept Stage 4

Kimley-Horn and Associates, Inc.

Broadway-Jackson PSR-PDS

December 2010



⑤ STAGE 5-DEMOLISH TEMPORARY RAMP TO WEBSTER STREET. CONSTRUCT LEFT TURN FROM HARRISON STREET TO 6TH STREET.

←DIRECTION OF TRAFFIC

AREA OF CONSTRUCTION

0m 20m 40m 60m 80m 100m

0' 100' 200' 300'

Staging Concept Stage 5

Kimley-Horn and Associates, Inc.

Section B Backup Calculations

Existing feature removal	Type of Traffic Control	Impacted Facility	Working Days	Remarks
Remove existing retaining walls on Harrison Street	Lane Closure	Local Street	40	Two walls; 20 days for each wall
Remove existing Soundwall on I-880 (At the entrance and exit of the new ramps)	Shoulder Closure	Local Street	20	
		Total	60	

Excavation of embankments construction	Type of Traffic Control	Impacted Facility	Working Days	Remarks
Market Street on-ramp embankment	Lane Closure	Local Street	40	Two walls; 20 days for each wall
Martin Luther King off-ramp embankment	Lane Closure	Local Street	20	
		Total	60	

Structural Section Construction	Type of Traffic Control	Impacted Facility	Working Days	Remarks
Construct new structural section on Harrison Street	Lane Closure	Local Street	60	
		Total	60	

Structure Construction	Type of Traffic Control	Impacted Facility	Working Days	Remarks
Construct new boat section on Harrison Street	Lane Closure	Local Street	80	
Construct Retaining walls near the end of Webster Tube	Lane Closure	Freeway	20	
		Total	100	

04-ALA-880 PM 31.0/32.4
04-ALA-260 PM 1.1/1.9
Program Code 20.30.600.624
EA 04-0G360K
March 2011

I-880/Broadway-Jackson Interchange Project

PSR-PDS

Attachment L

Preliminary Environmental Assessment Report

PRELIMINARY ENVIRONMENTAL ANALYSIS REPORT

1. Project Information

District 4	County Alameda	Route 880	PM 31.0/32.4	EA 0G360K
Project Title: **I-880 Broadway/Jackson Interchange Project**				
Project Manager Stanley Gee			Phone # (510) 286-4935	
Project Engineer Kenneth Chan, Kimley Horn & Associates			Phone # (925) 398-4840	
Environmental Branch Chief/Manager Patricia Maurice			Phone # (510) 286-5563	
PEAR Preparer Scott Steinwert/Jennifer Gallerani, CirclePoint			Phone # (415) 227-1100	

2. Project Description

Purpose

The I-880/Broadway-Jackson Project is designed to facilitate access between I-880, Downtown Oakland, and the Posey and Webster "Tubes" (tunnels), which provide connections to and from the island city of Alameda. The purpose of the proposed project is intended to achieve the following objectives:

- Improved access between I-880/I-980 to Alameda;
- Improved level of service (LOS) at surface street intersections;
- Improved freeway operations, particularly at the weaving area along Northbound I-880, between the Jackson Street on-ramp and Eastbound I-980 connector;
- Improved access to Jack London Square from the freeway and downtown Oakland;
- Reduction of through traffic within Chinatown;
- Reduction of traffic congestion and improvement in overall safety;
- Improved pedestrian environments in the project area, particularly at the intersections of Harrison Street/7th Street and Broadway/5th Street;
- Improved connections for pedestrians to/from Jack London Square; and
- Improved bicycle facilities.

Need

The I-880 Broadway/Jackson Interchange Project is needed to address issues of limited access, traffic congestion, excessive traffic weaving, and operational deficiencies both on local streets and on segments of I-880 and I-980 within the vicinity of the Broadway and Jackson Street interchanges.

Description of Work

The project limits include the I-880 freeway and ramps from Oak Street to Union Street, bounded by local streets in Oakland, including Oak Street, Union Street, 4th Street, and 9th Street.

The project is listed in the Alameda County Transportation Improvement Authority's 20-Year Expenditure Plan. The stakeholder agencies for the I-880/Broadway-Jackson Interchange project include the Lead Agency – the California Department of Transportation (Department), as well as the Alameda County Transportation Commission (ACTC), the City of Oakland, and the City of Alameda.

One build alternative is under consideration in this Preliminary Environmental Assessment Report (PEAR): Components of the Build Alternative are described below. During the PA&ED phase of project development, a No Build Alternative would be analyzed.

Build Alternative

Under the Build Alternative, traffic exiting the Posey Tube could turn left onto 6th Street and use the new Market Street on-ramp to access I-880 northbound. Traffic could also access northbound I-880 or I-980/Highway 24 by turning right onto 7th Street and using the existing Jackson Street on-ramp. Motorists headed for I-880 southbound would use the existing on-ramp at 5th and Oak streets, turning right onto 7th Street and right on Madison Street to reach 5th Street. Features included in this alternative include:

- The existing Broadway off-ramp from northbound I-880 would be truncated and would instead terminate at 6th and Webster streets; this ramp would provide an option for Alameda-bound travelers to turn left at Webster Street, directly into the Webster Tube, thereby avoiding the intersections of 5th and 6th streets at Broadway
- The Harrison Street exit of the Posey Tube from Alameda would be improved to better accommodate existing traffic and reconstructed at a greater depth to create more vertical clearance for the new Webster Street off-ramp
- A new left-turn option from the Posey Tube onto 6th Street, connecting to Webster, Broadway, and onto the northbound I-880 on-ramp at Market Street
- Improvements to the 6th Street corridor (northbound) between Webster Street and Market Street would connect 6th Street from Harrison Street to

Broadway; other improvements to 6th Street would include resurfacing, lane realignment, sidewalk resizing, and signal coordination

- A new on-ramp from Market and 6th Streets to northbound I-880 would serve as an alternate parallel route to access northbound I-880 from downtown Oakland, Chinatown, Jack London Square, and Alameda; this would relieve existing congested conditions at the current on-ramp from Jackson Street to northbound I-880
- Access from southbound I-880 would be improved via a new Martin Luther King Jr. Way off-ramp that would begin above 5th Street between Adeline Street and Filbert Street and that would provide new access to relieve congestion on the existing 7th Street off-ramp that currently touches down at 5th and Union Streets; this ramp would allow vehicles to exit southbound I-880 substantially closer to downtown Oakland, Jack London Square, or Alameda (via 5th Street) and would reduce traffic along 5th Street between Union Street and Martin Luther King Jr. Way
- Improvements to the 5th Street corridor (southbound) between Martin Luther King Jr. Way and Broadway, including resurfacing, lane realignment, signal coordination, and/or sidewalk resizing

Modifications to existing State facilities would include:

- Reconstruction of the northbound I-880 Broadway off-ramp.
- Reconstructed retaining walls on Harrison underneath the I-880 mainline

The project would involve modifications and additions to on- and off-ramps and local street improvements and would not include any substantial changes to the freeway mainline (such as new auxiliary lanes, highway lanes or HOV lanes). Non-standard design features are anticipated to include interchange spacing, shoulder widths, intersection spacing, and sight distance on sag vertical curves. New right-of-way would be required near the proposed Market Street on-ramp to northbound I-880.

Funding

In addition to the funding from the current Measure B, potential funding sources include future federal, state and local revenue sources. Once the Project Report is approved in the next Project Approval and Environmental Document (PA/ED) phase, funding sources will be identified and programmed for this project

3. Anticipated Environmental Approval

CEQA		NEPA	
Environmental Determination			
Statutory Exemption	☐		
Categorical Exemption	☐	Categorical Exclusion	☐
Environmental Document			
Initial Study or Focused Initial Study with Negative Declaration or Mitigated ND	☒	Complex Environmental Assessment with Finding of No Significant Impact	☒
Environmental Impact Report	☐	Environmental Impact Statement	☐
The California Department of Transportation is the CEQA and NEPA Lead Agency for this project.			
Estimated length of time (months) to obtain environmental approval: 24-36			
Estimated Department staff hours to perform oversight during PA&ED phase: 1880			

4. Special Environmental Considerations

The Build Alternative would impact one designated historic resource (the Oakland Portal of the Posey Tube) and several potentially historic resources; and, has the potential to impact unrecorded Native American resources.

The historic resources in the project area will require future evaluation under Section 106 (see Cultural Resources discussion below). If this analysis determines that the historic resources in the project area are both eligible for the National Register and would warrant preservation in place, a Section 4(f) evaluation would need to be prepared. The time required for legal sufficiency review could impact the project schedule should an individual Section 4(f) evaluation be required.

The Build Alternative would also result in substantial utility relocation work and require right-of-way acquisition of private property. The right-of-way required for the project may result in the need to demolish existing commercial buildings and relocate businesses within those buildings.

5. Anticipated Environmental Commitments

The project involves modifications and additions to on- and off-ramps and local street improvements as a single project. The appropriate level of environmental documentation to be prepared during the PA&ED phase of project development would be an Initial Study/Environmental Assessment (IS/EA) with Mitigated Negative Declaration (MND)/Finding of No Significant Impact (FONSI) to satisfy both CEQA and NEPA requirements. Preparation of the IS/EA, including technical studies, is anticipated to take 24 to 36 months, after receiving information necessary to begin the environmental analysis (per the Felker Memorandum). This timeline includes time for substantive review by the environmental division staff within the Department, but does not include time for permitting by federal or state resource agencies.

Attachment B contains estimated costs of environmental commitments identified in this PEAR.

6. Permits and Approvals

Water Quality Permits: The project is likely to utilize the Departments' National Pollutant Discharge Elimination System (NPDES) permit during construction. The Department NPDES permit includes measures that would be taken by the project to reduce or avoid runoff that would affect local stormwater quality. Consistent with the NPDES permit, the project would require a Regional Water Quality Control Board permit (401), which would require preparation and adoption of a SWPPP. Additionally, the project would be required to file a Notice of Intent (NOI) to be covered under the State NPDES General Construction Permit for discharges of stormwater associated with construction activity.

Biological Resources Permits: A row of trees along 5th Street may need to be removed because of the construction of the Martin Luther King Jr. Way off-ramp. A single tree near the intersection of 6th Street and Broadway may need to be removed because of construction related activities associated with the removal of existing I-880 northbound off-ramp to Broadway. The removal of such trees may also require a permit from the City of Oakland should they be defined as "protected trees" under the Protected Trees Ordinance, Chapter 12.36 of the Oakland Municipal Code.

Attachment B contains estimated costs of environmental commitments identified in this PEAR.

7. Level of Effort: Risks and Assumptions

Risk management is the systematic process of identifying and planning for issues that, were they to occur, could have a positive or negative effect on the project objectives, including the timeline and/or budget for project implementation. Initial phases of project development include developing and regularly reviewing a risk management matrix prepared for the project. This project is designed to improve local circulation over a large area by improving or adding access at several interchanges – as such, the project defined in this PEAR could be implemented in part or in whole, and/or in multiple phases, as resources are available. This PEAR is designed to provide an initial evaluation of the level of technical study and environmental documentation that would be required for the different alternatives in the entire project area.

Because the Build Alternative would impact several historic resources in the project area, further evaluation under Section 4(f) would be warranted. Potential Section 4(f) resources could also be impacted; these include the historic resources discussed under Cultural Resources below, as well as Harrison Railroad Park and Jefferson Square Park. The historic resources in the project area will require future evaluation under Section 106 (see Cultural Resources discussion below). If this analysis determines that the historic resources in the project area are both eligible for the National Register and would warrant preservation in place, a Section 4(f) evaluation would need to be prepared. The time

required for legal sufficiency review could impact the project schedule should an individual Section 4(f) evaluation be required.

It is not known at this time if all potential impacts, particularly impacts to the human environment, could be mitigated to a less-than-significant level. If impacts are determined to be significant even after application of mitigation, the level of environmental document may need to be elevated. This determination should be made during the PA&ED phase once technical studies have been completed.

Below is the estimated level of effort to prepare the environmental document.

Estimated Department staff hours to perform oversight during PA&ED phase:	Env. Analysis	210
	Biology/Permits	50
	Cultural	460
	Hazardous Waste	620
	Air & Noise	180
	Water Quality	240
	Landscape	120
	Project Management	-
	Total (1.1 PY)	**1880**

8. PEAR Technical Summaries

8.1 Land Use and Community Impacts

Implementation of the Build Alternative would not require the removal of any existing residential units; however, construction of the depressed left-turn lane from Harrison to 6th Street would block vehicular access to five residential units. The project could result in the relocation of highway on- and off-ramps closer to some residences, and would add traffic to roads presently being used only by local traffic, further affecting these residences, particularly those along 6th Street between Jackson and Alice.

The project is also anticipated to require relocation of several existing businesses along 7th Street (in the vicinity of the Market Street on-ramp) and could change traffic patterns such that businesses along 5th, 6th and 7th streets would experience changes in the amount of pass-by traffic. A Community Impact Assessment should be prepared to determine the extent of both direct and indirect impacts to residents and commercial businesses in the project area. Depending of the exact configuration of ramps, mitigation may be required in the form of residential or business relocation assistance in accordance with state law.

Although no existing sidewalks would be closed, the project would decrease traffic on 5th Street between Union and Martin Luther King Jr. Way and would not affect current traffic levels on 5th between Martin Luther King Jr. Way and Broadway. The project also would decrease traffic on 7th Street. However, the project would add traffic on 6th Street such that it could impede pedestrians from safely crossing this road. It is anticipated that pedestrian movement could be enhanced on 6th Street with the project through greater use of walk signals, crosswalks, and the installation of additional lighting under the freeway. These impacts would need to be evaluated and, if appropriate, mitigated in the traffic and transportation report prepared for the project.

Because the residents of the project area are more likely to be minority populations, it is possible that direct impacts to local businesses and indirect effects of the project such as increased noise, air pollutants and visual effects may be considered to disproportionately burden communities which meet the criteria for being environmental justice communities, as defined in Executive Order 12898 (1994). Therefore, the Community Impact Assessment (CIA) should include an analysis of potential environmental justice impacts and all feasible avoidance, minimization and mitigation measures.

Project Construction

Construction of the proposed improvements under the Build Alternative is not anticipated to require temporary relocation of any businesses or residences but would introduce construction activities and noise such that there would be a temporary (1.5-2 year) inconvenience to some people in the area immediately surrounding the highway corridor. Some businesses, particularly along 7th Street near Market Street, may require relocation.

8.2 Growth

The growth inducement discussion is required under CEQA, which states that growth must not be assumed in any area to be necessarily detrimental, beneficial, or of no significance to the environment. In general, a project could be considered growth inducing if it directly or indirectly affects the ability of agencies to provide needed public service, or if it can be demonstrated that the potential growth significantly affects the environment in some other way. CEQA does not require separate mitigation for growth inducement as it is assumed that these impacts are already captured in the analysis of environmental impacts.

Highway and local roadway improvements in general have the ability to enhance accessibility within local communities and the proposed interchange improvements would enhance access and local circulation along the existing I-880 and I-980/Highway 24 corridors. The project would not provide access to areas previously inaccessible but it may improve access in ways that would foster local development or redevelopment beyond that which is presently possible in the area. The environmental document would include an evaluation of the potential for growth inducement in the project area and vicinity.

8.3 Farmlands/Timberlands

There are no farmlands or timberlands in the project vicinity and no farmland evaluation would be required.

8.4 Visual/Aesthetics

There are no designated scenic highways or state scenic resources within the project area. However, there are two buildings in the project area that are listed as parts of the Oakland Scenic Tour (the Hall of Pioneers Senior Center and TJ's Gingerbread House) and would be considered local scenic resources. Other scenic features in the project area include large trees within Harrison Railroad Park and surrounding Jefferson Square Park. Viewer groups within the project area consist of residents, employees of local businesses, and motorists.

The Hall of Pioneers Senior Center is located within Harrison Railroad Park, between Harrison Street and Alice Street, on the south side of 7th Street. TJ's Gingerbread House is a restaurant (currently closed) located on the southeast corner of Brush Street and 5th Street. This building is located near the terminus of the proposed Martin Luther King Jr. Way I-880 southbound off-ramp.

Hall of Pioneers Senior Center/ Harrison Railroad Park
Corner of Harrison Street and 7th Street

TJs Gingerbread House
Corner of Brush Street and 5th Street

Project Operation

The Build Alternative would not directly impact either of these two local scenic resources. While widening roadways and adding on- and off-ramps would increase the bulk of the existing structures; these changes would not substantially alter existing views.

The displacement of businesses as part of the project would not create an adverse visual effect on the project area, because the displacements would be relatively isolated and not result in large portions of the community being displaced. The Build Alternative would remove several trees along 5th Street corridor (southbound) improvement area, between Martin Luther King Jr. Way and Broadway.

A preliminary screening was conducted using the Federal Highway Administration's (FHWA) Visual Impact Assessment Guide. The preliminary screening of the project indicates that a a Visual Impacts Assessment (VIA) should be prepared for this project.[1] The VIA should describe project features, impacts, and mitigation requirements, including aesthetic treatments on project features (i.e, retaining walls) and landscape replacement. Visual simulation(s) should be prepared for interchange features likely to be seen by the sensitive viewer groups. To reduce the visual effects of the removal of trees and vegetation, replacement landscaping would be in accordance with Caltrans' highway planting policies.

Project Construction

Construction activities would also result in temporary visual effects (e.g., construction equipment, signage, dust, etc.) within the project area. However, these would be temporary and generally short in duration. It is not expected that these short-term effects would require separate evaluation in the VIA.

[1] The VIA scoring sheet in included at the end of this PEAR.

8.5 Cultural Resources

A cultural records search for the project area was performed by the Northwest Information Center (NWIC) of the California Historic Resources Information System (CHRIS). The record search found that the projected area contains both prehistoric and historic-era resources, including:

- One recorded Native American archaeological resource (a former habitation site)
- Ten historic period cultural resources, including:
  - Seven archaeological resources
  - Four historic buildings and properties:
    - The Oakland Point District
    - Zellerbach Paper Company Warehouse (no address given)
    - 741 5th Street (part of TJ's Gingerbread House)
    - Oakland Portal which is the Harrison Street exit of the Posey Tube (also a contributor to the Waterfront Warehouse District - listed below.)

The NWIC noted that previous studies conducted in vicinity have addressed approximately 90 percent of the project area, but that additional resources may be located in the 10 percent not previously studied. The records search also identified four additional historic districts in the project area or immediate vicinity, including:

- Waterfront Warehouse District
- Grove Street District
- 7th Street District
- Bret Harte District

In addition to these known resources, NWIC noted that there are likely to be additional building resources identified within the project area, as many buildings in the area appear to exceed 45 years in age. The State Historic Preservation Office (SHPO) uses a threshold of 45 years in determining whether a building, structure, or object may be of historic value. Based on field reconnaissance, some of these additional resources may include numerous residential and commercial buildings in the project area, particularly along 6th Street near Webster Street and in the area of the proposed Market Street on-ramp to northbound I-880.

NWIC also noted that, based on the location of the project area proximate to water sources, such as the historical shoreline, there is a high likelihood that unrecorded Native American cultural resources exist in the project area.

Project Operation and Construction

Based on the records search performed by NWIC, the project area would be considered to be highly sensitive for both prehistoric and historic resources. The Build Alternative of the project may require modification and/or demolition of several existing buildings (businesses) along 7th Street; and modification of retaining walls associated with the Oakland Portal along Harrison Street,

The buildings along 7th Street that may be affected are not currently listed on the National Register and have not been formally evaluated. These buildings appear to be over 45 years in age and thus will require formal evaluation to determine if they are individually eligible for listing on the National Register and/or contributing elements to the 7th Street District. If the buildings are determined eligible for listing or contributing elements to the 7th Street District, alternatives should be considered to avoid modification or demolition of these buildings.

The Oakland Portal which is the Harrison Street exit of the Posey Tube is listed on the National Register and is a contributor to the Oakland Waterfront Warehouse District. The Build Alternative may modify existing retaining walls associated with the Oakland Portal along Harrison Street. Further evaluation will be needed to determine if the retaining walls that may be affected are character defining elements of this historic resource which if modified or removed would result in a significant impact. If it is determined that the retaining walls are character defining elements, alternatives should be considered to avoid any modification of these retaining walls. If modification cannot be avoided, mitigation could involve reconstructing the retaining walls to Secretary of the Interior Standards which may require that new construction be differentiated from the original, but historically compatible.

In addition, because of the extensive history of human use of the area, there is a potential for the Build Alternative of the project to affect both historic and prehistoric resources.

It is recommended that an Archaeological Survey Report (ASR) and a Historical Resources Evaluation Report (HRER) be prepared for the project. Additionally, a Historic Property Survey Report (HPSR) would summarize these reports and more definitively establish the eligibility of any resources potentially affected by project construction and operation. The HPSR should be prepared in the context of more fully developed design drawings, such that potential project effects can be more precisely determined. Formal consultation under Section 106 of the National Historic Preservation Act with the California SHPO may also be necessary if any identified resources require an evaluation of eligibility to the National Register and/or if any eligible or listed historic properties would be affected by the Build Alternative.

To address the high likelihood of historic or prehistoric cultural resources in the project area, a typical recommendation for an undeveloped area would include consultation with local Native American representatives, archival research and a field investigation. Based on the location and presumed archeological sensitivity of the project area, a thorough identification effort and analysis of impacts to resources found within the Area of

Potential Effect (APE) would be required. If an archeological site is identified and found eligible for listing in the National Register, mitigation measures would need to be developed to mitigate any adverse effects to the resource.

8.6 Hydrology and Floodplain

A review of Federal Emergency Management Agency (FEMA) flood maps and United States Geological Survey topographic maps has verified that there are no designated FEMA floodplains in the project area. Groundwater in the project area is heavily affected by the proximity to the Alameda Inlet and the San Francisco Bay and is saline and not used for any public use.

8.7 Water Quality and Storm Water Runoff

At present, the majority of the project area is paved with impermeable pavement and buildings and there are few areas with open soil, grass or other vegetation to capture rainfall. Pavement runoff conveyed toward the Posey-Oakland Portal Building is currently limited to the depressed portion of the Posey Tube exit roadway south of 6th Street. Storm runoff from Harrison Street north of 6th Street and the surrounding properties is presently collected by the City storm drains located in the at-grade streets adjacent to the depressed Posey Tube exit roadway. Storm drains in the project area drain directly (with minimal or no treatment) into the Alameda Inlet and into the San Francisco Bay. A portion of the runoff from existing and proposed project facilities would be expected to flow to these water bodies.

The project is within the jurisdiction of the San Francisco Bay Regional Water Quality Control Board (RWQCB), which implements water quality protection through the issuance of permits for projects found to be in compliance with the San Francisco Basin Plan. Water runoff quality is regulated by the federal National Pollution Discharge Elimination System (NPDES) program (established by the Clean Water Act of 1972). The NPDES objective is to control and reduce pollutants to water bodies from non-point discharges. The program is administered by RWQCBs throughout the State. The RWQCB issues NPDES point source permits for discharges from major industries and non-point source permits from different local municipalities. Additionally, improvement projects disturbing more than 1 acre of land during construction are required to file a Notice of Intent (NOI) to be covered under the NPDES General Construction Permit for discharges of stormwater associated with construction activity.

The project could utilize the Departments' National Pollutant Discharge Elimination System (NPDES) permit during construction. The Department NPDES permit includes measures that would be taken by the project to reduce or avoid runoff that would affect local stormwater quality. Consistent with the NPDES permit, the Build Alternative would require a Regional Water Quality Control Board permit (401), which would require preparation and adoption of a Stormwater Pollution Prevention Plan (SWPPP), further discussed below.

Project Operation and Construction

The project would be designed so that stormwater runoff would not increase at the entrance to the Posey Tube. Additional drainage inlets would be placed so that runoff is collected before it enters the existing drainage system for the Posey Tube.

The existing drainage facilities in the project area are generally older and do not incorporate many Design Pollution Prevention Best Management Practices (BMPs). As a matter of law, implementation of the Build Alternative would require upgrading these facilities to incorporate design BMPs, as well as incorporation of construction BMPs to prevent impacts to water quality during construction (such as excessive erosion or sedimentation). These BMPs are outlined in the Caltrans statewide Stormwater Management Plan (SWMP). Additionally, the project engineer or construction contractor would be required to prepare and implement a Stormwater Pollution Prevention Plan (SWPPP) in compliance with the Basin Plan and the SWMP.

Incorporation of these BMPs and any measures outlined in the SWPPP would ensure that the project would not adversely affect the quality of any stormwater flowing to the San Francisco Bay or to local stormwater treatment facilities. It is anticipated that these measures would improve runoff quality to some extent as these facilities are upgraded. The environmental document would include an evaluation of the potential hydrological and water quality impacts of the project based on the hydrology/drainage reports and SWPPP prepared as part of the PA/ED phase of the project.

8.8 Paleontology

The project area is highly developed and there are no known areas with substantial fossil resources in the vicinity. However, paleontological evaluations have not commonly been performed for construction projects until recently and there is a potential for unrecorded fossil resources to be found during project construction.

Project Operation and Construction

Any impacts to fossil resources would be most likely to occur during excavation for ramp support foundation structures and at Harrison Street at the exit of the Posey Tube (which may be lowered). A Paleontological Impact Assessment (PIA) could be prepared to screen the area for potential resources and determine whether the area would be considered highly or moderately sensitive for paleontological resources. However, because the project area is highly developed, little can be ascertained from a site visit and the assessment would primarily be based on historical research in reference libraries. If the PIA determined that there is low sensitivity in the project area, then no additional monitoring would be required. However, if it is found that there is potential for impacts to fossil resources, construction monitoring would be required to be conducted by a qualified paleontologist and a curation program would be prepared for the project to create protocols for how to protect any resources discovered during construction. Alternately, the project could skip preparing the PIA and could instead retain a qualified paleontologist to conduct construction monitoring and prepare a curation program.

8.9 Hazardous Waste/Materials

A Phase I Initial Site Assessment (ISA) was prepared for the project by Parikh Consultants, Inc. The ISA includes review of environmental document review (EDR) records, historical aerial photographs, United States Geological Services (USGS) maps, government records search of hazardous waste sites within one mile of the project corridor, hydrology patterns, agency records, and a field visit to visual inspect the project vicinity.

The I-880 corridor has been used by motor vehicles for decades (since the 1930s) and it is likely that surface soils in the project area are affected by deposition of aerial lead (ADL) from the use of leaded fuels prior to these fuels being phased out (a process that began in 1973 and was completed in 1996). The lead levels in surface soils along high traffic roads and freeways that have been in use for many years can reach concentrations in excess of the hazardous waste threshold.

The freeway on- and off-ramps west of the Route 980 interchange were built prior to the 1980s. Due to the age of these structures there is a potential for presence of asbestos-containing materials (ACM) and lead-based paint.

As part of the database research, documentation was reviewed for environmental incidents at the site or surrounding properties as defined by ASTM standards (for results, see Appendix C of the Phase I ISA). Sites known to or thought to contain hazardous materials that are upgradient (to the north) of the project area were further evaluated. These sites are discussed from east to west along the route.

- **Oakland Auto Parts (706 Harrison Street).** Petroleum hydrocarbons may have come in contact with groundwater at this site. A historical release of gasoline to soil and ground water in 1990 was listed on the LUST and Cortese databases. Alameda County Environmental Health Service files indicate the site has concentrations of petroleum hydrocarbons in a comingled plume from this site and two other nearby sites. A recent project status report indicates that the plume, which occurs primarily south of 7th Street, has elevated concentrations of methyl tertiary butyl ether (MTBE) in groundwater that exceed state standards (higher than 200 microgram per liter). The southern boundary of the plume has not been determined and MTBE in the groundwater may have migrated to the project area right-of-way. The site is currently undergoing remediation.
- **Numerous Former Cleaners (along 7th Street).** There are five sites where cleaning facilities were reported to be in operation in the 1920s. These sites are upgradient of the project area but the date of operation predates the use of solvents such as tetrachloroethene (PCE). It is unlikely that these sites pose an environmental risk to the project area.
- **Francis Plating of Oakland (785 7th Street).** The CERCLIS database list indicates that the owners of this site went bankrupt and did not properly

close the facility. Francis Plating used various plating solutions for aluminum anodizing, nickel and cadmium plating, and chromic acid for stainless steel parts. The site still contains trailers, buildings, and other structures that were used during operation of the business.

Acids, bases, and dyes were used in the operation and it is likely that the plating process used other hazardous substances such as copper, lead, cadmium, nickel, cyanides, silver, zinc, sulfates, phosphates, chlorides, and soap solutions in the tanks and vats on the site. These tanks included a stainless steel containment tank 32 feet by 15 feet by 5 feet inside the building and a concrete pit area 15 feet by 68 feet by 3.5 feet outside called the "Frog Pond." Exposed soils still exist in the front of the building along 7th Street (east side) and along the fence next to the Shell Service Station (north side). Beginning in 1994, the property and the trailers located in the rear yard (adjacent to 6th Street) were used to store hazardous materials.

Environmental cleanup began in 1996 when the East Bay Municipal Utility District (EBMUD) sealed a connection to the municipal wastewater system and required wastewater to be treated on site. Wastewater, sent though the boiler to concentrate and precipitate the metals, was then fed into a filter press. The filter cake was spread out on the cement in the northern portion of the site and dried.

Starting in 1998, the US EPA did an emergency removal of the hazardous substances. In October 1999, soil was removed in selected areas from 6 inches to 2 feet. In July 1999, eight surface composite samples were taken in the "front yard" and three in the "rear yard" area along Brush Street. In addition, there were 12 subsurface borings taken around the site and five waste sediment locations. Only one of the confirmation samples was above the residential cleanup levels for chromium and lead; however, further soil testing is necessary in the project area to confirm that there is no residual contamination from metals or solvents.

- **Shell Service Station (610 Market Street).** This site is listed on the LUST and Cortese database lists. A review of the latest groundwater monitoring report indicates low to non-detectable levels of MTBE and Benzene in the groundwater below 6th Street, south of the site. Due to the low levels of contamination measured, the site should not pose an environmental risk.
- **Adeline Cleaners (985 7th Street).** This site has been in operation since 1987. The site is listed on the Dry Cleaners list of the ID CR-449 database list, as well as the RCRA SQG and LQG for generation of hazardous waste database lists. There are no regulatory site investigations available for this site. Due to the proximity of the site to the project area, the impact of the site on groundwater should be assessed.
- **Rhino Pacific Oakland Truck Stop (1107 5th Street).** This site is listed on the LUST and Cortese database lists for the presence of petroleum

hydrocarbons in the area up to and underneath 5th Street. This site is currently undergoing remediation and groundwater-contaminated plumes appear to be contained and not migrating further towards the project area.

During the field visit conducted as part of the Phase I ISA, several other sites were identified as potentially having hazardous materials contamination that will require additional investigation.

- **Lot north of 6th Street between Castro and Brush streets.** During the field visit, a groundwater monitoring well was observed on this unpaved lot. This site is a truck and bin storage lot upgradient of the project area. The groundwater at this site may have impacted the project area by a mixture of petroleum hydrocarbons (TPH) and volatile organic chemicals (VOCs).
- **6th Street between Harrison and Webster streets.** During the field visit, several auto repair facilities were observed on 7th Street between Harrison and Webster streets. Groundwater in the area downgradient of these facilities may be impacted by VOCs and TPH.

Project Operation and Construction

The project does not propose any new habitable space and therefore would not introduce any new sensitive receptors to the project area. Construction activities would disturb soils, likely containing existing hazardous materials, including aerially deposited lead (ADL), solvents, petroleum hydrocarbons, metals, and other hazardous chemicals. Modification or demolition of existing freeway structures could also release particles of lead-based paint or asbestos. Untreated, these substances could endanger construction workers, nearby residents and employees through direct exposure or inhalation, and could adversely affect the environment if they were released and transported by air or water during construction.

A Phase II soil investigation would be required prior to project development to better determine the extent that hazardous materials are present in soils in the project area. If concentrations of hazardous materials are found in excess of established state and federal standards, a remedial action plan would be required to establish a mitigation program to protect human and environmental health. For example, the soils are likely impacted with ADL and a work plan for the removal or stabilization of these materials would need to be submitted during the project design phase that would specify appropriate measures to incorporate into project construction.

As part of this investigation or as a separate study, roadway structures such as bridges and interchanges that would be modified or removed by the project should be analyzed for asbestos containing materials (ACM) and lead-based paint applications. Collection and analysis of ACM would be performed during the project design phase, while collection and analysis of lead-based paint applications would be conducted prior to the demolition of the structures within the Department right-of-way. ACM and lead-based paint would need to be abated by using contractors certified to perform such work in accordance with state and federal regulations.

8.10 Air Quality

The project area is located within the San Francisco Bay Area Air Basin (Region), which is regulated by the Bay Area Air Quality Management District (BAAQMD). The Region is characterized as having generally good air quality that is in attainment (below mandated air quality thresholds) for most criteria (state and/or federally regulated) air pollutants. However, the BAAQMD is considered to be in non-attainment (above mandated air quality thresholds) for ground-level ozone and particulate matter (PM). Pursuant to the federal Clean Air Act, the BAAQMD is required to reduce emissions of criteria pollutants for which the San Francisco Bay Air Area Basin is in non-attainment.

The Bay Area 2005 Ozone Strategy is the current ozone air quality plan required under the federal Clean Air Act. The 2005 Ozone Strategy explains how the region will achieve compliance with the state one-hour air quality standard for ozone as expeditiously as practicable and how the region will reduce transport of ozone and ozone precursors to attain the state and federal ozone standards within the Bay Area Air Basin.

The state-mandated regional air quality plan is the Bay Area 2000 Clean Air Plan (Clean Air Plan). Both the Ozone Strategy and the Clean Air Plan contain mobile source controls, stationary source controls, and transportation control measures to be implemented in order to attain the state and federal ozone standards within the San Francisco Bay Area Air Basin.

The I-880 corridor frequently experiences highly congested conditions (and is in close proximity to the Port of Oakland, which is also a source of criteria pollutants in the project vicinity). Many of the intersections of 5th and 6th streets with streets that run under the freeway (Oak, Madison, Jackson and Webster streets) presently experience substantial congestion and vehicle idling. Emissions from these inefficient traffic operations are hindered from dispersing by the overhead highway and surrounding buildings which could result in elevated carbon monoxide (CO) levels within the immediate project area.

Project Operation

Implementation of the Build Alternative of the project is intended to result in more orderly and efficient transportation on I-880, and on local streets in the project area and is anticipated to reduce traffic congestion. The addition of the Martin Luther King Jr. Way off-ramp and the Market Street on-ramp is also anticipated to reduce traffic volumes on some local streets (particularly 5th and 7th streets), and the idling of vehicles waiting to get onto the freeway or stopped at stoplights. The anticipated reduction in vehicle idling and stop times would improve traffic operations and could decrease overall emissions in the BAAQMD jurisdictional area and contribute to the district meeting regional air quality standards. The project would also add new on- and off-ramps and relocate an existing off-ramp which would provide more travel options and spread traffic across multiple intersections, thereby reducing the potential for elevated CO emission at any one intersection in the project area. However, localized shifts in traffic patterns and congestion can result in localized air quality impacts.

8.12 Energy and Climate Change

While climate change has been a concern since at least 1988, as evidenced by the establishment of the United Nations and World Meteorological Organization's Intergovernmental Panel on Climate Change (IPCC), the efforts devoted to greenhouse gas (GHG) emissions reduction and climate change research and policy have increased dramatically in recent years. In 2002, with the passage of Assembly Bill 1493 (AB 1493), California launched an innovative and proactive approach to dealing with GHG emissions and climate change at the state level. AB 1493 requires the Air Resources Board (ARB) to develop and implement regulations to reduce automobile and light truck GHG emissions; these regulations will apply to automobiles and light trucks beginning with the 2009 model year.

On June 1, 2005, Governor Arnold Schwarzenegger signed Executive Order S-3-05. The goal of this Executive Order is to reduce California's GHG emissions to: 1) 2000 levels by 2010, 2) 1990 levels by the 2020 and 3) 80 percent below the 1990 levels by the year 2050. In 2006, this goal was further reinforced with the passage of Assembly Bill 32 (AB 32), the Global Warming Solutions Act of 2006. AB 32 sets the same overall GHG emissions reduction goals while further mandating that ARB create a plan, which includes market mechanisms, and implement rules to achieve "real, quantifiable, cost-effective reductions of greenhouse gases." Executive Order S-20-06 further directs state agencies to begin implementing AB 32, including the recommendations made by the state's Climate Action Team.

With Executive Order S-01-07, Governor Schwarzenegger set forth the low carbon fuel standard for California. Under this executive order, the carbon intensity of California's transportation fuels is to be reduced by at least 10 percent by 2020.

Senate Bill 375 (SB 375) was signed into law on September 29, 2008. This bill requires metropolitan planning organizations (such as MTC) to incorporate a "Sustainable Communities Strategy" (SCS) into their next RTP (beginning in 2011). The SCS would require an evaluation of land use practices and appropriate rezoning to encourage smart growth planning and to demonstrate how the emissions reduction goals related to vehicle emissions and vehicle miles travelled (VMT) would be achieved. This may have substantial effects in changing land development patterns in the region and may serve to further concentrate development around major transportation corridors. MTC will develop its SCS in coordination with the California Air Resources Board, which would consider the project's role in meeting SB 375 requirements.

Project Operation and Construction

Emissions generated by project-related traffic and construction vehicles would contribute to GHG in the earth's atmosphere. An appropriate energy technical report and GHG emissions analysis should be prepared as part of the cumulative impacts analysis for this project. The analysis would be prepared in accordance with the most current available guidance at the time the environmental document is prepared. The Climate Change/Greenhouse Gas Emission section of the draft environmental document requires

review by headquarters environmental; this will take place during the Complex Environmental Assessment review process.

8.13 Biological Environment

Given the urban and developed nature of the project area, it is not anticipated that sensitive biological resources exist within the project area. A review of existing CEQA documents for other projects in the vicinity of the project area identified no sensitive biological resources. Vegetation observed within the project area was limited to ornamental plantings, non-native annual grasses, and non-native ruderal plants.

The project area contains no wetlands or streams. There appear to be no portions of the project area that would qualify as jurisdictional waters of the United States.

Project Operation and Construction

A row of trees along 5th Street may need to be removed because of the construction of the Martin Luther King Jr. Way off-ramp. A single tree near the intersection of 6th Street and Broadway may need to be removed because of construction related activities associated with the removal of existing I-880 northbound off-ramp to Broadway. In compliance with the Migratory Bird Treaty Act (MBTA), all vegetation (trees, shrubs and grassy areas) trimmed or removed would need to be checked for the presence of any protected bird species (i.e., birds, their eggs, feathers, and/or nests). If construction occurs within the breeding season (February 1 – August 31st) a survey of the area should be conducted 15-days prior to construction. Therefore, all vegetation is subject to the MBTA regardless of classification. The removal of trees may also require a permit from the City of Oakland should they be defined as "protected trees" under the Protected Trees Ordinance, Chapter 12.36 of the Oakland Municipal Code.. No detailed biological assessment is warranted by the developed conditions of the project area.

Executive Order 13112 requires that Federal agencies carrying out actions that have the potential to affect the status of invasive species: (1) identify such actions; (2) not authorize, fund, or carry out such actions that it believes are likely to cause or promote the introduction or spread of invasive species; and (3) if feasible, prevent the spread of invasive species by detecting, controlling, and monitoring the spread of invasive species, providing for the restoration of native habitats, conducting research on invasive species to prevent their spread, and educating the public on invasive species issues. The project may have the potential to promote the spread of invasive plant species. Non-native plant species observed in the project area would need to be compared to the exotic plant pest list maintained by the California Department of Food and Agriculture to determine whether or not they are considered invasive species during the PA/ED phase. If invasive species are found in the project area, mitigation measures would need to be developed during the PA/ED phase to prevent the spread of these invasive species to the extent feasible.

8.14 Section 4(f) Evaluation

The Department of Transportation Act (DOT Act) of 1966 included a special provision - Section 4(f) - which stipulated that the Federal Highway Administration (FHWA) and other DOT agencies (i.e. ACTC) cannot approve the use of land from publicly owned parks, recreational areas, wildlife and waterfowl refuges, or public and private historical sites unless the following conditions apply:

- There is no feasible and prudent alternative to the use of land; and
- The program or project includes all possible planning to minimize harm to the park, recreation area, wildlife and wildfowl refuge, or historic site resulting from the use..

The project area is highly urbanized, and does not include a wildlife or waterfowl refuge that would be considered a Section 4(f) resource. However, the project area does contain several parks and historical resources that would qualify for protection under Section 4(f).

Parks

There are two parks in the project area that are likely to qualify as a Section 4(f) resources. At the corner of Harrison and 7th streets is the Harrison Railroad Park, which is also the location of the Hall of Pioneers (Hong Loc) Senior Center, a center heavily utilized by the residents of Chinatown.

A second park in the project area, Jefferson Square Park, at 6th and Jefferson streets, contains a baseball diamond and basketball courts. The park is fenced along 6th Street and there are tall trees that block views of 6th Street.

Historical Sites

As previously discussed, a cultural records search for the project area was performed by the NWIC of the CHRIS. The record search found that the project area contains both prehistoric and historic-era sites that would be considered Section 4(f) resources. These sites are discussed in detail under the Cultural Resources discussion above.
In addition to these known resources, NWIC noted that there are likely to be additional historic resources identified within the project area, as many buildings in the area appear to exceed 45 years in age.

Project Operation and Construction

Parks

Under the Build Alternative, improvements made in the vicinity of Harrison Ranch Park and Jefferson Square Park would not result in any direct use of the park lands. Indirect effects related to air quality, noise, and/or traffic and circulation could occur due to the proximity of the improvements to the Section 4(f) resources in the project area. However, these types of indirect effects are not expected to substaintially impair the activities, features or attributes that qualify the parks for protection under Section 4(f).

The traffic, noise and air quality analyses should be used to confirm that no indirect or constructive use of this park would occur.

Historical Sites

The Build Alternative of the project is anticipated to require demolition of several existing businesses along 7th Street, some of which may be considered a historical resource due to the age of the structures. Furthermore, the Oakland Portal which is the Harrison Street exit of the Posey Tube is listed on the National Register and a contributor to the Oakland Waterfront Warehouse District. The Build Alternative would demolish retaining walls associated with the Oakland Portal along Harrison Street which could in turn affect the eligibility of this resource.

Because the Build Alternative would impact several historic resources in the project area, further evaluation under Section 4(f) would be warranted. The historic resources in the project area will require future evaluation under Section 106 (see Cultural Resource discussion above). If this analysis determines that the historic resources in the project area are both eligible for the National Register and would warrant preservation in place, a Section 4(f) evaluation would need to be prepared. The time required for legal sufficiency review could impact the project schedule should an individual Section 4(f) evaluation be required.

In general, Section 4(f) does not apply to the temporary occupancy, including those resulting from a right-of-entry, construction, other temporary easements or short-term arrangements, of a significant publicly owned public park, recreation area or wildlife and waterfowl refuge, or any significant historic site where temporary occupancy of the land is so minimal that it does not constitute a use within the meaning of Section 4(f). Furthermore, it is unlikely that the project would require temporary construction staging areas that would affect any Section 4(f) resource in the project area.

8.15 Cumulative Impacts

The project area has experienced considerable land use changes over the past five years, particularly in the development of high-rise residential complexes in the Jack London Square area. This trend of development and densification of land uses in the downtown Oakland area is anticipated to continue in the future. As such, there is the potential for cumulative effects to occur. Cumulative effects would be limited to traffic, noise, air quality, and climate change impacts of the proposed alternative in combination with anticipated development projects in the area. These impacts would be evaluated in the technical reports required for the project, including the Traffic Operations Report, the Noise Study, the Air Quality report, and greenhouse gas technical reports. Cumulative traffic, noise, air quality, and climate change effects would be evaluated based on anticipated future traffic volumes, as determined in the traffic analysis.

8.16 Context Sensitive Solutions:

Caltrans uses Context Sensitive Solutions (CSS) to integrate and balance community, aesthetic, historic, and environmental values with transportation safety, maintenance, and performance goals. CSS are reached through a collaborative, interdisciplinary approach involving all stakeholders, engaged through early coordination with agencies as well as early outreach to the community.

The I-880/Broadway-Jackson Interchange project is sponsored by the City of Alameda, in conjunction with the Alameda County Transportation Commission (ACTC). Development of the PID phase has included meetings between ACTC, City of Alameda, City of Oakland, the Department, and several other public stakeholders and community advisory committees.

As this project is still in the early design phase, no formal community outreach has taken place. In designing the project, efforts have been made to avoid resources or other areas that would be sensitive to the surrounding community, including publicly used areas of Harrison Railroad Park and Jefferson Square Park, residential structures and property, and local historic resources. As the project becomes more defined, and well before publication of a draft environmental document, it is recommended that public outreach coordination occur.

9. Summary Statement for PSR or PSR-PDS

Environmental issues that may be associated with the project include the likely presence of hazardous materials (in project area soils or existing structures), community impacts during construction, noise levels in excess of local standards, the potential to encounter prehistoric or historic era artifacts during excavation, and potential carbon monoxide hotspots around the freeway corridor. The project would demolish several historic resources that may qualify for Section 4(f) protection. Environmental documentation for the project is anticipated to require preparation of an Initial Study and Environmental Assessment (IS/EA). Preparation of environmental technical reports would be required, including:

- Community impact analysis
- Air quality technical report
- Greenhouse gas analysis
- Noise impact analysis
- Visual impact assessment
- Hazardous waste (Phase II soils sampling and potentially a remediation plan)
- Cultural (archaeological) resource evaluation
- Historical resource studies
- Section 4(f) Evaluation (pending Historic resource studies)

Preparation of the IS/EA, including technical studies, is anticipated to take 24 to 36 months, after receiving information necessary to begin the environmental analysis (per the Felker Memorandum). The Build Alternative would not require a Section 404 permit or Section 7 consultation given that no sensitive biological resources or waters of the US are present within the project area. The Build Alternative would require a Regional Water Quality Control Board permit (401), which would require preparation and adoption of a Stormwater Pollution Prevention Plan. The removal of trees in the project area may also require a permit from the City of Oakland should the trees be defined as "protected trees" under the Protected Trees Ordinance, Chapter 12.36 of the Oakland Municipal Code.

10. Disclaimer

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

11. List of Preparers

Document Authors

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Date: 3/7/11

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Date: 3/7/11

12. Review and Approval

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

Environmental Branch Chief

Date: 3/9/11

Project Manager

Date: 3/9/11

ATTACHMENTS:

Attachment A: PEAR Environmental Studies Checklist
Attachment B: PEAR Environmental Commitments Cost Estimate (Standard PSR)
Attachment C: Visual Impact Assessment Guide

Attachment A: PEAR Environmental Studies Checklist

Rev. 11/08

Environmental Studies for PA&ED Checklist					
	Not anticipated	Memo to file	Report required	Risk* L M H	Comments
Land Use	☐	☐	☒	L	
Growth	☐	☐	☒	L	
Farmlands/Timberlands	☒	☐	☐	L	
Community Impacts	☐	☐	☒	L	
Community Character and Cohesion	☐	☐	☒	L	
Relocations	☐	☐	☒	L	
Environmental Justice	☐	☐	☒	L	
Utilities/Emergency Services	☒	☐	☐	L	
Visual/Aesthetics	☐	☐	☒	L	
Cultural Resources:	☐	☐	☐	L	
Archaeological Survey Report	☐	☐	☒	L	
Historic Resources Evaluation Report	☐	☐	☒	L	
Historic Property Survey Report	☐	☐	☒	L	
Historic Resource Compliance Report	☒	☐	☐	L	
Section 106 / PRC 5024 & 5024.5	☐	☐	☒	L	
Native American Coordination	☐	☒	☐	L	
Finding of Effect	☐	☐	☒	L	
Data Recovery Plan	☐	☐	☒	L	
Memorandum of Agreement	☐	☐	☒	L	
Other:	☐	☐	☐	L	
Hydrology and Floodplain	☒	☐	☐	L	
Water Quality and Stormwater Runoff	☐	☐	☒	L	
Geology, Soils, Seismic and Topography	☐	☐	☒	L	
Paleontology	☐	☐	☒	L	
PER	☐	☐	☒	L	
PMP	☐	☐	☐	L	
Hazardous Waste/Materials:	☐	☐	☒	L	
ISA (Additional)	☐	☐	☒	L	
PSI	☒	☐	☐	L	
Other:	☒	☐	☐	L	
Air Quality	☐	☐	☒	L	
Noise and Vibration	☐	☐	☒	L	
Energy and Climate Change	☒	☐	☐	L	
Biological Environment	☒	☐	☐	L	
Natural Environment Study	☒	☐	☐	L	MBTA req.
Section 7:	☒	☐	☐	L	
Formal	☒	☐	☐	L	
Informal	☒	☐	☐	L	
No effect	☒	☐	☐	L	
Section 10	☒	☐	☐	L	
USFWS Consultation	☒	☐	☐	L	
NMFS Consultation	☒	☐	☐	L	
Species of Concern (CNPS, USFS, BLM, S, F)	☒	☐	☐	L	

Environmental Studies for PA&ED Checklist					
	Not anticipated	Memo to file	Report required	Risk* L M H	Comments
Wetlands & Other Waters/Delineation	☒	☐	☐	L	
404(b)(1) Alternatives Analysis	☒	☐	☐	L	
Invasive Species	☒	☐	☐	L	
Wild & Scenic River Consistency	☒	☐	☐	L	
Coastal Management Plan	☒	☐	☐	L	
HMMP	☒	☐	☐	L	
DFG Consistency Determination	☒	☐	☐	L	
2081	☒	☐	☐	L	
Other:	☒	☐	☐	L	
Cumulative Impacts	☒	☐	☐	L	
Context Sensitive Solutions	☒	☐	☐	L	
Section 4(f) Evaluation	☐	☐	☒	M	
Permits:					
401 Certification Coordination	☐	☐	☐	L	
404 Permit Coordination, IP, NWP, or LOP	☒	☐	☐	L	
1602 Agreement Coordination	☒	☐	☐	L	
Local Coastal Development Permit Coordination	☒	☐	☐	L	
State Coastal Development Permit Coordination	☒	☐	☐	L	
NPDES Coordination	☐	☐	☒	L	
US Coast Guard (Section 10)	☒	☐	☐	L	
TRPA	☒	☐	☐	L	
BCDC	☒	☐	☐	L	

Attachment B: PEAR Environmental Commitments Cost Estimate

Standard PSR Only

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

PART 1 PROJECT INFORMATION

rev. 11/08

District-County-Route-Post Mile 4-ALA-880-31.0/32.4	EA: 0G360K
Project Description: I-880 Broadway/Jackson Interchange Project	
Form completed by (Name/District Office): District 4	
Project Manager: Stanley Gee	Phone Number: 510-286-4935
Date: 2-15-2011	

PART 2 PERMITS AND AGREEMENTS

	Permits and Agreements ($$)
☐Fish and Game 1602 Agreement	
☐Coastal Development Permit	
☐State Lands Agreement	
☒Section 401 Water Quality Certification	10000
☐Section 404 Permit – Nationwide (U.S. Army Corps)	
☐Section 404 Permit – Individual (U.S. Army Corps)	
☐Section 10 Navigable Waters Permit (U.S. Army Corps)	
☐Section 9 Permit (U.S. Coast Guard)	
☐Other:	
Total (enter zeros if no cost)	10000

PART 3. ENVIRONMENTAL COMMITMENTS FOR PERMANENT IMPACTS

To complete the following information:

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

Environmental Commitments Alternative		
	Estimated Cost in $1,000's	Notes
Noise abatement or mitigation		
Special landscaping		
Archaeological resources	200	
Biological resources		
Historical resources	400	$200k for Aesthetic treatment on new retaining walls on Harrison St/SR 260; $200k for building preservation
Scenic resources		
Wetland/riparian resources		
Res./bus. relocations		
Other: NPDES	50	
Total (enter zeros if no cost)	650	

Attachment C: Visual Impact Assessment Guide

The following questions, and subsequent score should be used as a guide to determine the level of detail required for a VIA. It is helpful in estimating the probable visual impacts a proposed project may have on the environment. This checklist is meant to assist the writer of the visual study in understanding the degree and breadth of the possible visual issues. The goal is to develop a suitable document strategy that is both thorough, efficient and defensible.

Consider each of the ten questions below and select the response that most closely applies to the project in question. Each response has a corresponding point value. After the checklist is completed the total score will represent the type of VIA document suitable for the project.

It is important that this scoring system be used as a preliminary guide only and should not be used as a substitute for objective analysis on the part of the user. Although the collective score may direct the user toward a certain level of analysis document, circumstances associated with any one of the ten question-areas may necessitate elevating the VIA to a greater level of detail.

Change to the Visual Environment

1. Will the project result in a noticeable change in the physical characteristics of the existing environment?
(Consider all project components and construction impacts - both permanent and temporary, including landform changes, structures, noise barriers, vegetation removal, railing, signage, and contractor activities)

High level of change (3) Moderate level of change (2) Low level of change (1)

2. Will the project complement or contrast with the visual character desired by the community?
(Evaluate the scale and extent of the project features compared to the surrounding scale of the community. Is the project likely to give an urban appearance to an existing rural or suburban community? Is the change viewed as positive or negative? Research planning documents, or talk with local planners and community representatives to get a rough idea of what type of visual environment local residents envision for their community.)

Highly incompatible (3) Somewhat incompatible (2) Somewhat compatible (1)

3. What types of project features and construction impacts are proposed? Are bridge structures, large excavations, sound barriers, or median planting removal proposed?
(Certain project improvements can be of special local interest, causing a heightened level of public concern, and requiring a more focused visual analysis.)

High concern (3) Moderate concern (2) Low concern (1)

4. Will the project changes likely be mitigated by normal means such as landscaping and architectural enhancement or will avoidance measures be necessary to minimize adverse change?
(Consider the type of changes caused by the project, i.e., can undesirable views be screened or will desirable views be permanently obscured?)

Project alternative may be needed (3) Extensive mitigation likely (2) Normal mitigation (1)

5. Will this project, when seen collectively with other projects, result in an aggregate adverse change in overall visual quality or character?
(Identification of contributing projects should include any projects (both departmental and local) in the area that have been constructed within the last couple of years and those currently envisioned or planned for future construction. The window of time and the extent of area applicable to possible cumulative impacts should be based on a reasonable anticipation of the viewing public's perception.)

Impacts likely in 0-5 years (3) Impacts likely in 6-10 years (2) Cumulative Impacts unlikely (1)

Viewer Sensitivity

1. What is the potential that the project proposal may be controversial within the community, or opposed by any organized group?
(This can be researched initially by talking with Departmental and local agency management and staff familiar with the affected community's sentiments as evidenced by past projects and/or current information. Factor in your own judgment as well.)

High Potential (3) Moderate Potential (2) Low Potential (1)

2. How sensitive are potential viewer-groups likely to be regarding visible changes proposed by the project?
(Consider among other factors the number of viewers within the group, probable viewer expectations, activities, viewing duration, and orientation. The expected viewer sensitivity level may be scoped by applying professional judgment, and by soliciting information from other Caltrans staff, local agencies and community representatives familiar with the affected community's sentiments and demonstrated concerns.)

High Sensitivity (3) Moderate Sensitivity (2) Low Sensitivity (1)

3. To what degree does the project appear to be consistent with applicable laws, ordinances, regulations, policies or standards?
(Although the State is often not obligated to adhere to local planning ordinances, these documents are critical in understanding the importance the local communities place on aesthetic issues. The Caltrans Environmental Planning branch may have copies of the planning documents that pertain to the project. If not, this information can be obtained by contacting the local planning department. Many local and state planning documents can be found online at the California Land Use Planning Network).

Incompatible (3) Moderately compatible (2) Largely compatible (1)

4. Are any permits going to be required by outside regulatory agencies (i.e., Federal, State, or local) that will necessitate a particular level of Visual Impact Assessment?
(Anticipated permits, as well as specific permit requirements - which are defined by the permitter, may be determined by talking with the project Environmental Planner and Project Engineer. Note: coordinate with the Caltrans representative responsible for obtaining the permit prior to communicating directly with any permitting agency.)

Yes (3) Maybe (2) No (1)

5. Will the Project Development Team or public benefit from a more detailed visual analysis in order to help reach consensus on a course of action?
(Consider the proposed project features, possible environmental impacts, and probable mitigation recommendations.)

Yes (3) Maybe (2) No (1)

Total Score: 16

Determining the Type of Visual Impact Assessment Required

The total score will indicate the general level of Visual Impact Assessment that should be performed for the project. Once the level of recommended assessment is identified, the user should double-check the results by comparing each of the ten question-areas to the total score in order to confirm that the level of document appears sufficient and reasonable in each case.

Score 25-30 – Prior to preparing a VIA, a formal visual scoping study that meets or exceeds FHWA requirements is recommended to alert the Project Development Team to potential highly adverse impacts and to develop new project alternatives to avoid those impacts.

Score 20-24 – A fully developed VIA, that meets or exceeds FHWA requirements, is recommended. This technical study will likely receive extensive public review.

Score 15-19 – An abbreviated VIA would be appropriate in this case. The assessment would describe project features, impacts and mitigation requirements. Visual simulations would be optional.

Score 10-14 – A brief Visual assessment in memo form would likely be sufficient.

04-ALA-880 PM 31.0/32.4
04-ALA-260 PM 1.1/1.9
Program Code 20.30.600.624
EA 04-0G360K
March 2011

I-880/Broadway-Jackson Interchange Project

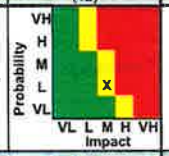
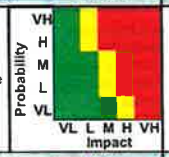
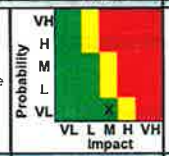
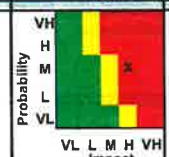
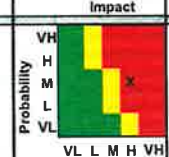
PSR-PDS

Attachment M

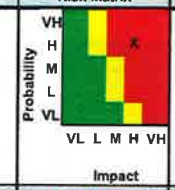
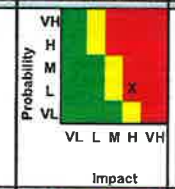
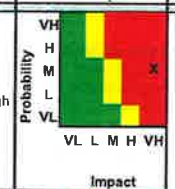
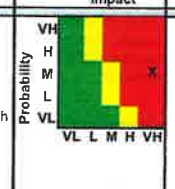
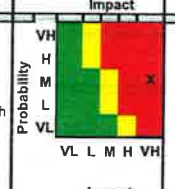
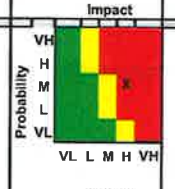
Risk Management Plan

Dist - E.A: 04-0G360K
Co-Rte-PM: 04-ALA-880 PM 31.0/32.4; 04-ALA-260 PM 1.1/1.9
Date: 7/22/09
Project Manager: Stanley Gee
Telephone Number: (510) 286-4935

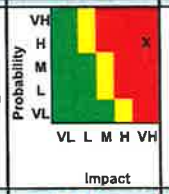
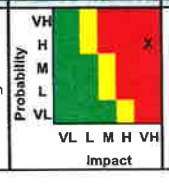
PROJECT RISK MANAGEMENT PLAN

Priority	Identification							Qualitative Analysis				Response Strategy			Monitoring and Control		
	Status	ID #	Date Identified Project Phase	Functional Assignment	Threat/Opportunity Event	SMART Column	Risk Trigger	Type	Probability	Impact	Risk Matrix	Strategy	Response Actions including advantages and disadvantages	Affected WBS Tasks	Responsibility (Task Manager)	Status Interval or Milestone Check	Date, Status and Review Comments
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(16)	(17)	(18)	(19)	(20)	(21)
	Retired	1	4/17/07 PID	Traffic Forecast/Operations	Traffic Analysis / model assumptions are unacceptable for stakeholders.	Alameda and Oakland communicate to ACTC that the ACCMA model, with added land use densities, is not accurate.	Modify and re-run Traffic Model	Schedule Cost	Low	Moderate		Acceptance	On-going coordination and communication with stakeholders. Early buy-in from Alameda and Oakland by forming a focused		Project Manager		
	Retired	2	4/17/07 PID	Permit	Encroachment permit is delayed.	Caltrans does not allow ready access to State right-of-way, especially under the bridges.	PSR/PDS Delivery will be delayed	Schedule	Very Low	Moderate		Acceptance	Request permit as first order of work, and follow-up with providing all needed follow-up information to the Permits office. Modify flight plan,		Project Engineer		
	Retired	3	4/17/07 PID	Permit	Aerial surveys are delayed.	Caltrans does not allow ready access to State right-of-way, especially under the bridges.	PSR/PDS Delivery will be delayed	Schedule	Very Low	Moderate		Acceptance	Request permit as first order of work, and follow-up with providing all needed follow-up information to the Permits office. Modify flight plan,		Project Engineer		
	Retired	4	4/17/07 PID	Design	Utility relocations are expontentially expensive, requiring redesign of alternatives	Stakeholders and Utility Owners do not provide utility as-builts before alternatives are studied.	Inaccurate scope and funding	Cost Schedule	Moderate	High		Avoidance	On-going coordination and communication with stakeholders and utility owners.		Project Engineer		
	Retired	5	2/28/08 PID	Structure	Tunnel approaches for Posey & Webster tubes need to be completely reconstructed.	MGE Engineering finds that lowering the profile of Harrison Street will adversely impact bridge footings.	Alternatives infeasible	Schedule	Moderate	High		Avoidance	Provide immediate 'Notice-to-Proceed' to MGE Engineering to investigate feasibility of lowering Harrison; if lowering Harrison found		Project Engineer		
	Retired	6	4/17/07 PID	Program/ Project Management	Accurate scope is necessary to ensure accurate cost estimates, environmental impacts and stakeholder consensus on the extent of the project. Engineering must be sufficient to identify all project components	Overlooked / omitted element of the project.	Inaccurate scope and funding	Cost	Moderate	High		Avoidance	Perform engineering sufficient to integrate project component into project, including identification of impacts and cost.		Proict Manager		

PROJECT RISK MANAGEMENT PLAN

Priority	Identification							Qualitative Analysis				Response Strategy			Monitoring and Control		
	Status	ID #	Date Identified Project Phase	Functional Assignment	Threat/Opportunity Event	SMART Column	Risk Trigger	Type	Probability	Impact	Risk Matrix	Strategy	Response Actions including advantages and disadvantages	Affected WBS Tasks	Responsibility (Task Manager)	Status Interval or Milestone Check	Date, Status and Review Comments
	Active	7	4/17/07 PID	Program/ Project Management	Inaccurate assumptions during planning could impact design, environmental studies and schedule	New data becomes available	Inaccurate scope and funding; delay of schedule	Cost Schedule	High	High		Avoidance	Make adjustment when new information is available. Correct the problem as soon as possible to minimize delay to schedule. Adjust schedule as necessary.		Project Manager Project Engineer		
	Active	8	4/17/07 PID	Program/ Project Management	A delay in selecting the viable alternatives could impact schedule. Environmental studies and other engineering studies could be delayed if viable alternative selection is delayed.	Lack of Consensus	Delay approval of PSR/PDS	Schedule	Low	High		Avoidance	Perform engineering sufficient to integrate project component into project, including identification of impacts and cost.		Project Manager Project Engineer		
	Active	9	2/28/08 PID	Design	Non-Approval of Caltrans Design Exceptions	Non-standard aspects of the design that require Caltrans design exceptions could result in consensus of an infeasible alternative, and ultimately, alternative and scope changes.	Delay approval of PSR/PDS	Schedule Scope	Moderate	Very High		Avoidance	All non-standard features must be identified and discussed with Caltrans. Initial acceptance of the exceptions must be obtained, and ultimately approved design		Project Engineer		
	Active	10	12/15/10 PID	Design	Updated Traffic Numbers do not validate the proposed project	Operations analysis results after updated with the latest forecast numbers do not support the proposed project	Delay approval of PA/ED	Schedule Scope	Moderate	Very High		Avoidance	Update 2035 forecast and complete the TOR as the first order of work in the PR/ED phase. Obtain FHWA Engineering and Operation Acceptability (EQA) before		Project Manager Project Engineer		
	Active	11	12/15/10 PID	Design	Move forward to PA/ED with only one build alternative	More than a single build alternative is needed if the project later becomes a EIR	Inability to receive project approval	Schedule Scope	Moderate	Very High		Avoidance	Confirm types of environmental document and obtain consensus early the PA/ED phase		Project Manager Project Engineer		
	Dormant	12	4/17/07 PID	Design	Construction Cost Estimates	Accurate cost estimates are necessary to ensure that the appropriate amount of funds are programmed. Additionally, accurate estimates are required to ensure the project scope is commensurate with the anticipated	Inability to award contract due to lack of adequate funding	Cost	Moderate	High		Avoidance	Ensure that engineering is sufficient to account for all major items. Utilize recent construction bid opening results with appropriate escalation and		Project Engineer		

PROJECT RISK MANAGEMENT PLAN

Priority	Identification							Qualitative Analysis				Response Strategy			Monitoring and Control		
	Status	ID #	Date Identified Project Phase	Functional Assignment	Threat/Opportunity Event	SMART Column	Risk Trigger	Type	Probability	Impact	Risk Matrix	Strategy	Response Actions including advantages and disadvantages	Affected WBS Tasks	Responsibility (Task Manager)	Status Interval or Milestone Check	Date, Status and Review Comments
	Dormant	13	2/28/08 PID	r/w	Conflict with Private Developments adjacent to Project Improvements	Private Developers may require future access / accomodation for new developments adjacent to the roadway improvements being proposed by the project; this may affect the feasibility of certain alternatives.	Alternatives infeasible	Scope	High	Very High		Mitigation	Ensure continuous communication with developers through the respective City Development Agencies. Identify conflicts early and advise client of possible scope		Project manager		
	Dormant	14	1/1/09 PID	Public Relationship	Local Opposition to Alternatives	Local residents may oppose the project due to the impact to their accesses	Alternatives infeasible	Scope	High	Very High		Mitigation	Ensure continuous communication with local communities. Identify conflicts early.		Project manager		

04-ALA-880 PM 31.0/32.4
04-ALA-260 PM 1.1/1.9
Program Code 20.30.600.624
EA 04-0G360K
March 2011

I-880/Broadway-Jackson Interchange Project

PSR-PDS

Attachment N

Port of Oakland Truck Access Map

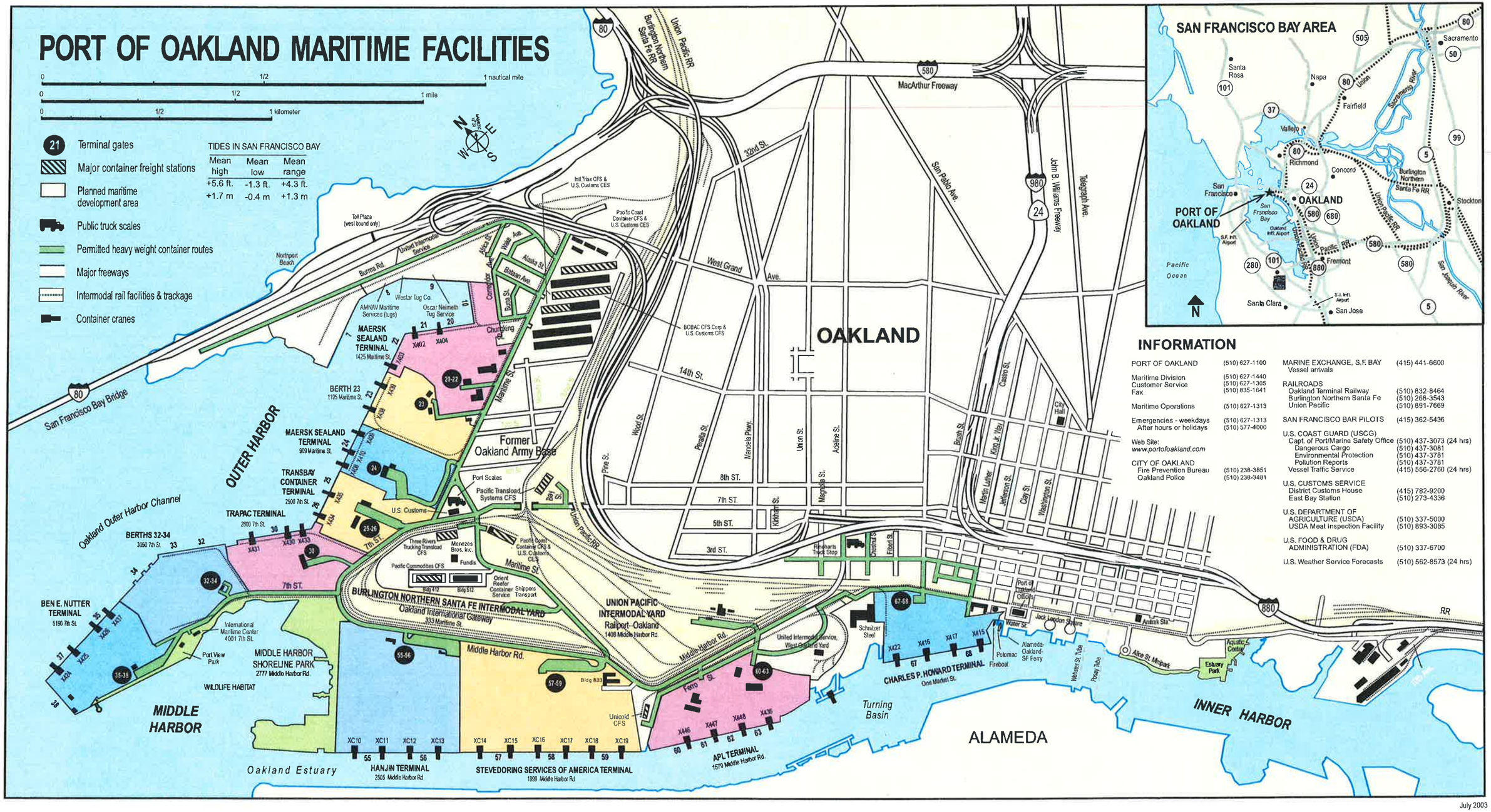
PORT OF OAKLAND MARITIME FACILITIES

0 1/2 1 nautical mile
0 1/2 1 mile
0 1/2 1 kilometer

21 Terminal gates
Major container freight stations
Planned maritime development area
Public truck scales
Permitted heavy weight container routes
Major freeways
Intermodal rail facilities & trackage
Container cranes

TIDES IN SAN FRANCISCO BAY

Mean high	Mean low	Mean range
+5.6 ft.	-1.3 ft.	+4.3 ft.
+1.7 m	-0.4 m	+1.3 m



INFORMATION

PORT OF OAKLAND	(510) 627-1100
Maritime Division	(510) 627-1440
Customer Service	(510) 627-1305
Fax	(510) 835-1641
Maritime Operations	(510) 627-1313
Emergencies - weekdays	(510) 627-1313
After hours or holidays	(510) 577-4000
Web Site: *www.portofoakland.com*	
CITY OF OAKLAND	
Fire Prevention Bureau	(510) 238-3851
Oakland Police	(510) 238-3481
MARINE EXCHANGE, S.F. BAY Vessel arrivals	(415) 441-6600
RAILROADS	
Oakland Terminal Railway	(510) 832-8464
Burlington Northern Santa Fe	(510) 268-3543
Union Pacific	(510) 891-7669
SAN FRANCISCO BAR PILOTS	(415) 362-5436
U.S. COAST GUARD (USCG)	
Capt. of Port/Marine Safety Office	(510) 437-3073 (24 hrs)
Dangerous Cargo	(510) 437-3081
Environmental Protection	(510) 437-3781
Pollution Reports	(510) 437-3781
Vessel Traffic Service	(415) 556-2760 (24 hrs)
U.S. CUSTOMS SERVICE	
District Customs House	(415) 782-9200
East Bay Station	(510) 273-4336
U.S. DEPARTMENT OF AGRICULTURE (USDA)	(510) 337-5000
USDA Meat Inspection Facility	(510) 893-3085
U.S. FOOD & DRUG ADMINISTRATION (FDA)	(510) 337-6700
U.S. Weather Service Forecasts	(510) 562-8573 (24 hrs)

July 2003

04-ALA-880 PM 31.0/32.4
04-ALA-260 PM 1.1/1.9
Program Code 20.30.600.624
EA 04-0G360K
March 2011

I-880/Broadway-Jackson Interchange Project

PSR-PDS

Attachment O

Draft Cooperative Agreement

COOPERATIVE AGREEMENT

This agreement, effective on _____, is between the State of California, acting through its Department of Transportation, referred to as CALTRANS, and:

Alameda County Transportation Commission, a political subdivision of the State of California, referred to as ALAMEDA CTC.

For the purpose of this agreement, the term PARTNERS collectively refers to CALTRANS and ALAMEDA CTC (all signatory parties to this agreement). The term PARTNER refers to any one of those signatory parties individually.

RECITALS

1. California Streets and Highways Code sections 114 and 130 authorize PARTNERS to enter into a cooperative agreement for performance of work within the State Highway System (SHS) right of way.

2. This agreement outlines the terms and conditions of cooperation between PARTNERS to perform PA&ED for reconfiguration of the I-880/Broadway-Jackson Interchange to improve access between Alameda, Oakland and I-880/I-980.

   For the purpose of this agreement, reconfiguration of the I-880/Broadway-Jackson Interchange to improve access between Alameda, Oakland and I-880/I-980 will be referred to as PROJECT. All responsibilities assigned in this agreement to perform PA&ED will be referred to as OBLIGATIONS.

3. There are no prior PROJECT-related cooperative agreements.

4. No PROJECT deliverables have been completed prior to this agreement.

5. The estimated date for OBLIGATION COMPLETION is December 31, 2013.

6. In this agreement capitalized words represent defined terms and acronyms. The Definitions section contains a complete definition for each capitalized term.

7. From this point forward, PARTNERS define in this agreement the terms and conditions under which they will accomplish OBLIGATIONS.

RESPONSIBILITIES

8. ALAMEDA CTC is SPONSOR for 100% of PROJECT.

9. CALTRANS will provide IQA for the portions of WORK within existing and proposed SHS right of way. 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.

10. ALAMEDA CTC may provide IQA for the portions of WORK outside existing and proposed SHS right of way.

11. ALAMEDA CTC is the only FUNDING PARTNER for this agreement. ALAMEDA CTC's funding commitment is defined in the FUNDING SUMMARY.

12. CALTRANS is the CEQA lead agency for PROJECT.

13. CALTRANS is the NEPA lead agency for PROJECT.

14. ALAMEDA CTC is IMPLEMENTING AGENCY for PA&ED.

SCOPE

Scope: General

15. PARTNERS will perform all OBLIGATIONS in accordance with federal and California laws, regulations, and standards; FHWA STANDARDS; and CALTRANS STANDARDS.

16. IMPLEMENTING AGENCY for a PROJECT COMPONENT will provide a Quality Management Plan (QMP) for that component as part of the PROJECT MANAGEMENT PLAN.

17. Any PARTNER may, at its own expense, have representatives observe any OBLIGATIONS performed by another PARTNER. Observation does not constitute authority over those OBLIGATIONS.

18. Each PARTNER will ensure that all of its personnel participating in OBLIGATIONS are appropriately qualified, and if necessary, licensed to perform the tasks assigned to them.

19. PARTNERS will invite each other to participate in the selection and retention of any consultants who participate in OBLIGATIONS.

20. If WORK is done under contract (not completed by a PARTNER's own employees) and is governed by the California Labor Code's definition of a "public work" (section 1720(a)(a)), that PARTNER will conform to sections 1720 – 1815 of the California Labor Code and all applicable regulations and coverage determinations issued by the Director of Industrial Relations.

21. IMPLEMENTING AGENCY for each PROJECT COMPONENT included in this agreement will be available to help resolve problems generated by that component for the entire duration of PROJECT.

22. 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 perform WORK without an encroachment permit issued in their name.

23. 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 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.

24. PARTNERS will hold all administrative draft and administrative final reports, studies, materials, and documentation relied upon, produced, created, or utilized for PROJECT in confidence to the extent permitted by law. Where applicable, the provisions of California Government Code section 6254.5(e) will govern the disclosure of such documents in the event that PARTNERS share said documents with each other.

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

25. If any 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 records. PARTNERS will consult with each other prior to the release of any public documents related to the PROJECT.

26. If HM-1 or HM-2 is found during a PROJECT COMPONENT, IMPLEMENTING AGENCY for that PROJECT COMPONENT will immediately notify PARTNERS.

27. CALTRANS, independent of PROJECT, is responsible for any HM-1 found within the existing SHS right of way. CALTRANS will undertake HM MANAGEMENT ACTIVITIES related to HM-1 with minimum impact to PROJECT schedule.

28. If HM-1 is found within 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.

29. If HM-2 is found within 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.

30. 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.

31. PARTNERS will comply with all of 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.

32. IMPLEMENTING AGENCY for each PROJECT COMPONENT will furnish PARTNERS with written monthly progress reports during the implementation of OBLIGATIONS in that component.

33. IMPLEMENTING AGENCY for a PROJECT COMPONENT will accept, reject, compromise, settle, or litigate claims of any non-agreement parties hired to do WORK in that component.

34. 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 claim.

35. 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 provide billing and payment support.

36. PARTNERS will comply with the appropriate federal cost principles and administrative requirements outlined in the Applicable Cost Principles and Administrative Requirements table below. These principles and requirements apply to all funding types included in this agreement.

Applicable Cost Principles and Administration Requirements
The federal cost principles and administrative requirements associated with each organization type

apply to that organization.		
Organization Type	**Cost Principles**	**Administrative Requirements**
Federal Governments	2 CFR Part 225	OMB A-102
State and Local Government	2 CFR, Part 225	49 CFR, Part 18
Educational Institutions	2 CFR, Part 220	2 CFR, Part 215
Non-Profit Organizations	2 CFR, Part 230	2 CFR, Part 215
For Profit Organizations	48 CFR, Chapter 1, Part 31	49 CFR, Part 18
CFR (Code of Federal Regulations) **OMB (Office of Management and Budget)**		
Related URLs: • Various OMB Circular: http://www.whitehouse.gov/omb/grants_circulars • Code of Federal Regulations: http://www.gpoaccess.gov/CFR		

37. PARTNERS will maintain and make available to each other all OBLIGATIONS-related documents, including financial data, during the term of this agreement.

38. PARTNERS will retain all OBLIGATIONS-related records for three (3) years after the final voucher.

39. PARTNERS have the right to audit each other in accordance with generally accepted governmental audit standards.

    CALTRANS, the state auditor, FHWA, 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 30 calendar days of receipt.

    Upon completion of the final audit, PARTNERS have 30 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 dispute resolution. Any costs arising out of the dispute resolution process will be paid within 30 calendar days of the final audit or dispute resolution findings.

40. Any PARTNER that hires another party to participate in OBLIGATIONS will conduct a pre-award audit of that party in accordance with the *Local Assistance Procedures Manual.*

41. PARTNERS will not incur costs beyond the funding commitments in this agreement. If IMPLEMENTING AGENCY anticipates that funding for WORK will be insufficient to complete WORK, IMPLEMENTING AGENCY will promptly notify SPONSOR.

    IMPLEMENTING AGENCY has no obligation to perform WORK if funds to perform WORK are unavailable.

42. If WORK stops for any reason, IMPLEMENTING AGENCY will place all facilities impacted by WORK in a safe and operable condition acceptable to CALTRANS.

43. 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 PROJECT in environmental compliance until WORK resumes.

44. Each PARTNER accepts responsibility to complete the activities that it selected on the SCOPE SUMMARY. Activities marked with "N/A" on the SCOPE SUMMARY are not included in the scope of this agreement.

Scope: Environmental Permits, Approvals and Agreements

45. Each PARTNER identified in the Environmental Permits table below accepts the responsibility to complete the assigned activities.

Environmental Permits						
Permit	Coordinate	Prepare	Obtain	Implement	Renew	Amend
401 RWQCB	ALAMEDA CTC	ALAMEDA CTC	ALAMEDA CTC	ALAMEDA CTC	ALAMEDA CTC	ALAMEDA CTC
NPDES SWRCB	ALAMEDA CTC	ALAMEDA CTC	ALAMEDA CTC	ALAMEDA CTC	ALAMEDA CTC	ALAMEDA CTC

Scope: Project Approval and Environmental Document (PA&ED)

46. CALTRANS is the CEQA lead agency for PROJECT. CALTRANS will determine the type of environmental documentation required and will cause that documentation to be prepared.

47. Any PARTNER involved in the preparation of CEQA environmental documentation will follow the CALTRANS STANDARDS that apply to the CEQA process including, but

not limited to, the guidance provided in the Standard Environmental Reference available at www.dot.ca.gov/ser.

48. Pursuant to SAFETEA-LU Section 6004 and/or 6005, CALTRANS is the NEPA lead agency for PROJECT. CALTRANS will assume responsibility for NEPA compliance and will prepare any needed NEPA environmental documentation or will cause that documentation to be prepared.

49. Any PARTNER involved in the preparation of NEPA environmental documentation will follow FHWA 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.

50. ALAMEDA CTC will prepare the appropriate CEQA environmental documentation to meet CEQA requirements.

51. ALAMEDA CTC will prepare the appropriate NEPA environmental documentation to meet NEPA requirements.

52. 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.

53. 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.

54. ALAMEDA CTC will prepare, publicize, and circulate all CEQA-related public notices and will submit said notices to the CEQA lead agency for review, comment, and approval prior to publication and circulation.

55. 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.

56. The CEQA lead agency will attend all CEQA-related public meetings.

57. ALAMEDA CTC will plan, schedule, prepare materials for, and host all CEQA-related public meetings and will submit all materials to the CEQA lead agency for review, comment, and approval at least 10 working days prior to the public meeting date.

58. The NEPA lead agency will attend all NEPA-related public meetings.

59. ALAMEDA CTC will plan, schedule, prepare materials for, and host all NEPA-related public meetings. ALAMEDA CTC will submit all materials to CALTRANS for CALTRANS' review, comment, and approval at least 10 working days prior to the public meeting date.

60. If a PARTNER who is not the CEQA or NEPA lead agency holds a public meeting about PROJECT, that PARTNER must clearly state its role in PROJECT and the identity of the CEQA and NEPA lead agencies 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 or NEPA public review process.

That PARTNER will submit all meeting advertisements, agendas, exhibits, handouts, and materials to the appropriate lead agency for review, comment, and approval at least 10 working days prior to publication or use. If that PARTNER makes any changes to the materials, it will allow the appropriate 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. 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.

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

COST

Cost: General

62. The cost of any awards, judgments, or settlements generated by OBLIGATIONS is an OBLIGATIONS COST.

63. CALTRANS, independent of PROJECT, will pay all costs for HM MANAGEMENT ACTIVITIES related to HM-1 found within the existing SHS right of way.

64. Independent of PROJECT, all costs for HM MANAGEMENT ACTIVITIES related to HM-1 found within PROJECT limits and outside the existing SHS right of way will be the responsibility of the owner(s) of the parcel(s) where the HM-1 is located.

65. HM MANAGEMENT ACTIVITIES costs related to HM-2 are CONSTRUCTION SUPPORT and CONSTRUCTION CAPITAL costs.

66. The cost to comply with and implement the commitments set forth in the environmental documentation is an OBLIGATIONS COST.

67. The cost to ensure that PROJECT remains in environmental compliance is an OBLIGATIONS COST.

68. The cost of any legal challenges to the CEQA or NEPA environmental process or documentation is an OBLIGATIONS COST.

69. Independent of OBLIGATIONS COST, CALTRANS will fund the cost of its own IQA for WORK done within existing or proposed future SHS right of way.

70. Independent of OBLIGATIONS COST, ALAMEDA CTC will fund the cost of its own IQA for WORK done outside existing or proposed future SHS right of way.

71. CALTRANS will provide encroachment permits to PARTNERS, their contractors, consultants and agents, at no cost.

72. Fines, interest, or penalties levied against a PARTNER will be paid, independent of OBLIGATIONS COST, by the PARTNER whose actions or lack of action caused the levy. That PARTNER will indemnify and defend each other PARTNER.

73. 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.

74. 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 are subject the current Program Functional Rate. Local funds are subject to the current Program Functional Rate and the current Administration Rate. The Program Functional Rate and the Administration Rate are adjusted periodically.

75. If any PARTNER reimburses another PARTNER for any costs later determined to be unallowable, the PARTNER that received the reimbursement will reimburse those funds within 90 working days from the date of such determination.

76. The cost to place PROJECT right of way in a safe and operable condition and meet all environmental commitments is an OBLIGATIONS COST.

77. Because IMPLEMENTING AGENCY is responsible for managing the scope, cost, and schedule of a project component, if there are insufficient funds available in this agreement to place the right of way in a safe and operable condition, the appropriate IMPLEMENTING AGENCY accepts responsibility to fund these activities until such time as PARTNERS amend this agreement.

That IMPLEMENTING AGENCY may request reimbursement for these costs during the amendment process.

78. If there are insufficient funds in this agreement to implement applicable commitments and conditions included in the PROJECT environmental documentation, permits, agreements, and/or approvals that are in effect at a time that WORK stops, each PARTNER implementing commitments or conditions accepts responsibility to fund these activities, as they apply to each PARTNER's responsibilities, until such time are PARTNERS amend this agreement.

Each PARTNER may request reimbursement for these costs during the amendment process.

79. PARTNERS will pay invoices within 30 calendar days of receipt of invoice.

Cost: Environmental Permits, Approvals and Agreements

80. The cost of coordinating, obtaining, complying with, implementing, and if necessary renewing and amending resource agency permits, agreements, and/or approvals is an OBLIGATIONS COST.

Cost: Project Approval and Environmental Document (PA&ED)

81. The cost to prepare, publicize, and circulate all CEQA and NEPA-related public notices is an OBLIGATIONS COST.

82. The cost to plan, schedule, prepare, materials for, and host all CEQA and NEPA-related public hearings is an OBLIGATIONS COST.

SCHEDULE

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

GENERAL CONDITIONS

84. 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 PROJECT is physically located

85. All OBLIGATIONS of CALTRANS under the terms of 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.

86. All OBLIGATIONS of ALAMEDA CTC under the terms of this agreement are subject to ALAMEDA CTC's continued authorization to collect and expend the sales tax proceeds provided by Measure B and/or any other sources of local/regional funds, programmed for PROJECT.

87. PARTNER performing IQA does so for its own benefit. No one can assign liability to that PARTNER due to its IQA activities.

88. 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 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 and/or its agents will fully 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 or assertions of liability occurring by reason of anything done or omitted to be done by CALTRANS and/or its agents under this agreement

89. 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 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 and/or its agents will fully 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 or assertions of liability occurring by reason of anything done or omitted to be done by ALAMEDA CTC and/or its agents under this agreement

90. 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.

91. PARTNERS will not assign or attempt to assign OBLIGATIONS to parties not signatory to this agreement.

92. PARTNERS will not interpret any ambiguity contained in this agreement against each other. PARTNERS waive the provisions of California Civil Code section 1654.

93. A waiver of a PARTNER's performance under this agreement will not constitute a continuous waiver of any other provision. An amendment made to any article or section of this agreement does not constitute an amendment to or negate all other articles or sections of this agreement.

94. 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.

95. If any PARTNER defaults in its OBLIGATIONS, a non-defaulting PARTNER will request in writing that the default be remedied within 30 calendar days. If the defaulting PARTNER fails to do so, the non-defaulting PARTNER may initiate dispute resolution.

96. 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 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. 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.

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

98. If any provisions in this agreement are deemed 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 PARTNERS will automatically sever those provisions from this agreement.

99. PARTNERS intend this agreement to be their final expression and supersede any oral understanding or writings pertaining to OBLIGATIONS.

100. If during performance of WORK additional activities or environmental documentation is necessary to keep PROJECT in environmental compliance, PARTNERS will amend this agreement to include completion of those additional tasks.

101. PARTNERS will execute a formal written amendment if there are any changes to OBLIGATIONS.

102. This agreement will terminate upon OBLIGATION COMPLETION or an amendment to terminate this agreement, whichever occurs first.

However, all indemnification, document retention, audit, claims, environmental commitment, legal challenge, and ownership articles will remain in effect until terminated or modified in writing by mutual agreement.

103. The following documents are attached to, and made an express part of this agreement: SCOPE SUMMARY, FUNDING SUMMARY.

DEFINITIONS

CALTRANS – The California Department of Transportation

CALTRANS STANDARDS – CALTRANS policies and procedures, including, but not limited to, the guidance provided in the *Guide to Capital Project Delivery Workplan Standards* (previously known as WBS Guide) 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

COOPERATIVE AGREEMENT 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.

COST – The responsibility for cost responsibilities in this agreement can take one of three assignments:

- **OBLIGATIONS COST** – A cost associated with fulfilling OBLIGATIONS that will be funded as part of this agreement. The responsibility is defined by the funding commitments in this agreement.
- **PROJECT COST** – A cost associated with PROJECT that can be funded outside of OBLIGATIONS. A PROJECT COST may not necessarily be part of this agreement. This responsibility is defined by the PARTNERS' funding commitments at the time the cost is incurred.
- **PARTNER cost** – A cost that is the responsibility of a specific PARTNER, independent of PROJECT.

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 a defined dollar amount to fulfill OBLIGATIONS. Each FUNDING PARTNER accepts responsibility to provide the funds identified on the FUNDING SUMMARY under its name.

FUNDING SUMMARY – The table that designates an agreement's funding sources, types of funds, and the PROJECT COMPONENT in which the funds are to be spent. Funds listed on the FUNDING SUMMARY 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 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 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) – Ensuring that IMPLEMENTING AGENCY's quality assurance activities result in WORK being developed in accordance with the applicable standards and within an established Quality Management Plan (QMP). IQA does not include any work necessary to actually develop or deliver WORK or any validation by verifying or rechecking work performed by another partner.

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

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

OBLIGATIONS – All responsibilities included in this agreement.

OBLIGATIONS COST – See COST.

OMB (Office of Management and Budget) – The federal office that oversees preparation of the federal budget and supervises its administration in Executive Branch agencies.

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 partners.

PROJECT – The undertaking to Reconfiguration of the I-880/Broadway-Jackson Interchange to improve access between Alameda, Oakland and I-880/I-980.

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).

- **PA&ED (Project Approval and Environmental Document)** – The activities required to deliver the project approval and environmental documentation for PROJECT.

PROJECT COST – See COST.

PROJECT MANAGEMENT PLAN – A group of documents used to guide a 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.

SAFETEA-LU – Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users

SCOPE SUMMARY – The attachment in which each PARTNER designates its commitment to specific scope activities within each PROJECT COMPONENT as outlined by the *Guide to Capital Project Delivery Workplan Standards* (previously known as WBS Guide) available at http://www.dot.ca.gov/hq/projmgmt/guidance.htm.

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.

SPONSOR – Any PARTNER that accepts the responsibility to establish scope of PROJECT and the obligation to secure financial resources to fund PROJECT. SPONSOR is responsible for adjusting the PROJECT scope to match committed funds or securing additional funds to fully fund the PROJECT scope. If a PROJECT 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 scope activities included in this agreement.

CONTACT INFORMATION

The information provided below indicates the primary contact data for each PARTNER to this agreement. PARTNERS will notify each other in writing of any personnel or location changes. Contact information changes do not require an amendment to this agreement.

The primary agreement contact person for CALTRANS is:

Stanley Gee, Project Manager
111 Grand Avenue
Oakland, California 94623
Office Phone: (510) 286-3935

The primary agreement contact person for ALAMEDA CTC is:
Arthur L. Dao, Executive Director
1333 Broadway, Suite 300
Oakland, California 94612
Office Phone: (510) 208-7402

SIGNATURES

PARTNERS declare that:

1. Each PARTNER is an authorized legal entity under California state law.
2. Each PARTNER has the authority to enter into this agreement.
3. The people signing this agreement have the authority to do so on behalf of their public agencies.

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

APPROVED

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

Date:_____

CERTIFIED AS TO FUNDS:

By:_____
Maureen Rehs
District Budget Manager

Date:_____

ALAMEDA COUNTY TRANSPROTATION COMMISSION

APPROVED

By:_____
Authur L. Dao
Executive Director

Date:_____

APPROVED AS TO FORM AND PROCEDURE

By:_____
Wendel, Rosan, Black & Dean LLP
Attorney

Date:_____

SCOPE SUMMARY

4	5	6	7	8	Description	CALTRANS	Alameda CTC	N/A
2	160				Perform Preliminary Engineering Studies and Draft Project Report	X	X	
		05			Updated Project information		X	
		10			Engineering Studies		X	
		15			Draft Project Report		X	
		20			Engineering and Land Net Surveys		X	
		30			Environmental Study Request (ESR)		X	
		40			NEPA Delegation	X		
		45			Base Maps and Plan Sheets for Project Report and Environmental Studies		X	
2	165				Perform Environmental Studies and Prepare Draft Environmental Document	X	X	
		05			Environmental Scoping of Alternatives Identified for Studies in Project Initiation Document	X		
		10			General Environmental Studies		X	
		15			Biological Studies		X	
		20			Cultural Resource Studies		X	
			05		Archaeological Survey		X	
				05	Area of Potential Effects/Study Area Maps		X	
				10	Native American Consultation		X	
				15	Records and Literature Search		X	
				20	Field Survey		X	
				25	Archaeological Survey Report		X	
				99	Other Archaeological Survey Products		X	
			10		Extended Phase I Archaeological Studies		X	
				05	Native American Consultation		X	
				10	Extended Phase I Proposal		X	
				15	Extended Phase I Field Investigation		X	
				20	Extended Phase I Materials Analysis		X	
				25	Extended Phase I Report		X	
				99	Other Phase I Archaeological Study Products		X	
			15		Phase II Archaeological Studies		X	
				05	Native American Consultation		X	
				10	Phase II Proposal		X	
				15	Phase II Field Investigation		X	
				20	Phase II Materials Analysis		X	
				25	Phase II Report		X	
				99	Other Phase II Archaeological Study Products		X	
			20		Historical and Architectural Resource Studies		X	
				05	Preliminary Area of Potential Effects/Study Area Maps for Architecture		X	

				10	Historic Resources Evaluation Report - Archaeology		X	
				15	Historic Resource Evaluation Report - Architecture (HRER)		X	
				20	Bridge Evaluation		X	
				99	Other Historical and Architectural Resource Study Products		X	
			25		Cultural Resource Compliance Consultation Documents		X	
				05	Final Area of Potential Effects/Study Area Maps		X	
				10	PRC 5024.5 Consultation		X	
				15	Historic Property Survey Report/Historic Resources Compliance Report		X	
				20	Finding of Effect		X	
				25	Archaeological Data Recovery Plan/Treatment Plan		X	
				30	Memorandum of Agreement		X	
				99	Other Cultural Resources Compliance Consultation Products		X	
		25			Draft Environmental Document or Categorical Exemption/Exclusion	X	X	
			10		Section 4(F) Evaluation	X		
			20		Environmental Quality Control and Other Reviews	X		
			25		Approval to Circulate Resolution	X		
			30		Environmental Coordination		X	
			99		Other Draft Environmental Document Products		X	
		30			NEPA Delegation	X		
2	170				Permits, Agreements, and Route Adoptions during PA&ED component	X	X	
		05			Required permits		X	
		15			Railroad Agreements	X	X	
		20			Freeway Agreements	X	X	
		25			Agreement for Material Sites		X	
		30			Executed Maintenance Agreement	X	X	
		40			Route Adoptions	X	X	
		45			MOU From Tribal Employment Rights Office (TERO)		X	
		55			NEPA Delegation	X		
2	175				Circulate Draft Environmental Document and Select Preferred Project Alternative Identification	X	X	
		05			DED Circulation		X	
		10			Public Hearing		X	
		15			Public Comment Responses and Correspondence	X	X	
		20			Project Preferred Alternative	X		
		25			NEPA Delegation	X		
2	180				Prepare and Approve Project Report and Final Environmental Document	X	X	
		05			Final Project Report		X	
		10			Final Environmental Document	X	X	
			05		Approved Final Environmental Document	X	X	
				05	Draft Final Environmental Document Review	X		
				10	Revised Draft Final Environmental Document	X		
				15	Section 4(F) Evaluation	X		
				20	Findings	X		
				25	Statement of Overriding Considerations	X		
				30	CEQA Certification	X		
				40	Section 106 Consultation and MOA	X		

				45	Section 7 Consultation	X		
				50	Final Section 4(F) Statement	X		
				55	Floodplain Only Practicable Alternative Finding	X		
				60	Wetlands Only Practicable Alternative Finding	X		
				65	Section 404 Compliance	X		
				70	Mitigation Measures	X		
			10		Public Distribution of Final Environmental Document and Respond To Comments	X		
			15		Final Right of Way Relocation Impact Document		X	
			99		Other Final Environmental Document Products		X	
		15			Completed Environmental Document	X	X	
			05		Record of Decision (NEPA)	X		
			10		Notice of Determination (CEQA)	X		
			20		Environmental Commitments Record		X	
			99		Other Completed Environmental Document Products		X	
		20			NEPA Delegation	X		

FUNDING SUMMARY

Funding Source	Funding Partner	Fund Type	PA&ED			Subtotal Funds Type
LOCAL	ALAMEDA CTC	Measure	$2,500,000			$2,500,000
		Subtotals by Component	$2,500,000			$2,500,000

04-ALA-880 PM 31.0/32.4
04-ALA-260 PM 1.1/1.9
Program Code 20.30.600.624
EA 04-0G360K
March 2011

I-880/Broadway-Jackson Interchange Project

PSR-PDS

Attachment P

ACTC Letter to Caltrans

ALAMEDA
County Transportation Commission

ACCMA ■ 1333 Broadway, Suite 220 ■ Oakland, CA 94612 ■ PH: (510) 836-2560
ACTIA ■ 1333 Broadway, Suite 300 ■ Oakland, CA 94612 ■ PH: (510) 893-3347
www.AlamedaCTC.org

November 23, 2010

Mr. Lee Taubeneck,
Deputy District Director -Advance Planning
Caltrans District 04
111 Grand Avenue
Oakland, CA 94612

Attention: Mr. Patrick K. Pang

Subject: I-880 Broadway Jackson Project (ACTIA Project No. 10)
Completion of Project Initiation Document

Dear Mr. Taubeneck:

This letter is a follow up to our recent discussions with Lenka Culik-Caro and Patrick Pang regarding the Project Initiation Document (PID) for the subject project. We would like to memorialize the agreement we reached related to approving the PID as a Project Study Report/Project Development Support (PSR/PDS), and the commitment by the Alameda County Transportation Commission (Alameda CTC) to include certain forecasting and analysis work as a first order of work during the Project Approval and Environmental Document (PA&ED) phase. Based on our discussions, Alameda CTC understands that Caltrans approval of the PSR/PDS for the project will be in the context of the following conditions:

- Caltrans approval of PSR/PDS will represent concurrence that the project can proceed into the PA&ED phase, and will not represent conceptual project approval (as is the case with a more typical PSR approval).
- Alameda CTC will ensure that traffic forecast and operational analysis will be updated to reflect 2035 design-year forecasts, using the 2009 travel demand forecast model, as a first order of work during the PA&ED phase. The updated traffic operational analysis will include detailed peak hour freeway operations along I-880, including weave, diverge, potential queuing and level of service analyses between the proposed new on- and off-ramps at the Broadway-Jackson interchange and the adjacent 7th Street and Oak Street interchanges. Approval of FHWA Engineering and Operation Acceptability (EOA) Report and Design Exception Fact Sheets will be sought during the PA&ED phase following the completion of detailed traffic operational analysis.
- Alameda CTC recognizes the risk related to deferring the detailed freeway operational analysis to the PA&ED phase, in that such deferral may result in revisions to the build alternative geometry that is currently included in the PSR/PDS. Geometric revisions, in turn, may result in elevating the level of environmental studies/analysis required for project approval.

Please let us know as soon as possible if the conditions set forth above are not consistent with your understanding. We are moving forward with finalizing the PSR/PDS toward submittal to Caltrans for approval.

If you have any questions regarding this matter, please contact me via telephone at (510) 350-2329, or James O'Brien at (510) 267-6106.

Sincerely,

ARTHUR L. DAO
Executive Director
Alameda County Transportation Commission

cc: Lenka Culik-Caro, Deputy District Director-Design, Caltrans District 04
Stanley Gee, Project Manager, Caltrans District 04
James O'Brien, Project Manager, Alameda CTC
Kenneth Chan, Project Manager, Kimley-Horn and Associates

04-ALA-880 PM 31.0/32.4
04-ALA-260 PM 1.1/1.9
Program Code 20.30.600.624
EA 04-0G360K
March 2011

I-880/Broadway-Jackson Interchange Project

PSR-PDS

Attachment Q

Pavement Strategy Checklist

PAVEMENT STRATEGY CHECKLIST (Rev. 9/24/09)

Date: February 3, 2011

Project description and project elements:
This is a reconstruction project for the existing I-880 Broadway/Jackson Interchange in downtown Oakland, CA. The project limits extend from PM 31.0 to 32.4 on I-880 (from Oak Street to Union Street) and from PM 1.1 to PM 1.9 on SR-260 (from the Alameda end of Posey Tube to 7th Street in Oakland). The proposed build alternative is comprised of the following features: removal of the existing NB-880 off ramp to Broadway; construction of a new NB-880 Webster Street off-ramp; lowering of existing Harrison Street (SR-260) between 5th and 7th Street for a new left-turn lane from Harrison Street to 6th Street; construction of a new Market Street on-ramp; construction of a new SB-880 Martin Luther King Jr. Way off-ramp; depressed Harrison Street section comprise primarily of bridge and monolithic retaining wall structures. New structural sections are only proposed near the ramp terminus.

EA: 04-0G360K Project Manager: Stanley Gee

Co/Rte: 04-ALA-880/260 Office: Project Management

Project Engr: Kenneth Chan Initial: Program: N/A

Design Sr: For Robert Blanco Initial: PM Limits: 880 PM 31.0/32.4 & 260 PM 1.1/1.9

Materials Engineer (8th floor) : Tinu Mishra Signature:

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:

Market Street Off-ramp (existing): 0.85' PCC / 0.5' ACB / 0.7' AS
Union Street On-ramp (existing): 0.6'AC/0.25 ATPB/0.4' AB/ 0.50' PCC BASE

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

The pavement structural section proposed for the project consists of the following:
0.95' JPCP / 0.35' LCB/ 0.70' AS.
(taken from HDM Table 623.1G, with a Type II Subgrade soil, with lateral support, and an assumed TI value of 14 from HDM Table 613.5A "TI Values for Ramps & Connectors".
To increase the assumed R-value of 5, subgrade should be treated with lime or other additives to attain the Type II Subgrade soil properties. Subsurface drains to be determined in PS&E.

Pavement is involved in:

☐ Entire project OR ☒ Part of the project

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

	Yes	No	Question
1.	☐	☐	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? Specific strategy to be determined in PS&E
2.	☐	☒	Has Rapid Rehab strategy been considered (e.g., weekend closures and lane replacements)? Explain: Specific strategy to be determined in PS&E
3.	☐	☒	Are you using Rubberized Hot-Mix Asphalt (RHMA) in this project? If not, justify:
4.	☐	☒	Was Life Cycle Analysis performed? The LCCA is deferred to the PA&ED phase as per Pavement Policy Bulletin 10-04. This PSR/PDS is programming for PA&ED support only. LCCA will be completed prior to the PA&ED date.
5.	☐	☒	Does existing pavement have a settlement problem? Explain: The current preliminary geotechnical report does not indicates any settlement problem on existing pavement.
6.	☒	☐	a) Is this project (or part of project) maintaining the grade profile? b) If not, explain how the profile change affects the pavement strategy choice (cut v. fill):
7.	☒	☐	Will there be a new barrier?
8.	☒	☐	Is the proposed structural section on cut or fill or both? Provide limits of both, if applicable. On fill adjacent to retaining walls near the ramp terminus
9.	☐	☒	Are highly expansive basement soils present? See Foundation Type Selection Memo for evaluation of soil conditions.
10.	☒ ☐	☐ ☐	Are as-builts (including structural section information regarding edge drains, under drains, lime treatment, permeable blanket, etc.) available? If no, did you check map files and online? If yes, existing structural section was based on (check one): ☐ as-built ☐ actual boring

	Yes	No	Question
11.	☒	☐	Do the project limits have problems with groundwater (e.g., high water table, flow requirements, etc.)? If yes, explain: According to the as-built boring data, groundwater level was encountered/measured between Elev. 5 feet to 9 feet , approximately 10 feet below the existing grade (1951 & 1979). The groundwater level may be anticipated at shallow depth due to proximity to the bay. Groundwater level at the site may change with passage of time due to fluctuations from season to season, weather conditions, water level in the bay, and other factors which may not have been present at the time of the investigation. See Preliminary Foundations Report.
12.	☒	☐	Has the availability of pavement materials (i.e., long haul distances from plants) been considered? If yes, how does material availability affect pavement type selection? There are several commercial sources of asphalt, concrete, and aggregate products in the vicinity of the project site.
13.	☐ ☐	☒ ☐	Will the existing pavement be rehabilitated? What are the age and condition of the existing adjacent lanes? Explain: Pavement on local streets have been maintained and rehabilitated by the city.
14.	☐	☐	What is the type of pavement/structural section (corridor pavement type/structural section continuity) on upstream/downstream roadway? Explain if several: The upstream roadway (I-880) is in viaduct structure. The downstream roadway is city streets and has a pavement section that consists of asphalt concrete and aggregate base.
15.	☐ ☐	☒ ☒	Is TMP data (lane closure charts) available and was it considered? Will there be nighttime paving? If so, provide lane closure hours:_____.
16.	☒	☐	Was field Maintenance input considered?
17.	☐	☒	Were climate conditions (extreme temperature, rainfall, etc.) considered? If so, which ones do you anticipate affecting the pavement job?
18.			Which stage construction requirements (matching adjacent sections, temporary paving, etc.) were considered? The project considers a thicker pavement section than adjacent sections due to high traffic forecast demand.

	Yes	No	Question
19.	☒	☐	Is this a large-scale project? Explain all quantity take-off: All three new ramps and the depressed Harrison Street section comprise primarily of bridge and monolithic retaining wall structures. New structural sections are only proposed near the ramp terminus.
20.	☐	☒	Is there Open-Graded Hot-Mix Asphalt (OGHMA) on the existing pavement?
21.	☒	☐	Was environmental impact considered? Explain: Environmental issues were addressed in PEAR.
22.			What is the proposed pavement design life? 40 years.
23.			What is the final lane line configuration? Two mixed flow lanes
24.	☐	☒	Are there vertical clearance issues? If yes, explain:
25.			What is the traffic index? TI of 14 was used based on Table 613.5A "TI Values for Ramps & Connectors"
26.	☐	☒	Are there existing retrofit edge drains?
27.	☒	☐	Will shoulders be used as detours? Structural analysis or deflection study of the existing shoulders to be determined at the PS&E phase
28.	☒ ☒	☐ ☐	Is there settlement at bridge approaches? Are bridge approach slabs being replaced? Does such replacement include shoulders? Consulted with structures maintenance representative on _____.
29.	☒	☐	Is there a minimum standard (2% or 1.5%) cross-slope? If not standard, provide date of design exception approval:_____
30.			Provide the pavement condition report. Not available at this phase of the project
31	☐	☒	Other factors? Explain: