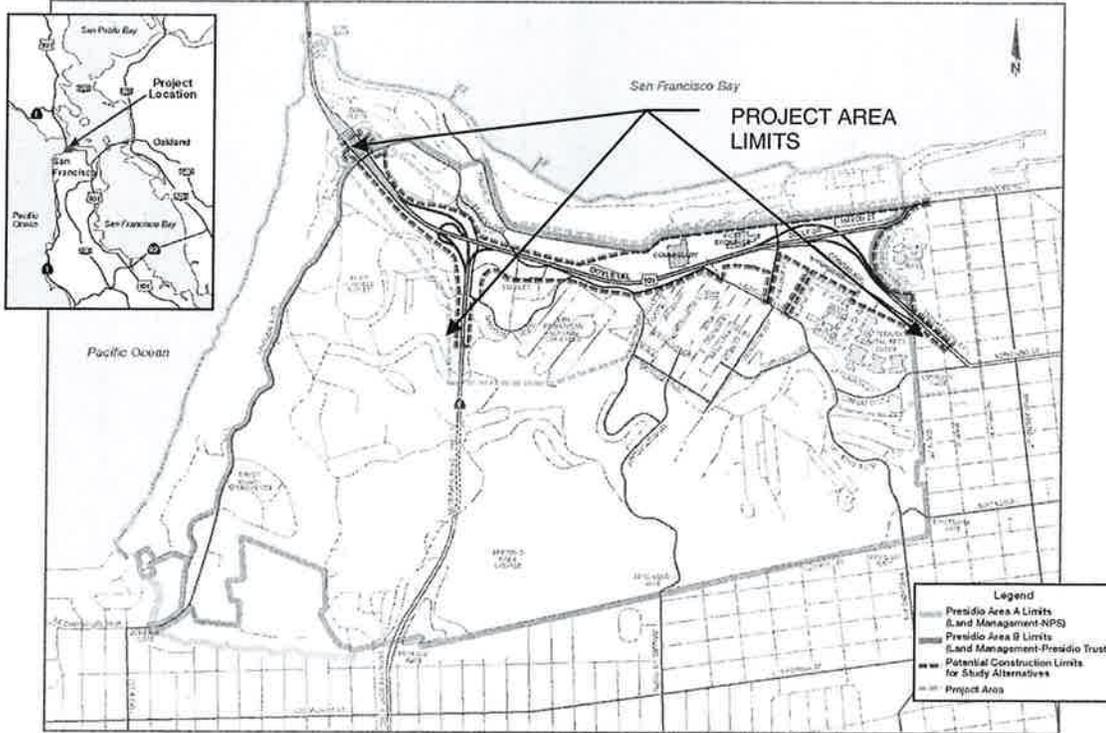




04-SF-101, KP 12.8-15.7 (PM 8.0-9.8)
 04-SF-001, KP 10.9-11.4 (PM 6.8-7.1)
 RU 04242 - EA 163700
 Program Code: HE-12

PROJECT REPORT



VOLUME I

In the City and County of San Francisco on Route 101,
 Doyle Drive and Richardson Avenue from Broderick Street to
 the Golden Gate Bridge Toll Plaza and, on Route 1,
 from the Ruckman Undercrossing to Route 101

I have reviewed the right of way information contained in this Project Report and the R/W Data Sheet attached hereto, and find the data to be complete, current, and accurate:

R.A. Macpherson
 DEPUTY DISTRICT DIRECTOR - RIGHT OF WAY

APPROVAL RECOMMENDED:

Nidal Tuqan
 PROJECT MANAGER

APPROVED:

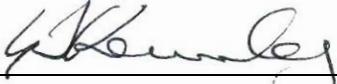
Helena "Lenka" Culik-Caro
 DEPUTY DISTRICT DIRECTOR

1/28/09
 DATE

This page intentionally left blank

04-SF-101, KP 12.8–15.7 (PM 8.0–9.8)
04-SF-001, KP 10.9-11.4 (PM 6.8-7.1)

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



Gary John Kennerley
REGISTERED CIVIL ENGINEER

1/5/2009

DATE



This page intentionally left blank

TABLE OF CONTENTS

1.	INTRODUCTION	1
1.1	Alternatives Development.....	2
1.1.1	Context Sensitive Design	2
1.1.2	Sustainable Design	3
1.1.3	Project Alternatives	4
2.	RECOMMENDATION.....	17
3.	BACKGROUND	17
3.1	Project History	17
3.2	Community Interaction	19
3.3	Existing Facility.....	21
4.	NEED AND PURPOSE	22
4.1	Problem, Deficiencies, and Justification.....	22
4.1.1	Project Purpose and Objectives	22
4.1.2	Need for Project	23
4.2	Regional and System Planning	24
4.2.1	Identify Systems	24
4.2.2	State Planning	24
4.2.3	Regional Planning	25
4.2.4	Local Planning.....	26
4.2.5	Transit Operator Planning	28
4.3	Traffic	29
4.3.1	Current and Forecasted Traffic	29
4.3.2	Accident Rates.....	30
5.	ALTERNATIVES	34
5.1	Identification of the Preferred Alternative	34
5.1.1	Outreach Activities	34
5.1.2	Public and Agency Comments	35
5.1.3	Development of the Preferred Alternative	38
5.1.4	Identification of the Preferred Alternative.....	39
5.1.5	Results of Alternative Evaluation	40

5.1.6	Context Sensetive Design and Sustainability.....	41
5.2	Preferred Alternative – Refined Presidio Parkway	42
5.2.1	Proposed Engineering Features	42
5.2.2	Nonstandard Mandatory and Advisory Design Features.....	45
5.2.3	Preferred Alternative – Refined Presidio Parkway.....	46
5.2.4	Intelligent Transportation System (ITS)	49
5.2.5	Interim Features	49
5.2.6	HOV (Bus and Carpool) Lanes	49
5.2.7	Ramp Metering.....	49
5.2.8	California Highway Patrol (CHP) Enforcement Areas	50
5.2.9	Park and Ride Facilities.....	50
5.2.10	Utility and Other Owner Involvement	50
5.2.11	Railroad Involvement.....	50
5.2.12	Highway Planting	51
5.2.13	Water Pollution and Erosion Control.....	51
5.2.14	Noise Barriers.....	51
5.2.15	Non-Motorized and Pedestrian Features	52
5.2.16	Needed Roadway Rehabilitation and Upgrading	55
5.2.17	Needed Structure Rehabilitation and Upgrading	55
5.2.18	Cost Estimates	55
5.2.19	Right of Way Data	57
5.2.20	Effect of Special Funded Proposal on State Highway	58
5.3	Viable Alternatives.....	59
5.3.1	Alternative 1 - No-Build	59
5.3.2	Alternative 2 – Replace and Widen.....	59
5.3.2.1	<i>Proposed Engineering Features.....</i>	<i>60</i>
5.3.3	Alternative 5 – Presidio Parkway	62
5.3.3.1	<i>Proposed Engineering Features.....</i>	<i>62</i>
5.3.4	Nonstandard Mandatory and Advisory Design Features.....	66
5.3.4.1	<i>Alternative 2 – Replace and Widen.....</i>	<i>66</i>
5.3.4.2	<i>Alternative 5 – Presidio Parkway</i>	<i>68</i>
5.3.5	Intelligent Transportation System (ITS)	69

5.3.6	Interim Features	69
5.3.7	HOV (Bus and Carpool) Lanes	69
5.3.8	Ramp Metering.....	69
5.3.9	California Highway Patrol (CHP) Enforcement Areas	69
5.3.10	Park and Ride Facilities.....	69
5.3.11	Utility and Other Owner Involvement	70
5.3.12	Railroad Involvement.....	70
5.3.13	Highway Planting	70
5.3.14	Water Pollution and Erosion Control.....	70
5.3.15	Noise Barriers.....	71
5.3.16	Non-Motorized and Pedestrian Features	71
5.3.17	Needed Roadway Rehabilitation and Upgrading	72
5.3.18	Needed Structure Rehabilitation and Upgrading	72
5.3.19	Cost Estimates	72
5.3.20	Right of Way Data	75
5.3.21	Effect of Special Funded Proposal on State Highway	75
5.4	Rejected Alternatives	75
5.4.1	Alternatives Considered and Withdrawn during initial evaluation and traffic screening	76
5.4.2	Alternatives and Access Options Eliminated after Further Review	79
5.4.3	Alternatives and Design Options Withdrawn after preliminary environmental analysis	79
5.4.4	Various Design Elements Considered and Withdrawn	80
6.	CONSIDERATIONS REQUIRING DISCUSSION	80
6.1	Hazardous Waste.....	80
6.2	Value Analysis.....	82
6.3	Resource Conservation	84
6.4	Right of Way	85
6.5	Environmental Issues.....	87
6.5.1	Aesthetics.....	87
6.5.2	Cultural Resources.....	88
	6.5.2.1 Preferred Alternative – Refined Presidio Parkway.....	88
	6.5.2.2 Alternative 2 - Replace and Widen	89

6.5.2.3	<i>Alternative 5 - Presidio Parkway</i>	89
6.5.3	Geology.....	90
6.5.4	Hydrology.....	90
6.5.5	Stormwater – Best Management Practices	92
6.5.6	Noise	93
6.5.7	Transportation	95
6.5.8	Vegetation	96
6.5.9	Wetlands	97
6.5.10	Wildlife.....	98
6.5.10.1	<i>Special-status Invertebrate Species</i>	99
6.5.10.2	<i>Special-status Avian Species</i>	99
6.5.10.3	<i>Special-status Avian Species – Temporary Disturbance due to Construction Noise and Vibration</i>	100
6.5.10.4	<i>Special-status Bats</i>	100
6.6	Air Quality Conformity	101
6.7	Title VI Considerations	103
7.	OTHER CONSIDERATIONS	104
7.1	Public Hearing Process	104
7.2	Route Matters	104
7.3	Permits	104
7.4	Cooperative Agreements	106
7.5	Other Agreements	106
7.6	Risk Management Plan	107
7.7	Transportation Management Plan	108
7.7.1	Roadway Closures and Modified Access	108
7.7.2	Transit, Pedestrian and Bicycle Impacts	109
7.7.3	Public Information	109
7.7.4	Motorist Information.....	110
7.7.5	Incident Management	110
7.7.6	Construction Strategies.....	110
7.7.7	Demand Management Strategies	110
7.8	Stage Construction	111

7.8.1	Preferred Alternative - Refined Presidio Parkway	112
7.8.2	Alternative 2 - Replace and Widen	119
7.8.3	Alternative 5 - Presidio Parkway.....	122
7.9	Accommodation of Oversize Loads	125
7.10	Graffiti Control.....	125
8.	PROGRAMMING	125
9.	REVIEWS	131
10.	PROJECT PERSONNEL	132
11.	LIST OF ATTACHMENTS.....	133
12.	REFERENCES	134
13.	GLOSSARY OF ABBREVIATIONS/ACRONYMS.....	136

LIST OF TABLES

TABLE 4.3-1	Base Year and Design Year Traffic Volumes	31
TABLE 4.3-2	Doyle Drive Accident Data	33
TABLE 5.1-1	Summary of Public Comments on Project Alternatives	37
TABLE 5.2-1	Existing Facility Nonstandard Mandatory Exceptions	47
TABLE 5.2-2	Existing Facility Nonstandard Advisory Exceptions	48
TABLE 5.2-3	Noise Barrier Preliminary Reasonableness Determination.....	53
TABLE 5.2-4	Alternative Cost Matrix	56
TABLE 5.2-5	Land Required for Permanent Easements of Alternatives	58
TABLE 5.2-6	Temporary Construction Easements of Alternatives	58
TABLE 6.2-1	Value Analysis Alternatives	83
TABLE 6.2-2	Summary of VA Alternatives	84
TABLE 6.4-1	Property Displacements by Alternative	86
TABLE 7.3-1	Project Permits, Reviews and Approvals	105
TABLE 8-1	Transportation Funding Programs.....	126
TABLE 8-2	Project Milestones	127
TABLE 8-3	Total Project Cost	128
TABLE 8-4	Proposed and Committed Funding Sources and Levels	130

LIST OF FIGURES

FIGURE 1.1.1-1	Preferred Alternative - Refined Presidio Parkway General Configuration	9
FIGURE 1.1.1-2	Preferred Alternative - Refined Presidio Parkway Typical Section	10
FIGURE 1.1.1-3	Alternative 1 - No-Build General Configuration	11
FIGURE 1.1.1-4	Alternative 1 - No-Build Typical Section.....	12
FIGURE 1.1.1-5	Alternative 2 - Replace and Widen General Configuration	13
FIGURE 1.1.1-6	Alternative 2 - Replace and Widen Typical Section	14
FIGURE 1.1.1-7	Alternative 5 - Presidio Parkway General Configuration	15
FIGURE 1.1.1-8	Alternative 5 - Presidio Parkway Typical Section	16
FIGURE 5.2.14-1	Preferred Alternative Noise Barrier Locations	54
FIGURE 5.3.15-1	Alternative 2 - Replace and Widen Noise Barrier Locations	73
FIGURE 5.3.15-2	Alternative 5 - Presidio Parkway Noise Barrier Locations.....	74
FIGURE 7.8-1	Preferred Alternative - Refined Presidio Parkway Construction Staging..	114
FIGURE 7.8-2	Preferred Alternative - Refined Presidio Parkway Construction Staging..	115
FIGURE 7.8-3	Preferred Alternative - Refined Presidio Parkway Construction Staging..	116
FIGURE 7.8-4	Preferred Alternative - Refined Presidio Parkway Construction Staging..	117
FIGURE 7.8-5	Preferred Alternative - Refined Presidio Parkway Construction Staging..	118
FIGURE 7.8-6	Alternative 2 - Replace and Widen No Detour Construction Staging	120
FIGURE 7.8-7	Alternative 2 - Replace and Widen With Detour Construction Staging	121
FIGURE 7.8-8	Alternative 5 - Presidio Parkway Construction Staging	123

This page intentionally left blank

1. INTRODUCTION

It is proposed to construct a new roadway to replace the existing six-lane Doyle Drive portion of Route 101 in order to improve the seismic, structural, and traffic safety of the roadway within the setting and context of the Presidio of San Francisco and its purpose as a National Park. The new facility would include six through lanes and an auxiliary lane. The project limits are from Merchant Road, just south of the Golden Gate Bridge Toll Plaza, to the intersections of Richardson Avenue/Francisco Street and Marina Boulevard/Lyon Street. The total project cost of the preferred alternative in year of expenditure dollars is estimated at \$1.045 billion, including \$155.7 million in support costs. A breakdown of the support costs can be seen in Table 8-3. The Federal Highway Administration (FHWA), the San Francisco County Transportation Authority (Authority) and California Department of Transportation (Caltrans) have developed a concept to fund project costs based on year of expenditure using federal, state funds, and local funds as described in Section 8, Programming. The programmed funding as currently approved was based on the cost estimates available at the time the funding plan was prepared. Construction is scheduled for FY 2010/2011. The project was assigned to the Project Development Category 4A because it would require substantial right of way easements.

Doyle Drive is located in the Presidio of San Francisco (the Presidio), in the northern part of the City of San Francisco at the southern approach to the Golden Gate Bridge (see Attachment A). In 1994, when the US Army transferred jurisdiction of the Presidio to the National Park Service (NPS), it became part of the National Park system and Golden Gate National Recreation Area (GGNRA). In 1998, management of the Presidio was divided between two federal agencies: The Presidio Trust (the Trust), the agency responsible for oversight of 80 percent of the Presidio delineated as Area B; and the NPS, which is responsible for management of the coastal portions of the park (the remaining 20 percent) that are delineated as Area A. Doyle Drive lies predominately within the Area B lands managed by the Trust with a small portion at the western end located in Area A on land operated by the Golden Gate Bridge, Highway and Transportation District (GGBHTD). The Presidio has also been designated a National Historic Landmark District (NHLD) since 1962 with the Doyle Drive roadway determined to be a contributing element to that landmark.

Doyle Drive, the southern approach of Route 101 to the Golden Gate Bridge, is 2.4 kilometers (1.5 miles) long with six traffic lanes. There are three San Francisco approach ramps which connect to Doyle Drive: one beginning at the intersection of Marina Boulevard and Lyon Street; one at the intersection of Richardson Avenue and Lyon Street; and one where Veterans Boulevard (Route 1) merges into Doyle Drive approximately 1.6 kilometers (1 mile) west of the Marina Boulevard approach (see Figure 1.1.1-3). Doyle Drive passes through the Presidio on an elevated concrete viaduct (low-viaduct) and transitions to a high steel truss viaduct (high-viaduct) as it approaches the Golden Gate Bridge Toll Plaza.

Doyle Drive was built in 1936 and it is approaching the end of its useful life, although regular maintenance, seismic retrofit, and partial rehabilitation activities are keeping the structure safe in the short term. However, further structural degradation caused by age and the effects of heavy traffic and exposure to salt air will require, in the long term, permanent improvements to bring Doyle Drive up to current design and safety standards. In addition, the eastern portion of the aging facility is located in a potential liquefaction zone identified on the State of California Seismic Hazard Zones map dated August 2000.

Currently, Doyle Drive has nonstandard design elements (see Tables 5.1-2 and 5.2-3), including travel lanes from 2.9 to 3.0 meters (9.5 to 10.0 feet) in width, no fixed median barrier, no shoulders, and exit ramps that have tight turning radii. During peak traffic hours, plastic pylons are manually moved to provide a median lane as well as to reverse the direction of traffic flow of several lanes (Project Study Report: Doyle Drive Reconstruction, 1993).

1.1 Alternatives Development

The build alternatives for the Doyle Drive Project were developed with input from public scoping and reflected the parkway concept that evolved from previous studies. Through the screening analysis, six alternatives were selected for consideration in the Administrative Draft Environmental Impact Statement / Report (DEIS/R): Alternative 1, No-Build; Alternative 2, Replace and Widen; Alternatives 3a and 3b, Long Tunnels; and Alternatives 4a and 4b, Short Tunnels.

Following the completion of the preliminary environmental analysis in 2002, a fifth alternative, the Presidio Parkway, was added to the list of alternatives for more detailed study. In comparison to the tunnel alternatives it was determined that Alternative 5, Presidio Parkway, would provide all the benefits and functions of Alternatives 3a, 3b, 4a, and 4b with less cost, construction duration, and environmental impact. Hence, in November 2003 the four tunnel alternatives were recommended to be removed from further consideration and analysis in the DEIS/R.

At a public meeting held in February 2004, the public agreed with the decision to drop Alternatives 3a, 3b, 4a, and 4b and retain Alternative 1, No-Build, Alternative 2, Replace and Widen, and Alternative 5, Presidio Parkway for consideration in the DEIS/R.

The DEIS/R was circulated for public comment in December 2005 and the comment period closed on March 31, 2006. There were two public hearings during the public comment period to present the proposed alternatives to the public and solicit their comments on the alternatives. In addition, several informal workshops were held to enhance the public's understanding of the alternatives, gather input, and review proposed design refinements. The recommendation of a preferred alternative was made based on the refined alternatives.

1.1.1 CONTEXT SENSITIVE DESIGN

Context Sensitive Solutions (CSS) is the art of creating public works projects that meet the needs of the users, the neighboring communities, and the environment. It integrates projects into the context or setting in a sensitive manner through careful planning, consideration of different perspectives, and tailoring designs to particular project circumstances.

CSS is an approach to planning, designing, constructing, maintaining, and operating transportation systems. These solutions use innovative and inclusive approaches that integrate and balance community, aesthetic, historic, and environmental values with transportation safety, maintenance, and performance goals. Context sensitive solutions are reached through a collaborative, interdisciplinary approach involving all stakeholders. The context of all projects and activities is a key factor in reaching decisions.

One of the initial steps in the Doyle Drive project was to assess the character of the project area. It was important to understand what was important about the site and to understand the needs of the surrounding community. In order to be sensitive to the project's

environment, we considered its context and physical location carefully during the project planning stage. Additionally, a sizable planning effort had already taken place over the past decade involving residents and other stakeholders in the area. It assessed their needs and desires, and resulted in the publication of the 1993 Doyle Drive Task Force's, Report of the Doyle Drive Task Force to the San Francisco Board of Supervisors, the 1993 Caltrans Project Study Report: Doyle Drive Reconstruction, and the 1996 San Francisco County Transportation Authority Doyle Drive Intermodal Study. Scoping Meetings held in March 2000 also provided feedback from the public and agencies involved.

Throughout this outreach and coordination process, the Doyle Drive Project alternatives and access options were developed with CSS in mind. By maintaining continued agency and stakeholder consensus, the project team was able to continually improve the design alternatives and address the goals of appearance, traffic calming, and pedestrian safety. The traffic entering the city is slowed by the increased curvature of the roadway. Pedestrian safety is enhanced by staggering the intersections, requiring all vehicles to slow to make a turn. The project team intends to continue to work on context sensitive design elements to improve how the eventual preferred alternative fits into the surrounding environment and meets the goals of the project within the context of the National Park setting and the natural environment.

1.1.2 SUSTAINABLE DESIGN

As sustainability has become more widely applied, sample sustainability policy statements are available from a number of sources. As noted above it has been the practice on this project, however, to advance major project decisions through consensus. The Authority has established extensive agency coordination and public involvement procedures as a normal way of doing business. These procedures include agency and citizen working groups, key issues workshops, open houses, community meetings, stakeholder briefings, and project information materials such as news letters, fact sheets, and a project website. The project team believes that the crafting of a sustainability policy statement and its implementation ought to be done through the same consensus process supported by qualified consultants.

As important as a sustainability policy statement might be, a policy statement alone does not achieve sustainability. There must be detailed implementation mechanisms. Most importantly, there must be ways of measuring success or failure. Achieving sustainability for the Doyle Drive project will include the following elements:

- Sustainability Goals and Objectives
- Sustainability Strategies
- Implementation Responsibilities
- Monitoring Implementation
- Assessing Outcomes

Specific examples of sustainability-related strategies to consider for the Doyle Drive project could be:

- Use of recycled materials
- Maximize the re-use of existing infrastructure and materials (e.g. pavement) where possible
- Promote the use of self-sustaining vegetation to minimize maintenance needs (e.g., minimize need for fertilizers or herbicides)

1.1.3 PROJECT ALTERNATIVES

This section describes the Preferred Alternative – Refined Presidio Parkway, a No-Build Alternative, and the two viable build alternatives. A condensed plan and profile for each alternative is included in Attachment B and detailed drawings showing the geometrics of the Preferred Alternative can be found in Attachment C.

Preferred Alternative - Refined Presidio Parkway

The Preferred Alternative would replace the existing facility with a new six-lane facility and a southbound auxiliary lane. The project limits are from Merchant Road, just south of the Golden Gate Bridge Toll Plaza, to the intersections of Richardson Avenue/Francisco Street and Marina Boulevard/Lyon Street. The new facility would consist of two 3.3-meter (11-foot) lanes and one 3.6-meter (12-foot) outside lane in each direction with 3.0-meter (10-foot) outside shoulders and 1.2-meter (4-foot) inside shoulders. The southbound direction would include a 3.3-meter (11-foot) auxiliary lane from the Park Presidio Interchange to the Girard Road exit ramp. The width of the proposed landscaped median would vary from 5.0 to 12.5 meters (16 to 41 feet). To minimize impacts to the park, the footprint of the new facility would overlap with a large portion of the existing facility's footprint east of the Park Presidio Interchange. A temporary detour would divert Doyle Drive traffic in the vicinity of the low-viaduct to the north of the existing facility by using an at-grade roadway. A cross-over would be built in the vicinity of the Sports Basement and would connect the detour to the partially completed southbound Doyle Drive alignment. See Figures 1.1.1-1, and 1.1.1-2 for the general configuration and typical section of the Preferred Alternative. The cost of this alternative is estimated at \$743.8 million (2008 dollars).

A 390-meter (1,279-foot) long high-viaduct would be constructed between the Park Presidio Interchange and the San Francisco National Cemetery. The height of the high-viaduct would vary from 20 to 35 meters (66 to 115 feet) above the ground surface. Shallow cut-and-cover tunnels would extend 261 meters (856 feet) past the cemetery to east of Battery Blaney. The facility would then continue towards the Main Post in an open at-grade roadway with a wide heavily landscaped median. A retaining wall between 4.0 to 8.0 meters (13 to 26 feet) high would be constructed along the south side of the facility between the Battery and Main Post tunnels. A landscaped berm would be constructed along the north side of the facility to shield park visitors from the proposed facility.

From Building 106 (Band Barracks) cut-and-cover tunnels up to 308 meters (1,010 feet) long would extend to east of Halleck Street. The amount of fill over the tunnels is being coordinated with the Trust based on requirements of the Vegetation Management Plan. The expected minimum depth to support native vegetation is 2.0 meters (6 feet). The facility would then rise slightly on a low level causeway 120 meters (394 feet) long over the site of the proposed Tennessee Hollow restoration and then pass over a depressed Girard Road.

The low causeway would rise to approximately 5.6 meters (18 feet) above the surrounding ground surface at its highest point. East of Girard Road the facility would return to existing grade north of the Gorgas warehouses and connect to Richardson Avenue. The proposed facility would provide a transition zone starting from the Main Post tunnel to reduce vehicle speeds prior to entering city streets. A motor control and switch gear room to operate the tunnel life safety equipment would be integrated with the Main Post tunnels.

The Park Presidio Interchange would be reconfigured due to the realignment of Doyle Drive to the south. The exit ramp from southbound Doyle Drive to southbound Veterans Boulevard would be replaced with standard exit ramp geometry and widened to two lanes. The loop of the northbound Doyle Drive exit ramp to southbound Veterans Boulevard would be improved to provide standard exit ramp geometry. The northbound Veterans Boulevard connection to northbound Doyle Drive would be realigned to provide standard entrance ramp geometry. The northbound Veterans Boulevard connection to southbound Doyle Drive would be reconstructed in a similar configuration as the existing directional ramp with improved sight lines, exit and entrance geometry.

The Preferred Alternative would provide direct access to the Presidio and indirect access to Marina Boulevard in both directions via access ramps from Doyle Drive connecting to an extension of Girard Road. Gorgas Avenue would become a one-way street east of the Letterman garage, located across from the YMCA, with a signalized intersection at Richardson Avenue. North of Richardson Avenue, Lyon Street will remain in its existing configuration that provides access to the two-way to Palace Drive. The surface parking spaces would be reconfigured to maintain the existing parking supply in the area and improve pedestrian access between the Presidio and the Palace of Fine Arts.

Retaining walls would be required at the Park Presidio Interchange to accommodate the reconstruction of the ramps. Retaining walls would also be required in the eastern end of the alignment primarily along the extended Girard Road. Fences would be required along the edge of the at-grade portions of the roadway to restrict pedestrian access onto the roadway.

Alternative 1 – No-Build

The No-Build Alternative represents the future year conditions if no other actions are taken in the study area beyond what is already programmed by the year 2020. The No-Build Alternative provides the baseline for existing environmental conditions and future travel conditions against which all other alternatives are compared. See Figures 1.1.1-3, and 1.1.1-4 for the general configuration and typical section of the No Build Alternative.

Doyle Drive would remain in its current configuration, with six traffic lanes ranging in width from 2.9 to 3.0 meters (9.5 to 10 feet) and an overall facility width of 20.4 meters (67 feet). There are no fixed median barriers or shoulders. The lane configuration is changed by manually moving plastic pylons to increase the number of lanes in the peak direction of traffic. The facility passes through the Presidio on a high steel truss viaduct and a low elevated concrete viaduct with lengths of 463 meters (1,519 feet) and 1,137 meters (3,730 feet), respectively. This alternative does not improve the seismic, structural, or traffic safety of the roadway.

Vehicular access to the Presidio is available from Doyle Drive via the off-ramp to Merchant Road at the Golden Gate Bridge Toll Plaza. Presidio access at the east end of the project will be provided for southbound traffic via a right turn from Richardson Avenue to Gorgas Avenue. Presidio access for northbound traffic is provided by a temporary slip ramp from

Richardson Avenue to Gorgas Avenue that will be eliminated when the facility is reconstructed.

An estimated \$23 million interim rehabilitation began at the beginning of September 2006 and is anticipated to be completed by the end of November 2009. It is expected that ongoing maintenance would then be required to maintain the service load carrying capacity and safety of the facility to prevent it from being posted with a weight restriction.

Alternative 2 – Replace and Widen

The Replace and Widen Alternative would replace the 463-meter (1,519-foot) long high-viaduct and the 1,137-meter (3,730-foot) long low-viaduct with new structures that meet the most current seismic and structural design standards. The height of the high-viaduct would vary from 20 to 35 meters (66 to 115 feet) above the ground surface. The low-viaduct would have an average height of approximately 10 meters (33 feet) for the No Detour Option and approximately 8.0 meters (26 feet) for the Detour Option. The new facility would be replaced on the existing alignment and widened to incorporate improvements for increased traffic safety. See Figures 1.1.1-5, and 1.1.1-6 for the general configuration and typical section of the Replace and Widen Alternative. The cost of this alternative is estimated at \$665.0 million (2008 dollars) for the No Detour Option and \$748.6 million (2008 dollars) for the Detour Option.

This alternative would include three 3.6-meter (12-foot) lanes in each direction with 3.0-meter (10-foot) outside and inside shoulders. In addition, the facility would include a 3.6-meter (12-foot) auxiliary lane in the southbound direction from the Park Presidio Interchange to the Richardson Avenue ramp. The new facility would have an overall width of 37.8 meters (124 feet). The new facility would require a localized northbound lane width reduction to 3.3 meters (11 feet) and inside shoulder reduction to 0.6 meters (2 feet) to avoid impacts to the historic batteries and Lincoln Boulevard, reducing the facility width to 32.4 meters (106 feet). At the Park Presidio Interchange, the two ramps connecting southbound Doyle Drive to northbound Veterans Boulevard and the ramp connecting northbound Doyle Drive to southbound Veterans Boulevard would be reconfigured to improve traffic safety and accommodate the new facility. The Replace and Widen Alternative would operate similar to the existing facility except that there would be a median barrier and inside and outside shoulders to accommodate disabled vehicles. The Replace and Widen Alternative includes two options for the construction staging:

No Detour Option – The widened portion of the new facility would be constructed on both sides and above the existing low-viaduct and would maintain traffic on the existing structure. Traffic would be incrementally shifted to the new facility as it is widened over the top of the existing structure. Once all traffic is on the new structure, the existing structure would be demolished and the new portions of the facility would be connected. To allow for the construction staging using the existing facility, the new low-viaduct would be constructed 2.0 meters (6 feet) higher than the existing low-viaduct structure.

With Detour Option – A 20.4-meter (67-foot) wide temporary detour facility would be constructed to the north of the existing Doyle Drive to maintain traffic through the construction period. Access to Marina Boulevard during construction would be maintained on an elevated temporary structure south of Mason Street. On and off ramps for the mainline detour facility would connect to existing Marina Boulevard/Lyon Street intersection.

Vehicular access to the Presidio is available from Doyle Drive via the on- and off-ramps to Merchant Road at the Golden Gate Bridge Toll Plaza. Presidio access at the east end of the project will be provided for southbound traffic via a right turn from Richardson Avenue to Gorgas Avenue. There would be no Presidio access for northbound traffic at the east end of Doyle Drive due to geometric constraints and concerns for traffic safety.

Retaining walls would be required at the Park Presidio Interchange to accommodate the ramp realignments. A retaining wall would also be constructed on the south side of the facility along the constrained section between the National Cemetery and the historic batteries.

Alternative 5 – Presidio Parkway

The Presidio Parkway Alternative would replace the existing facility with a new six-lane facility and a southbound auxiliary lane. The project limits are from Merchant Road, just south of the Golden Gate Bridge Toll Plaza, to the intersections of Richardson Avenue/Francisco Street and Marina Boulevard/Lyon Street. The new facility would consist of two 3.3-meter (11-foot) lanes and one 3.6-meter (12-foot) outside lane in each direction with 3.0-meter (10-foot) outside shoulders and 1.2-meter (4-foot) inside shoulders. In addition, a 3.3-meter (11-foot) auxiliary lane runs along southbound Doyle Drive from the Park Presidio Interchange to the Girard Road exit ramp. The width of the proposed landscaped median varies from 5.0 to 12.5 meters (16 to 41 feet). To minimize impacts to the park, the footprint of the new facility would include a large portion of the existing facility's footprint east of the Park Presidio Interchange. See Figures 1.1.1-7, and 1.1.1-8 for the general configuration and typical section of the Presidio Parkway Alternative. The cost of this alternative varies from \$917.0 million (2008 dollars) for the Hook Diamond Option to \$938.6 million (2008 dollars) for the Loop Circle Option, depending on the design option considered.

A 450-meter (1,476-foot) long high-viaduct would be constructed between the Park Presidio Interchange and the San Francisco National Cemetery. The height of the high-viaduct would vary from 20 to 35 meters (66 to 115 feet) above the ground surface. Shallow cut-and-cover tunnels would extend 240 meters (787 feet) past the cemetery to east of Battery Blaney. The facility would then continue towards the Main Post in an open depressed roadway with a wide heavily landscaped median.

From Building 106 (Band Barracks) cut-and-cover tunnels up to 314 meters long (1,030 feet) would extend to east of Halleck Street. The amount of fill over the tunnels is being coordinated with the Trust based on requirements of the Vegetation Management Plan. The expected minimum depth is 2.0 meters (6 feet). The facility would then rise slightly on a low level causeway 160 meters (525 feet) long over the site of the proposed Tennessee Hollow restoration and a depressed Girard Road. The low causeway would rise to approximately 4.0 meters (13 feet) above the surrounding ground surface at its highest point. East of Girard Road the facility would return to existing grade north of the Gorgas warehouses and connect to Richardson Avenue. The proposed facility would provide a transition zone starting from the Main Post tunnel to reduce vehicle speeds prior to entering city streets. A motor control and switch gear room to operate the tunnel life safety equipment would be integrated with the Main Post tunnels.

The Presidio Parkway Alternative would include an underground parking facility up to 4.0 meters (12 feet) deep at the eastern end of the alignment between the Mason Street warehouses and Gorgas Street warehouses. The parking garage would supply

approximately 500 spaces to maintain the existing parking supply in the area and improve pedestrian and vehicular access between the Presidio and the Palace of Fine Arts.

Merchant Road Option – At the intersection with Merchant Road, just east of the toll plaza, a design option has been developed for a Merchant Road slip ramp. This option would provide an additional new connection from northbound Doyle Drive to Merchant Road. This ramp would provide direct access to the Golden Gate Visitors' Center and alleviate the congested weaving section where northbound Veterans Boulevard merges into Doyle Drive.

The Park Presidio Interchange would be reconfigured due to the realignment of Doyle Drive to the south. The exit ramp from southbound Doyle Drive to southbound Veterans Boulevard would be replaced with standard exit ramp geometry and widened to two lanes. The loop of the northbound Doyle Drive exit ramp to southbound Veterans Boulevard would be improved to provide standard exit ramp geometry. The northbound Veterans Boulevard connection to northbound Doyle Drive would be realigned to provide standard entrance ramp geometry. There are two options for the northbound Veterans Boulevard ramp to a southbound Doyle Drive connection:

Loop Ramp Option – Replace the existing ramp with a loop ramp to the left to reduce construction close to the Cavalry Stables and provide standard entrance and exit ramp geometry.

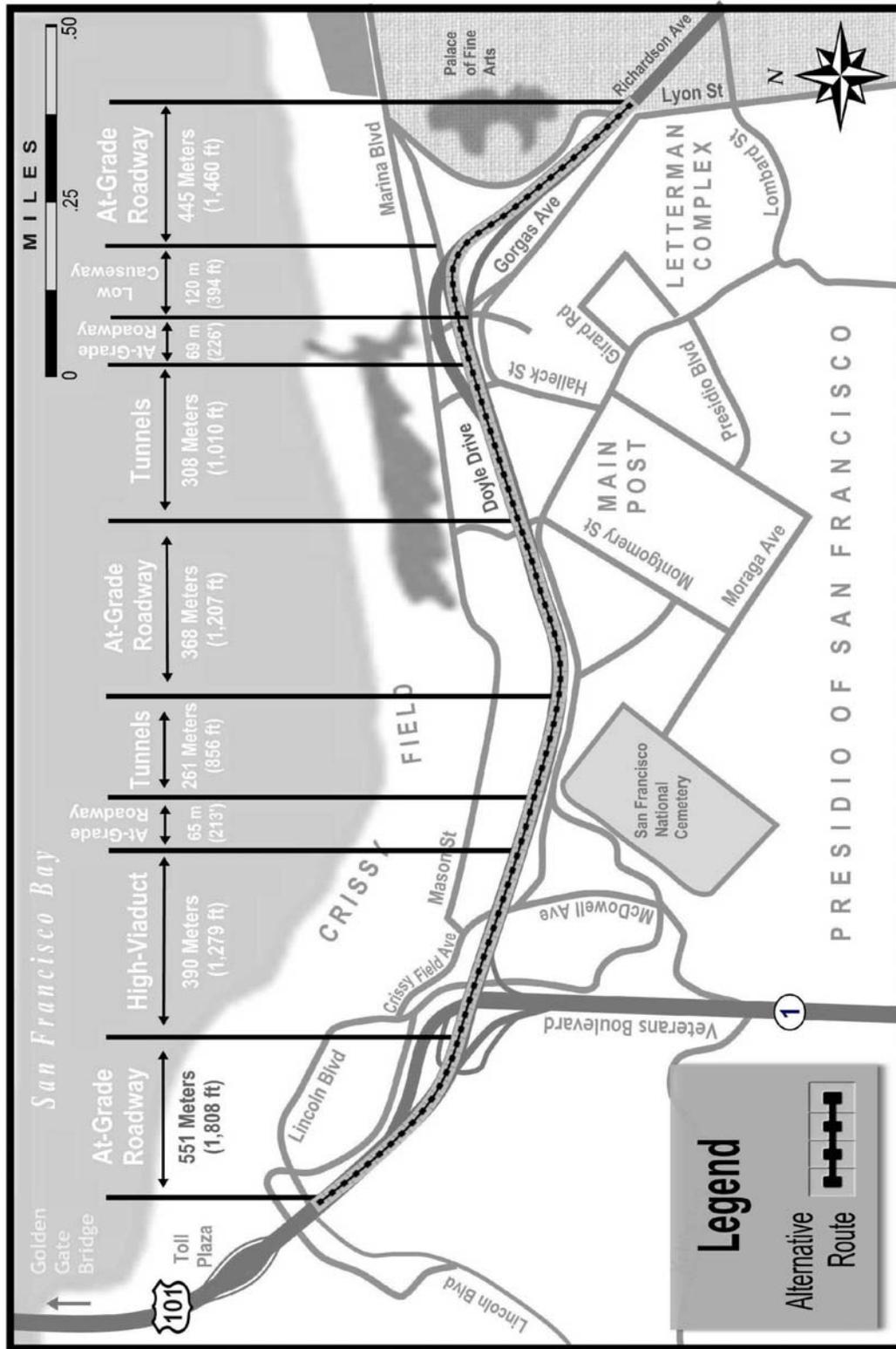
Hook Ramp Option – Rebuild the ramp with a similar configuration as the existing directional ramp with a curve to the right and improved exit and entrance geometry.

The Presidio Parkway Alternative includes two options for direct access to the Presidio and Marina Boulevard at the eastern end of the project:

Diamond Option – The Diamond option would provide direct access to the Presidio and indirect access to Marina Boulevard in both directions via access ramps from Doyle Drive connecting to an extension of Girard Road. Gorgas Avenue would become a one-way street east of the Letterman garage, located across from the YMCA, with a signalized intersection at Richardson Avenue with access to Palace Drive via a signalized intersection at Lyon Street.

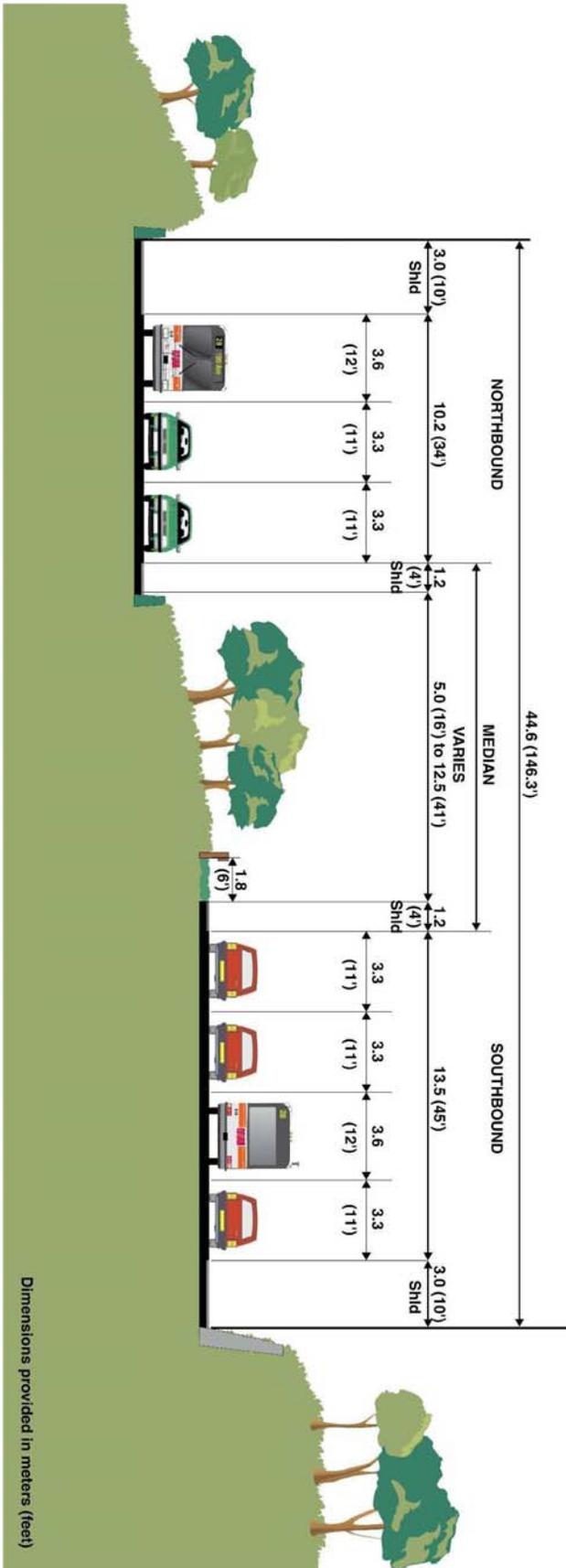
Circle Drive Option – This option would provide direct access to the Presidio and indirect access to Marina Boulevard for southbound traffic via access ramps connecting to an extension of Girard Road. Northbound traffic from Richardson Avenue would access the Presidio through a jug handle intersection to Gorgas Avenue.

Retaining walls would be required at the Park Presidio Interchange to accommodate the reconstruction of the ramps. A retaining wall up to 8.0 meters (26 feet) would be constructed along the south side of the facility between the Battery and Main Post tunnels. Retaining walls would also be required in the eastern end of the alignment primarily along the extended Girard Road. Fences would be required along the edge of the at-grade portions of the roadway to restrict pedestrian access onto the roadway.



**FIGURE 1.1.1-1
PREFERRED ALTERNATIVE - REFINED PRESIDIO PARKWAY
GENERAL CONFIGURATION**

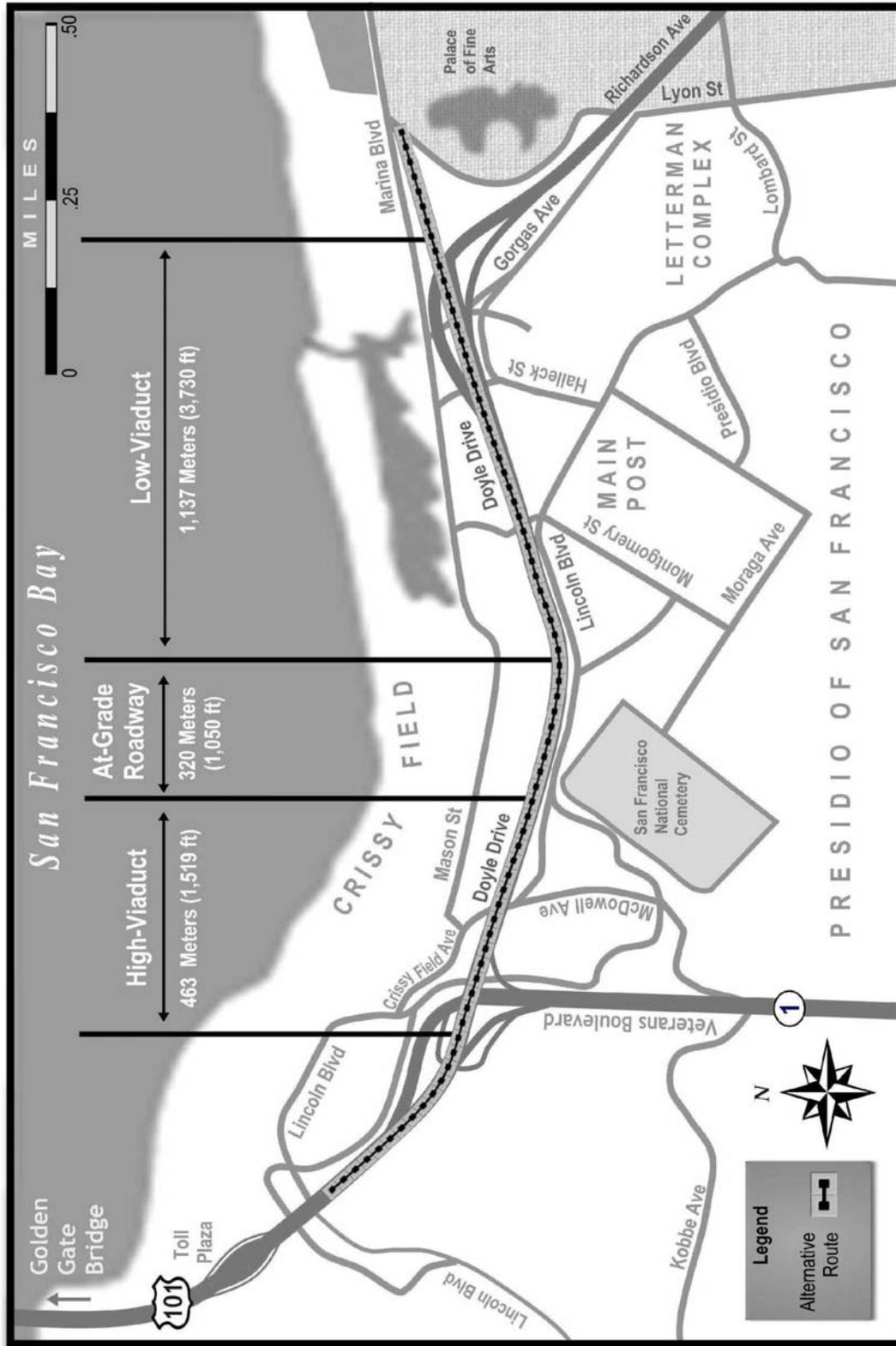
Preferred Alternative - Refined Presidio Parkway



Note: Landscaping shown for illustrative purposes only.

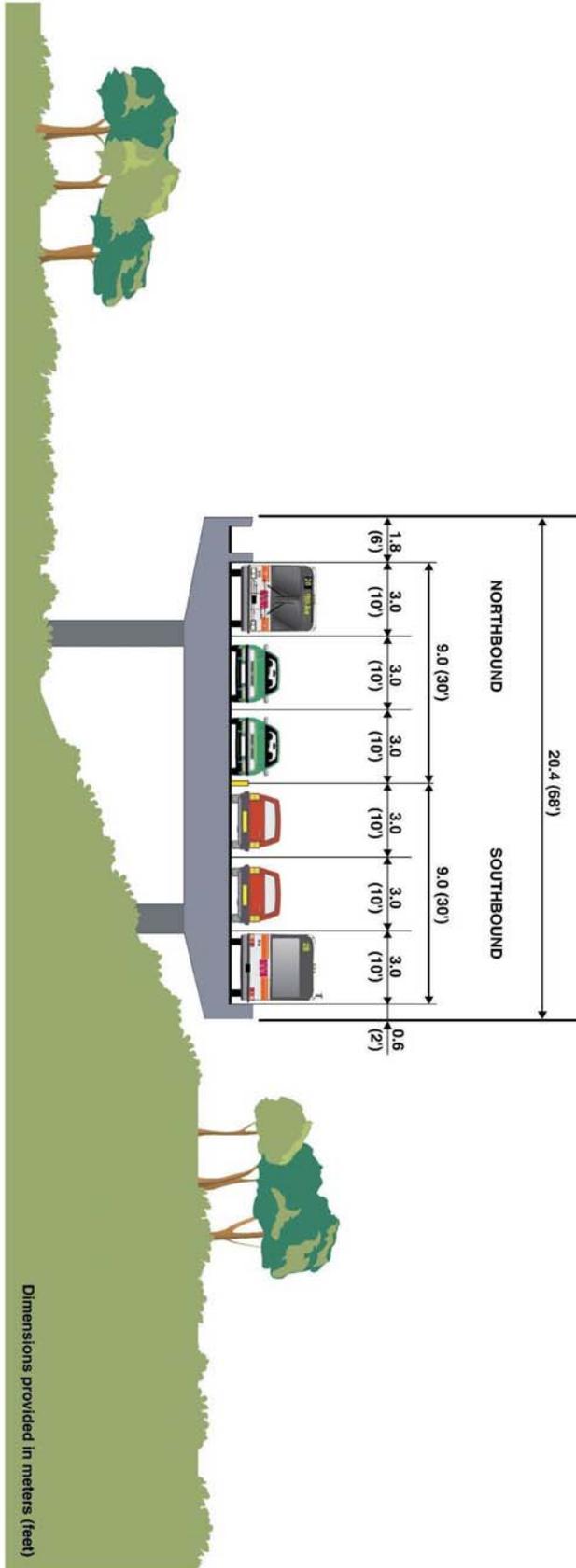
**FIGURE 1.1.1-2
PREFERRED ALTERNATIVE – REFINED PRESIDIO PARKWAY
TYPICAL SECTION**

Dimensions provided in meters (feet)



**FIGURE 1.1.1-3
ALTERNATIVE 1 - NO-BUILD
GENERAL CONFIGURATION**

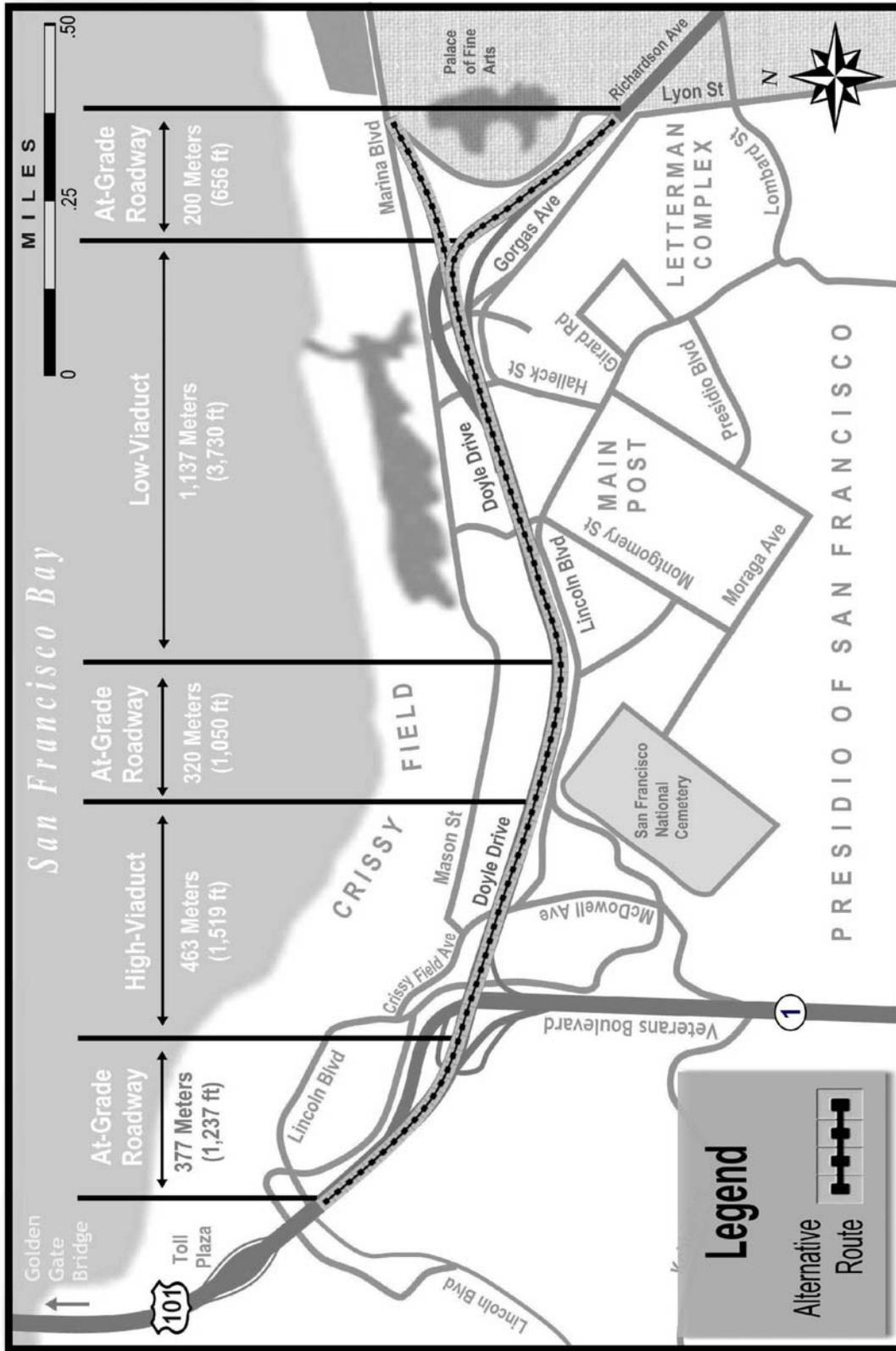
Alternative 1 - No Build



Note: Landscaping shown for illustrative purposes only.

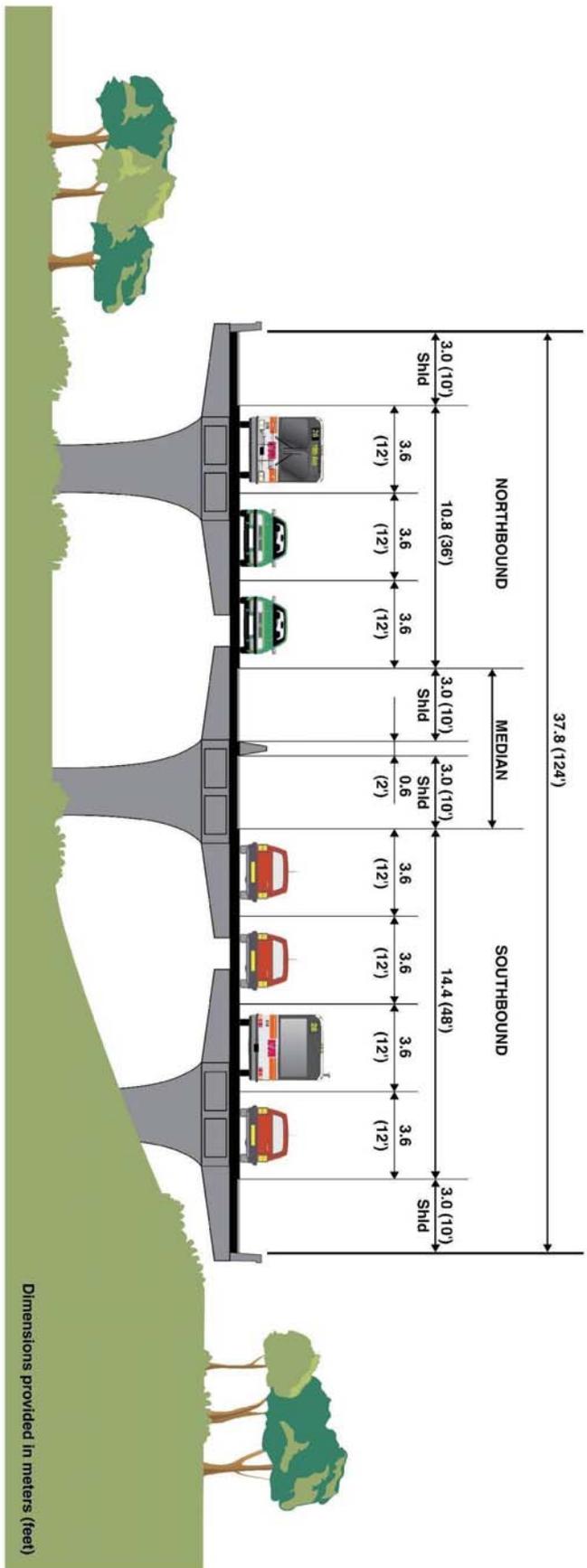
**FIGURE 1.1.1-4
ALTERNATIVE 1 - NO-BUILD
TYPICAL SECTION**

Dimensions provided in meters (feet)



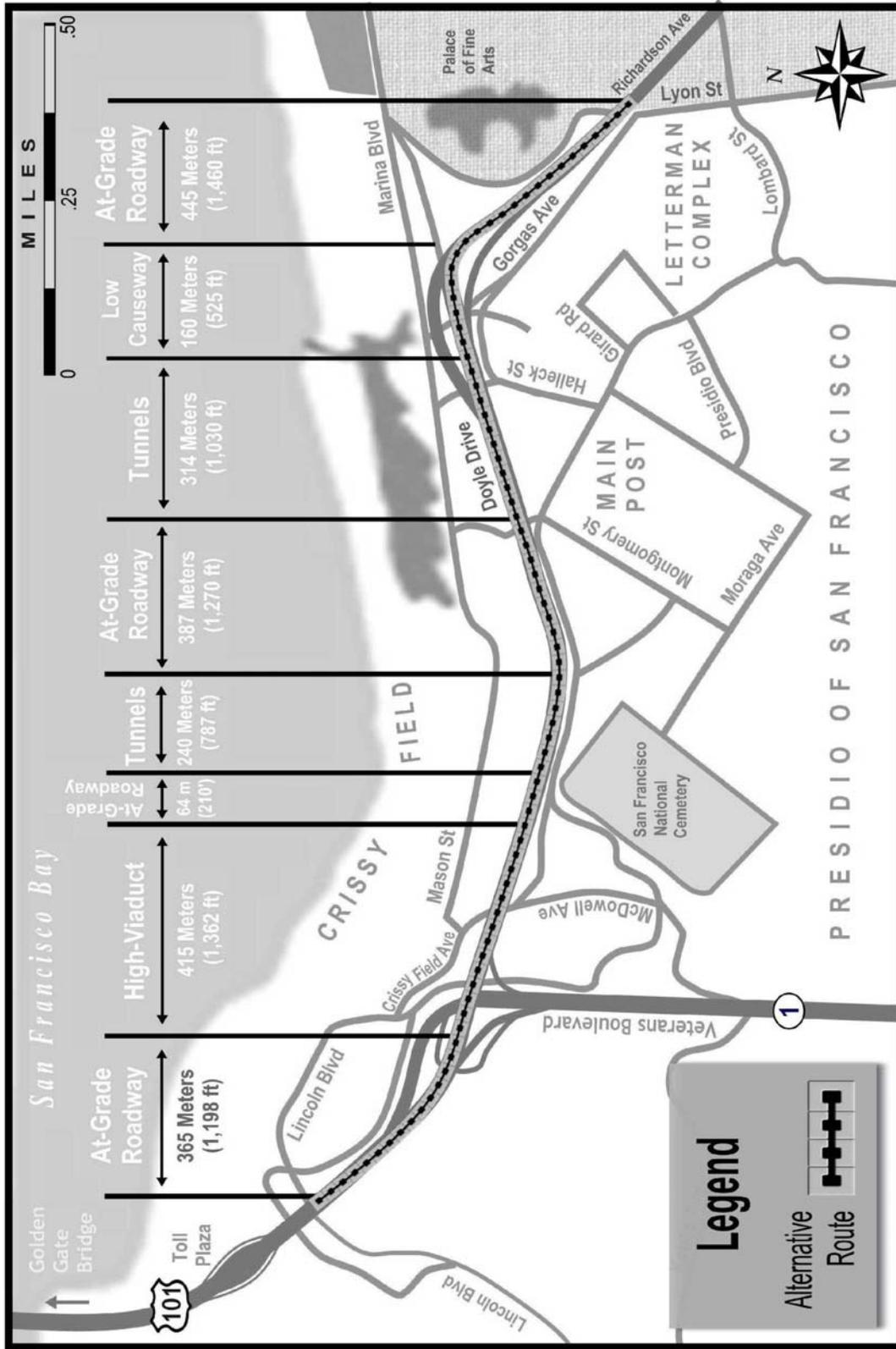
**FIGURE 1.1.1-5
ALTERNATIVE 2 - REPLACE AND WIDEN
GENERAL CONFIGURATION**

Alternative 2 - Replace & Widen



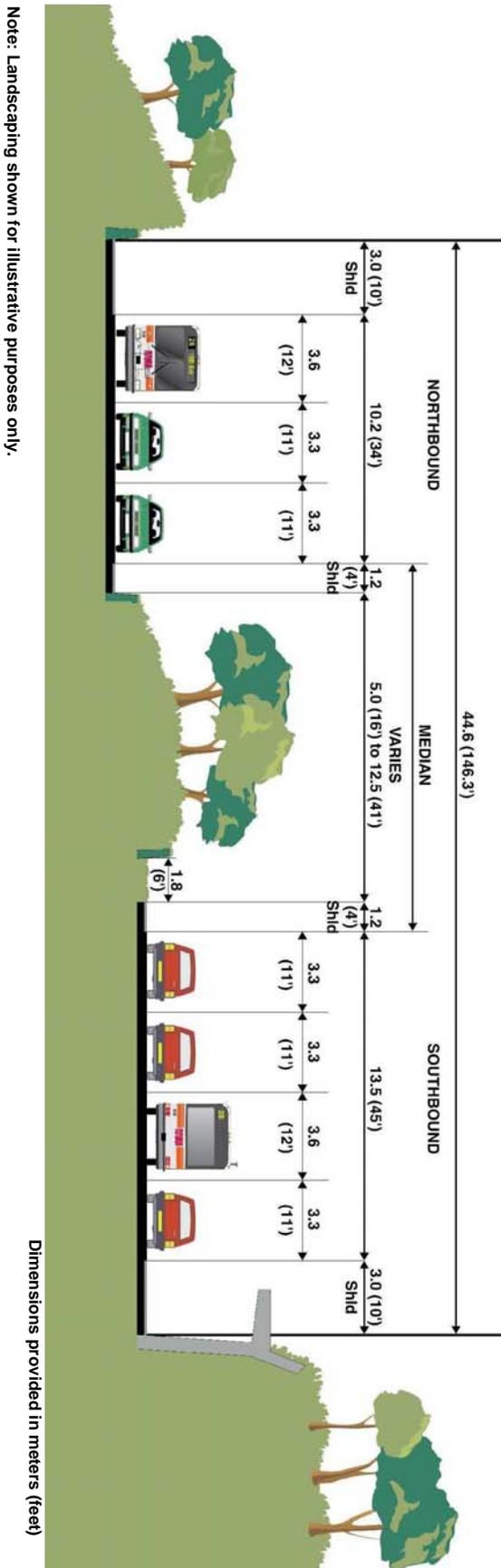
Note: Landscaping shown for illustrative purposes only.

**FIGURE 1.1.1-6
ALTERNATIVE 2 - REPLACE AND WIDEN
TYPICAL SECTION**



**FIGURE 1.1.1-7
ALTERNATIVE 5 - PRESIDIO PARKWAY
GENERAL CONFIGURATION**

Alternative 5 - Presidio Parkway



Note: Landscaping shown for illustrative purposes only.

FIGURE 1.1.1-8
ALTERNATIVE 5 - PRESIDIO PARKWAY
TYPICAL SECTION

2. RECOMMENDATION

It is recommended that the combined Final Environmental Impact Statement / Report (FEIS/R), adhering to the National Environmental Policy Act (NEPA) and California Environmental Quality Act (CEQA), be approved and that the project proceed to the final design phase.

It is also recommended that a Memorandum of Understanding (MOU) be executed between FHWA, NPS, Trust, Veterans Administration, Caltrans, GGBHTD, and the Authority to define the roles and responsibilities of each agency for final design, construction, and maintenance/operations, where Caltrans will perform at default unless it delegates an agency to perform any portion under a new Cooperative Agreement. The draft Cooperative Agreement can be found in Attachment O.

3. BACKGROUND

3.1 Project History

Doyle Drive was constructed in 1936 as the southern approach to the Golden Gate Bridge. It was designed to accommodate three lanes in each direction and separated by double painted stripes. In September 1945, Doyle Drive was adopted as a State highway. A decade later GGBHTD requested that the State widen and reconstruct Doyle Drive to accommodate the increase in traffic congestion.

In 1962, the GGBHTD requested that an eight-lane divided roadway be provided to become part of the proposed Golden Gate Bridge Freeway (Route 480). This freeway would have connected Golden Gate Bridge traffic and northern San Francisco waterfront traffic to the Embarcadero Freeway. The public was generally unhappy with the freeways built in the 1950s and revolted against building new ones. Driven by the anti-freeway movement of the time, the project did not proceed further.

In 1968, the use of plastic pylons to separate the south and northbound traffic was introduced. The separation allowed four lanes in the southbound direction during the morning commute and three lanes in the northbound direction during the evening commute to accommodate the peak period traffic and to provide a buffer lane between oncoming traffic during the non-peak periods.

On July 11, 1970, a major accident that killed ten people occurred on Doyle Drive. Upon completion of the accident investigation, the National Safety Transportation Board recommended expeditious completion of contract plans that would modify Doyle Drive to meet freeway design standards with 3.6-meter (12-foot) wide lanes, a permanent median barrier (or divided roadway), and acceleration-deceleration lanes at the interchanges. One month later, with the City of San Francisco's (City's) support, the GGBHTD appealed to the California Highway Commission to immediately improve Doyle Drive. The Commission approved the preparation of plans to ensure that the project would be ready for construction when funding was available. In February of 1973, a DEIS was completed for the reconstruction of Doyle Drive for an eight-lane highway with three through lanes and one auxiliary lane in each direction. The public again objected to this proposal. The following year the state legislature passed the Marks Bill, S.B. 147 at the City's request, to prohibit Caltrans from widening Doyle Drive to more than six lanes without the specific approval of the San Francisco Board of Supervisors (Board).

In 1985, the Board requested Caltrans' recommendations to improve safety on Doyle Drive without increasing traffic. Caltrans presented two proposals in 1988. However, issues related to those design modifications were not resolved and a preferred alternative was not identified.

The Board then created the Doyle Drive Task Force that included members of the community and regulatory agencies to develop a solution for Doyle Drive. In 1993, the Report of the Doyle Drive Task Force to the San Francisco Board of Supervisors (Task Force Report) identified a concept for a scenic parkway through the Presidio. This parkway concept envisioned three travel lanes in each direction with an additional southbound auxiliary lane between the Park Presidio Interchange and a new direct access point to the Presidio if warranted following more detailed traffic analysis. The Board unanimously approved in principle the recommendations by the Task Force and urged Caltrans to include the rebuilding of Doyle Drive in the next state transportation funding cycle (February 1993 Resolution).

In 1993, Caltrans also completed a Project Study Report: Doyle Drive Reconstruction (PSR, 1993) for the replacement of Doyle Drive. The alternatives considered in the PSR all included six through lanes and a southbound auxiliary lane if needed based on the result of computer simulation model results. The Authority initiated the Doyle Drive Intermodal Study that resulted in the Final Report: Doyle Drive Intermodal Study in 1996. This document supports the Doyle Drive Task Force and the Final Presidio General Management Plan Amendment (GMPA) recommendations to design the Doyle Drive replacement as a "parkway." It also emphasizes making multi-modal and direct vehicular access into and out of the Presidio, which is a central feature of the replacement design elements.

In 1993, Caltrans completed a partial rehabilitation of the concrete decks from the Park Presidio Interchange to Richardson Avenue and Marina Boulevard. The low-viaduct was coated with a thin polymer concrete overlay and the high-viaduct was sealed with a polymer resin bonder-filler. These were maintenance measures, and have now reached the end of their service life.

In 1995, Caltrans performed a seismic retrofit of the high and low-viaduct structures. The high-viaduct was retrofitted to withstand the maximum credible earthquake (MCE) with jacketing of the substructure and seismic restraints added to the superstructure. However, the structural configuration of the low-viaduct precluded retrofitting this structure to withstand the MCE. Therefore, a probabilistic approach was used because the structure replacement was anticipated as part of the proposed Doyle Drive project. An interim 10-year retrofit plan was adopted, as the MCE design was not a viable option for the low-viaduct.

Doyle Drive is wholly contained within the Presidio, a NHLA since 1964 and an element of a national recreation area since 1972. Caltrans owns and maintains Doyle Drive within an easement originally granted by the US Army that is now under the jurisdiction of the Trust. The easement varies between 18.3 and 24.4 meters (60 and 80 feet). Additional easements for each of the proposed alternatives have been identified but no right of way has yet been acquired.

3.2 Community Interaction

Extensive consultation and coordination with federal, state, and local agencies, as well as elected officials, community leaders, organizations, and other individuals from the neighborhoods and communities within the project area were provided throughout the project. The Public Involvement Program provides a variety of communication channels to help the public and agencies understand the current scope of the project, including its impacts and benefits. It solicits input and feedback as to specific needs, issues, concerns, and recommendations. Key features of the Public Involvement Program include:

- ▶ *Mailing List.* A mailing list of approximately 2,100 interested organizations and individuals that include public libraries and property owners in the project area.
- ▶ *Executive Committee.* An agency working group to provide ongoing input on project development, alternatives refinement, scope and approach to environmental studies, and engineering considerations. The Executive Committee has generally met monthly and includes the following members:
 - Association of Bay Area Governments
 - Bay Area Air Quality Management District
 - California Department of Transportation, District 4
 - Federal Highway Administration
 - Golden Gate Bridge, Highway and Transportation District
 - Golden Gate National Recreation Area/ National Park Service
 - Marin County, Department of Public Works
 - Metropolitan Transportation Commission
 - The Presidio Trust
 - U.S. Department of Veterans Affairs
 - San Francisco Bay Conservation & Development Commission
 - San Francisco City and County, Department of Parking and Traffic
 - San Francisco City and County, Planning Department
 - San Francisco Recreation and Park Department
 - San Francisco County Transportation Authority
- ▶ *Citizens Subcommittee.* This Subcommittee was established as a primary component of the public involvement process for the project to receive ongoing input and regularly update the Authority's Citizen Advisory Committee. The Subcommittee meets periodically (16 meetings since March 2000) and provides input on a wide range of issues pertaining to Doyle Drive. The representative topics considered by the Subcommittee have included the project purpose and need, screening of alternatives, refinement of alternatives, design and aesthetic considerations, traffic, environmental impacts and neighborhood issues. The Subcommittee members represent interests of the public as well as the interests of the following associations/ groups:
 - Citizens At-Large, San Francisco
 - Cow Hollow Association
 - Cow Hollow Neighbors in Action
 - Fort Point & Presidio Historical Association
 - Golden Gate National Recreation Area Advisory Commission
 - Marina Civic Improvement & Property Owners Association
 - Commuters, Marin County

- Marina Neighborhood Association
 - Marina Merchants Association
 - Neighborhood Association for Presidio Planning
 - Planning Association for the Richmond
 - Presidio Residents and Tenants
 - San Francisco Bicycle Coalition
 - San Francisco County Transportation Authority Citizens Advisory Committee
 - San Francisco Planning and Urban Research Association
 - San Francisco Tomorrow
 - Sierra Club
- ▶ *Native American Consultation.* Tribal consultations have occurred in the form of informational mailings, meetings, and several individual interviews. These communications addressed project alternatives, the current state of knowledge about the historic resources in the project area, the status of various reports and planning documents, and Native American involvement in the project.
- ▶ *Project Newsletters.* Two newsletters were published addressing the Doyle Drive Environmental Study and Design project status. The first edition was released in January 2001 and focused on the purpose of the Doyle Drive project and the alternatives being evaluated at the time. The second newsletter, issued in July 2002, discussed the alternatives that were chosen for evaluation in the FEIS/R and the opportunities for public input during the public comment period. Both newsletters were sent to a mailing list of over 1,500 individuals including elected officials, community members, and representatives from county and city agencies.
- ▶ *Project Fact Sheets.* Following the publication of the newsletters, several project fact sheets have been circulated to provide periodic update on project progress. In April 2003 two fact sheets were published, one providing a description of the alternatives currently under consideration and the second describing the transit improvements included in the project. Fact sheets to update the project alternatives under consideration were published in February 2004 and February 2005.
- ▶ *Project Website.* A website is maintained relating to the project and is updated monthly. The URL is: www.doyledrive.org
- ▶ *Community Workshops/Presentations.* The project team has periodically met with small groups of citizens to discuss project issues. When requested, the project team has attended numerous neighborhood association meetings to present Doyle Drive project issues.
- ▶ *Public Hearings.* Two public scoping meetings were held in March 2000 to gather input and comments prior to the development of the DEIS/R. In February 2004 a Public Meeting was held to inform the community about the changes in the alternatives moving forward and to provide an opportunity for public input. In January and February 2006, the project team hosted a series of two public hearings on the DEIS/R. The first hearing occurred on January 18, 2006 and the second was held on February 15, 2006. Both meetings featured similar formats and content and were conducted in accordance with all NEPA and CEQA related requirements. There was a public comment period during which time comments were accepted on the DEIS/R. The formal review period ended on March 31, 2006. A more detailed description of the Public Hearing Process following the release of the DEIS/R is included in Section 5.1 (Preferred Alternative) that outlines the outreach efforts and design refinements that resulted in the selection of the Preferred Alternative.

3.3 Existing Facility

Doyle Drive passes through the Presidio on an elevated concrete viaduct and transitions to a high steel truss viaduct as it approaches the Park Presidio Interchange. The facility is a six-lane undivided highway with nonstandard design elements (see Tables 5.1-2 and 5.1-3), a few include travel lane widths from 2.9 to 3.0 meters (9.5 to 10 feet), no median barrier to separate oncoming traffic, no shoulders for emergency purposes, and exit ramps with tight turning radii. There is a 1.4- to 1.8-meter (4.5- to 6-foot) wide sidewalk on the north edge of the roadway separated from the traffic lanes by a concrete barrier.

There are three San Francisco approach ramps along the existing facility: one beginning at the intersection of Marina Boulevard and Lyon Street; one at the intersection of Richardson Avenue and Lyon Street; and one where Veterans Boulevard merges into Doyle Drive approximately one mile west of the Marina Boulevard approach. The Marina Boulevard and Richardson Avenue approach ramps connect to Doyle Drive. See Attachment B for the general configuration of the existing facility.

Doyle Drive has adequate capacity for current traffic because it is located between two metering points, Golden Gate Bridge Toll Plaza to the west and City streets to the east (Traffic Screening Report, April 2001). The Year 2030 anticipated peak hourly volumes are 5,300 vehicles southbound in the AM and 5,100 vehicles northbound in the PM with a daily volume of 105,000 vehicles and an overall level of service (LOS) of D in the AM peak direction and LOS E in the PM peak direction.

Caltrans does not own the right of way for the existing facility as it crosses federal lands. Rather, Doyle Drive is owned and maintained by Caltrans on a grant of right-of-way by permit from the Federal Government that varies between 18.3 meters wide (60 feet) for aerial structures and 24.4 meters (80 feet) wide for the abutments and at-grade portions of the facility.

There is very little at-grade pavement within the project limits, as most of Doyle Drive is on aerial structures. The existing at-grade sections were resurfaced in 2004 as part of ongoing maintenance work. The wearing surfaces (decks) of all structures within the project limits would be replaced because they have exceeded their service lives and have been determined to be unsuitable for retrofit.

Drainage systems on the two viaducts have also suffered from age and wear. They are subject to frequent blockage, leading to local ponding. Flooding, however, is not a significant problem within the project limits as the longitudinal grade provides adequate drainage.

The majority of the facility's existing structures are in poor condition. Caltrans' Bridge Maintenance Inventory Report indicates a sufficiency rating of 2 (out of 100) for the Presidio (High) Viaduct, 25 for the Marina (Low) Viaduct, 31 for the Ruckman Undercrossing and 84 for the N1-S101 Connector Overcrossing. Both Caltrans and the Federal National Bridge Inventory recommend that the existing structures be replaced. In July 2002, the Caltrans Structure Replacement and Improvement Needs (STRAIN) Report recommended that the high-viaduct be replaced with an urgency factor of 6 years. The STRAIN report also recommended the estimated \$23 million interim rehabilitation of the high-viaduct that involves removing the existing paint system, removing and replacing various steel elements and connection rivets due to sectional loss, and repainting the steel truss spans and the steel approach spans. The rehabilitation began at the beginning of September 2006 and is

anticipated to be completed by the end of November 2009. This project is intended to extend the service life of the high-viaduct by ten years, until the facility is replaced. The findings of studies associated with this Project Report do not preclude the execution of interim remedial action by the State. It must be recognized that the high-viaduct will remain in service throughout the construction of the Doyle Drive Replacement Project regardless of the alternative that is selected. It is estimated that this deteriorated and vulnerable bridge will need to remain in service until 2013. The interim repairs are expected to maintain the current level of safety and do not constitute a retrofit or rehabilitation.

4. NEED AND PURPOSE

4.1 Problem, Deficiencies, and Justification

4.1.1 PROJECT PURPOSE AND OBJECTIVES

The purpose of the proposed project is to improve the seismic, structural, and traffic safety of Doyle Drive within the setting and context of the Presidio of San Francisco and its purpose as a National Park.

Specific objectives of the Doyle Drive Project, as they relate to the project's purpose, are:

- to improve the seismic, structural and traffic safety on Doyle Drive;
- to maintain the functions that the Doyle Drive corridor serves as part of the regional and city transportation network;
- to improve the functionality of Doyle Drive as an approach to the Golden Gate Bridge;
- to preserve the natural, cultural, scenic and recreational values of affected portions of the Presidio;
- to be consistent with the San Francisco General Plan and the General Management Plan Amendment Final Environmental Impact Statement, Presidio of San Francisco, Golden Gate National Recreation Area (NPS 1994a and 1994b) for Area A of the Presidio and the Presidio Trust Management Plan: Land Use Policies for Area B of the Presidio of San Francisco (Presidio Trust 2002);
- to minimize the effects of noise and other pollution from the Doyle Drive corridor on natural and recreational areas at Crissy Field and other areas adjacent to the project;
- to minimize the traffic impacts of Doyle Drive on the Presidio and local roadways;
- to improve intermodal and vehicular access to the Presidio; and
- to redesign the Doyle Drive corridor using the parkway concept described within the Doyle Drive Intermodal Study (1996).

4.1.2 NEED FOR PROJECT

Doyle Drive was built in 1936 and it is approaching the end of its useful life. In the short-term, regular maintenance, seismic retrofit, and rehabilitation activities are keeping the structure safe. However, in the long-term, permanent improvements are needed to bring Doyle Drive up to current design and safety standards.

Structural Degradation

The Doyle Drive roadway contains two viaduct sections. In 1995, the low-viaduct was retrofitted to withstand a probabilistic earthquake assuming that Doyle Drive would be replaced within a ten-year period. The substructure (foundations and the main trusses) of the high-viaduct was retrofitted for a maximum credible earthquake. However, neither of these retrofits addressed the bridge decks. The long-term effects of heavy traffic and exposure to salt air have caused Doyle Drive's structure to deteriorate. In the early 1990s, the concrete decks were sealed and coated with corrosion inhibiting polymer. These measures slowed the rate of corrosion and concrete deterioration and added up to ten years to the service life of the viaduct bridge decks; however, the decks now need to be replaced because they have deteriorated and are near the end of their useful life span.

The corrosion prevention and seismic stabilization measures provided short-term solutions to the deck degradation and seismic vulnerability issues; however, they do not bring the roadway up to current design and safety standards. The lifecycle lifespan of Doyle Drive was not ultimately prolonged by these measures, which only delayed the roadway's replacement. In the interim, the high-viaduct will increasingly become a financial burden because Caltrans will need to perform more frequent routine maintenance and monitoring to ensure its safety. As described in Section 3.3, Existing Facility, Caltrans has programmed an estimated \$23 million interim rehabilitation of the high-viaduct at the beginning of September 2006 and is anticipated to be completed by the end of November 2009. Should structural degradation lead to Doyle Drive closures or accessibility restrictions, the consequences to the regional transportation network would be dramatic.

Location in a Liquefaction Zone

The eastern half of the Doyle Drive alignment, which includes the low-viaduct section and Tennessee Hollow watershed, is within a potential liquefaction zone. Soils in this area, occurring at shallow depths not exceeding 10 meters (33 feet), include very loose, well-sorted sands and silts. There is also evidence of potentially liquefiable saturated soils at the location of the high-viaduct.

Liquefaction due to ground shaking during a strong earthquake could cause soils to subside rapidly and unevenly. Heavy structures, such as the low- or high-viaducts, could subsequently collapse or be heavily damaged due to this subsidence and a loss of lateral support of the foundation elements.

Nonstandard Design Elements

The existing roadway has many nonstandard design elements (see Tables 5.1-2 and 5.1-3). Existing lane widths range between 2.9 and 3.0 meters (9.5 and 10 feet) compared to the current standard of 3.6-meter (12-foot) wide lanes.

The existing roadway does not include shoulders which results in the inability to clear disabled vehicles that can contribute to a high level of congestion during incidents. Current design standards call for 3.0-meter (10-foot) wide shoulders on either side of the roadway. The provision of shoulders on Doyle Drive would provide space to help relieve incident

related congestion by moving disabled vehicles out of the travel lanes and on to the shoulder.

The lack of a median barrier on the existing roadway increases the likelihood that a serious head-on collision will occur. The current design standard would eliminate the possibility of a head-on collision by providing a landscaped median with a metal beam guardrail or a concrete barrier.

The tight turning radii of the Park Presidio Interchange ramps cause vehicles to brake abruptly to exit the roadway. This, in turn, causes traffic to slow down, which contributes to increased congestion on Doyle Drive. Weaving in this area also contributes to increased congestion. In addition, the deceleration lengths of the exit ramps are insufficient, not providing vehicles with appropriate length to decelerate prior to the exit.

Vehicular Access into the Presidio

Vehicular access to the Presidio is available from Doyle Drive via the off-ramp to Merchant Road at the Golden Gate Bridge Toll Plaza. Presidio access at the east end of the project will be provided for southbound traffic via a right turn from Richardson Avenue to Gorgas Avenue. Presidio access for northbound traffic is provided by a slip ramp from Richardson Avenue to Gorgas Avenue. This slip ramp for the Letterman complex will only be in use until the Doyle Drive project is implemented. As part of this proposed project, this access point will be eliminated once access to the Presidio is provided via Doyle Drive. It should be noted that the Preferred Alternative and Alternative 5 are the only alternative that will provide access to the Presidio from westbound Richardson Avenue.

Traditionally, the lack of direct access into the Presidio has forced Doyle Drive traffic to detour through city neighborhoods adjacent to the Presidio gates. Use of the Presidio is expected to increase dramatically over the next twenty years, therefore without proper access to the Presidio, increased traffic will negatively affect the surrounding neighborhoods.

The *Doyle Drive Intermodal Study* stated that direct access to the Presidio from Doyle Drive is a key feature of the current replacement strategy. The study also notes that a new Doyle Drive should greatly enhance multi-modal access choices into the Presidio, including improved transit service and connections, and enhanced pedestrian and bicycle facilities.

4.2 Regional and System Planning

4.2.1 IDENTIFY SYSTEMS

Since 1991, Doyle Drive has been designated as Route 101 (formerly Route 480), and is included in the National Highway System as a Non-Interstate STRAHNET Route. Route 101 is part of the State Highway System and is classified as a High Emphasis Route.

4.2.2 STATE PLANNING

The Route Concept Report (RCR) dated September 1986 for Doyle Drive indicates a need for a six-lane facility with auxiliary lanes in each direction as well as a median barrier between opposing lanes. The proposed project consists of a six-lane facility with an auxiliary lane in the southbound direction and a median barrier and is consistent with the RCR.

Caltrans completed a PSR in 1993 for the replacement of Doyle Drive. The PSR considered the recommendations of the Doyle Drive Task Force and presented three replacement

alternatives (two six-lane and one seven-lane scenarios). The Task Force recommended concept was one of the alternatives evaluated in the PSR. As is standard in a project study report, a preferred alternative was not identified, pending the completion of the NEPA and CEQA environmental process.

The 1998 Interregional Transportation Strategic Plan (ITSP) designates Route 101 as a Focus Route, a term that is phrase-specific to the ITSP and one that specifies a route that should be of the highest priority of completion to minimum facility standards in the 20-year period. Focus Routes serve as a system of high volume primary arteries to which lower volume and facility standard state highway routes can connect for purposes of longer interregional trips and access into statewide gateways. In addition, all Focus Routes are on the National Highway System. A four to ten-lane freeway for Route 101 through the San Francisco Bay Area to Cloverdale is recommended by this plan.

In 2006, Governor Arnold Schwarzenegger's Strategic Growth Plan (SGP) calls for an infrastructure improvement program that includes a major transportation component (Go California). 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 Transportation Corridor Concept Report (TCCR) is a long range Caltrans planning document that establishes a planning concept for a state highway through the year 2030. The TCCR specifies existing mass transit, the local arterial road system, and the deployment of Intellectual Transportation System (ITS) as integral to corridor concept development. The TCCR which replaced the earlier RCR identifies an interim concept as a six-lane freeway with an additional reversible High Occupancy Vehicle two-lane facility. The Corridor Plan (an update of the earlier TCCR) for Route 101 is currently under development. An anticipated completion date is within three years.

4.2.3 REGIONAL PLANNING

The Metropolitan Transportation Commission (MTC) functions as both the regional transportation planning agency, a state designation, and as the region's metropolitan planning organization (MPO), for federal purposes. State and federal laws have given the MTC an important role in financing transportation improvements in the nine-county San Francisco Bay Area. The MTC is responsible for adopting and updating the Bay Area's Regional Transportation Plan (RTP). The current plan, known as Transportation 2030, was adopted by the MTC on February 23, 2005. The RTP describes the strategies and investments required to maintain, manage, and improve the transportation network within the Bay Area. The RTP is now updated every four years. On July 23, 2008, the MTC approved the investment program for the financially constrained element of Transportation 2035. As described in Section 8, Programming, the Doyle Drive Project is included in the RTP as a Financially Constrained Element with programmed local, state, and federal funds available over the long term of the Transportation 2030 Plan as well as the draft Transportation 2035 Plan which was released on December 17, 2008 for public review. The draft Transportation 2035 Plan contains two separate entries for the Project:

- 98102 – Reconstruct the South Access to the Golden Gate Bridge: Doyle Drive (environmental study)

- 94089 – Reconstruct the South Access to the Golden Gate Bridge, from Doyle Drive to Broderick Street (design and construction phases)

There is currently \$25.6 million in committed funding for 98102 and \$605.4 million for 94089. Since the release of the draft Transportation 2035 Plan, the MTC and GGBHTD have each committed an additional \$80 million each bringing the total committed funding to \$791 million. The draft Transportation 2035 Plan is expected to be adopted in March 2009 and a letter from MTC regarding the Projects consistency with the 2009 RTP can be found in Attachment S.

Every two years the MTC prepares and adopts a *Regional Transportation Improvement Program* (RTIP). Developed in cooperation with County Congestion Management Agencies (CMA) and Caltrans, the 2008 RTIP includes programming for projects on and off the state highway system over a five-year period (e.g., Fiscal Year 2008/09 through Fiscal Year 2012/13). The final 2008 RTIP was adopted by MTC on January 23, 2008, and subsequently was approved by the California Transportation Commission on May 29, 2008 as part of the 2008 *State Transportation Improvement Program* (STIP). The Doyle Drive Project is included in the 2008 RTIP and STIP. Under the current schedule the Project will be completed and operational by 2015.

The 1990 Clear Air Act Amendments will not allow the MTC to approve any transportation plan, program, or project unless these activities conform to the purpose of the federal air quality plan, known as State Implementation Plans. The MTC conducted an air quality conformity analysis of the RTP and RTIP. This evaluation is a determination of whether transportation activities will produce new air quality violations or delay timely attainment of national ambient air quality standards. The analysis found the plans to be in conformance.

4.2.4 LOCAL PLANNING

Described below are local planning efforts near the proposed project. These efforts all consider the need for rebuilding Doyle Drive.

The Final Presidio General Management Plan (GMPA), developed and adopted by NPS through a four-year public input process, is the primary planning document for the Presidio. The GMPA presents a vision of the Presidio as a community of public and private organizations “devoted to stimulating understanding of and action on the world’s most critical social, cultural, and environmental challenges” (GMPA). The Presidio stresses protection of the cultural, natural, scenic, and recreational resources of the Presidio, development of environmentally sustainable strategies, and minimization of the need for use of private vehicles. Under the GMPA, the NPS would be responsible for overall management of the Presidio. However, in 1998, the management of non-coastal areas (Area B) was transferred to the newly created federal agency, the Presidio Trust.

In July 1994, NPS published the GMPA, which highlighted the following five main objectives for Doyle Drive safety improvements:

- Redesign the Doyle Drive corridor as a parkway rather than a freeway (see Preferred Alternative – Refined Presidio Parkway in Section 1.1.3, Project Alternatives);
- Respect the Presidio’s status as a national historic district in redesign options;
- Minimize the effects of noise and other pollution from the parkway on natural areas and recreational facilities at Crissy Field and other areas adjacent to the Presidio;
- Improve the Presidio entrance and circulation features as part of the Doyle Drive redesign;
- Maintain the functions that the Doyle Drive corridor serves as part of the regional and City transportation network.

In 1994, the Authority initiated the Doyle Drive Intermodal Study, which was funded by a Caltrans State Planning and Research Grant in order “to further the development and ultimate implementation of a realistic and fundable replacement for Doyle Drive” (Doyle Drive Intermodal Study).

In 1996, the Authority approved the Doyle Drive Intermodal Study. This document supported the Doyle Drive Task Force and the GMPA recommendations to design the Doyle Drive replacement as a “parkway” and further defined the parkway design. It also emphasized making multi-modal and direct vehicular access into and out of the Presidio a central feature of the replacement design elements. Other important elements included the addition of a transit center and incorporation of Transportation Systems Management (TSM) and Intelligent Transportation Systems (ITS) technology, such as roadway surveillance cameras and real-time transit information kiosks.

The Trust, in the Final Environmental Impact Statement and Planning Guidelines for New Development and Uses on 23 Acres within the Letterman Complex, approved new low- to mid-rise mixed-use buildings totaling approximately 83,613 square meters (900,000 square feet) within a 9-hectare (23-acre) site on the 24-hectare (60-acre) Letterman Complex in the northeast corner of the Presidio. The new development would necessitate the demolition of the functionally obsolete 41,899-square meter (451,000-square foot) Letterman Army Medical Center (LAMC), the 33,073-square meter (356,000-square foot) Letterman Army Institute of Research (LAIR), and several other non-historic structures that currently exist on the site. The redevelopment would modify existing access along Richardson Avenue and potentially affect traffic volumes within the Doyle Drive Project study area.

In July 2000, the Trust initiated a public process known as the Presidio Trust Implementation Plan (PTIP) to update the GMPA. After a six-month scoping period of liaising and collecting comments from the general public that ended in January 2001, the Draft Presidio Trust Implementation Plan (PTIP) and Draft Environmental Impact Statement (DEIS) were published in July 2001. A comment period followed that ended in October 2001.

After the acceptance of the PTIP, the next step was an update of the policy framework that balances and conforms the concepts and principles of the GMPA with the superseding statutory requirements and mandates of the Presidio Trust Act (16 U.S.C. § 460bb). This update took the form of the Presidio Trust Management Plan: Land Use Policies for Area B of the Presidio of San Francisco (PTMP) which succeeds the GMPA as it applies to Area B, the jurisdiction under The Presidio Trust. Building on the elements of the GMPA, the PTMP is

concerned with improving open space, maintaining compact development patterns and reuse of historic buildings, increasing the diversity of the housing supply, allocating building space for educational and cultural activities, and supporting sustainable transportation and infrastructure systems in Area B. The PTMP was adopted by the Trust in August 2002.

The Trust identified the Lucas film's Letterman Digital Arts Center (LDAC) to implement the preferred alternative land use for the 9-hectare (23-acre) site within the Letterman Complex. Deconstruction of the LAMC and LAIR began early December 2001 and the LDAC opened in the summer of 2005.

In July 2004, the Authority approved the Countywide Transportation Plan (CTP). The CTP is the City and County of San Francisco's blueprint to guide transportation system development and investment over the next thirty years. This project is consistent with that plan.

4.2.5 TRANSIT OPERATOR PLANNING

An environmentally responsible transportation strategy to increase travel options and decrease private automobile use within the Park Presidio was one of the GMPA park-wide concepts. It is especially important since the projected number of park users would increase from the current 3.5 million to about 8.4 million annual visits in 2010. The Trust implemented the PresidiGo shuttle service to move residents, employees, and visitors throughout the Presidio.

Current transit services serving the Presidio include the San Francisco Municipal Railway (MUNI), Golden Gate Transit (GGT), and the PresidiGo Shuttle (Shuttle). These connect to other regional public transport such as the Bay Area Rapid Transit (BART), Alameda County Transit (AC Transit), Caltrain, San Mateo County Transit (SamTrans), and the ferry system.

The PTMP was used in the San Francisco Countywide Travel Demand Model to ensure adequacy of future projects. The Draft PTMP estimates that by year 2030, there would be additional residents living and working in the park. Fifteen percent of the external workers are expected to arrive by transit. In order to meet this target, significant improvements in both the structure of the transit stops, as well as the number and location of the route structures could be needed. However, no route or frequency changes were included in this project as separate environmental and approval processes would be conducted by the appropriate transit provider.

The activity at local transit stops affects the attractiveness of the Doyle Drive options to transit riders. There are no specific design standards for stop activity. However, consultation with the transit agencies provided recommended sizes and locations for the bus stops in the project. Sufficient bus bay length is needed to accommodate the anticipated number of buses loading and unloading without obstructing traffic or prolonging waiting time for other buses to stop.

A transit transfer hub on Richardson Avenue at Lyon Street would be consistent with the GMPA and PTMP transportation strategies and could encourage the use of transit to, from, and within the Presidio.

4.3 Traffic

4.3.1 CURRENT AND FORECASTED TRAFFIC

The traffic analysis (final report approved by Caltrans December, 2004) quantitatively measured the effect of each alternative on both traffic intersections and roadway segments for the Base Year 2000 and the Year 2030 future conditions.

Traffic data for the base year of 2000 was obtained through a variety of sources. These included traffic volume counts, travel speed/delay runs, and transit stop surveys conducted in May 2000; data from the *Draft Presidio Trust Implementation Plan Environmental Impact Statement – “Background Transportation Report”*; earlier surveys obtained for the development of the San Francisco Travel Demand Model (SF-TDM); and southbound Golden Gate Bridge data. Golden Gate Transit and MUNI supplied their transit route data. Economic conditions and employment destinations have resulted in variations in traffic volumes in the project study area since the initial data was collected in 2000. Since that time, regularly assembled data at the Golden Gate Bridge have suggested that both daily and highest hourly traffic volumes have actually decreased for the same time periods between 2000 and 2003. The decrease seems to primarily be a result of economic conditions, as no major decrease occurred with the 2002 toll increase. A traffic analysis based on the higher Year 2000 volumes represents a more conservative approach, as a key aspect of this study is to evaluate how alternatives would accommodate future traffic.

The defined design year of a traffic project is generally targeted at 20 years of completion of the project. As the current construction plan estimates completion in 2013, the project design year would be defined as 2033. The Association of Bay Area Governments (ABAG) prepares bi-annual population projections. The last adopted update to these at the commencement of the revised Doyle project is Projections 2002. The most distant horizon year for Projections 2002 is 2025. Thus, a projection of the design year to an assumed 2030 condition was developed by extending the growth from 2020 to 2025 an additional five years.

Another set of available forecasts are available from the State of California Department of Finance. Unlike the Association of Bay Area Governments, these forecasts are for population only. Because the population and employment are not projected to increase according to any government agency between 2030 and 2035, the 2030 design year forecasts were assumed to be most appropriate using the design year methodology described below.

Data used for this analysis included intersection turning movement counts, link counts, speed/delay runs, and transit stop surveys conducted in May 2000; the *Draft Presidio Trust Implementation Plan Environmental Impact Statement – “Background Transportation Report”*; earlier surveys obtained for the development of the SF-TDM; and Golden Gate Bridge Data. For a limited number of minor segments and intersections where no current counts were available, the volumes were obtained from the SF-TDM.

To develop Year 2030 conditions, the SF-TDM incorporated the “Projections 2000” series of demographic assumptions for the region, including out-of-county trips produced by the MTC for the *2001 Regional Transportation Plan*, and the *Draft Presidio Trust Implementation Plan* proposed improvements and projects. These assumptions provide a cumulative analysis that incorporates other land use growth and local transportation projects within San Francisco and the surrounding regions.

The highest weekday traffic volumes observed during the AM peak period is between 6:00AM and 9:00AM and during the PM peak period, is between 3:30PM and 6:30PM. The highest weekend traffic volumes observed on a Saturday is also between 3:30PM and 6:30PM. For traffic operational analyses, these peak periods were converted to peak hour. The peak period to peak hour conversion factor used is:

- AM Peak Hour is 38% of the AM Peak Period for all roads except the Golden Gate Bridge;
- AM Peak Hour is 35% for the Golden Gate Bridge; and
- PM Peak Hour is 35% of the PM Peak Period.

Derivation of these conversion factors are based on traffic counts collected on the Golden Gate Bridge, Marina Boulevard, and Richardson Avenue during the morning, midday and evening periods. Table 4.3-1 presents Year 2000 and Year 2030 average daily traffic volumes for the Doyle Drive corridor.

Attachment F, Traffic Flow Diagrams, indicate Base Year and Design Year movements and patterns for the existing Doyle Drive as well as for the Preferred Alternative.

4.3.2 ACCIDENT RATES

Accident data for the three year period from 2003 to 2006 for the Doyle Drive mainline and ramps connecting to Doyle Drive are summarized in Tables 4.3-2. Actual (recorded within the study section limits) and average (recorded for similar transportation facilities statewide) accident rates were obtained from Caltrans' Traffic Accident Surveillance and Analysis System (TASAS). TASAS values are expressed in terms of accidents per million vehicle miles (MVM).

The actual accident rates for northbound traffic, southbound traffic and the approach to the Golden Gate Bridge Toll Plaza on Doyle Drive were all below statewide average accident rates. Actual accident rates on most of the ramp connections were also below the statewide average accident rates. The northbound off-ramp to Route 1 and the southbound on-ramp from northbound Route 1 experienced accident rates above the state average.

Within the Doyle Drive corridor, the prevalent accident types were Sideswipe (30.8%) and Rear End (47.4%). The next highest category was Hit Object (13.7%). These types of accidents are typical of driver error in congested traffic. Median barriers, wider lanes, shoulders, and more standard design elements would improve safety. A median barrier would prevent head-on collisions; wider lanes would alleviate sideswipes, and shoulders would allow disabled vehicles to pull off the traveled way, reducing the need for other drivers to swerve around them. Improvements to the geometry of the ramps, especially the northbound Doyle Drive to southbound Veterans Boulevard connector, would provide smoother transitions for vehicles entering and exiting the roadways, resulting in improved traffic safety. The goal of the project is to implement these safety improvements in a way that has the least impact on the Presidio's natural and cultural resources.

Attachment G contains a summary of accident types and collision factors for Doyle Drive for the years 2003 to 2006.

Table 4.3-1 Base Year and Design Year Traffic Volumes

No.	Location	Direction	Base Year	Alternatives ¹					
				Design Year					
				1 No Build	2 Replace and Widen	5a Presidio Parkway Diamond	5b Presidio Parkway Circle	Preferred Alternative: Refined Presidio Parkway	
1	US 101 from Merchant Road ramps to Veterans Blvd.	SB	63,000	81,000	83,000	83,000	80,200		
			6,150	6,414	5,572	5,572	6,540	5,206	
2	US 101 from Veterans Boulevard to Merchant Road ramps.	NB	60,000	78,000	80,000	79,000	78,900		
			2,994	5,013	6,431	6,448	5,092	6,355	
3	US 101 from Veterans Boulevard to Marina Blvd. access ramps.	SB	53,000	60,000	60,000	59,000	57,100		
			5,203	4,996	3,752	3,752	4,888	3,493	
4	US 101 from Marina Blvd. access ramps to Veterans Boulevard	NB	46,000	54,000	55,000	54,000	53,600		
			2,049	2,979	4,902	4,924	2,948	4,793	
5	Richardson Ave. from Marina Blvd. access ramps to Lyon St.	SB	37,000	41,000	39,000	40,000	35,900		
			3,717	3,320	3,053	3,063	2,986	2,272	
6	Richardson Ave. from Lyon St. to Marina Blvd. access ramps.	NB	30,000	36,000	43,000	41,000	36,200		
			1,443	2,208	2,743	2,636	2,143	3,296	

Legend:

ADTV	ADTV: Average Daily Traffic Volumes (vehicles)
AM Peak	AM Peak: AM Peak Hour Volumes (vehicles)
PM Peak	PM Peak: PM Peak Hour Volumes (vehicles)

Source: DKS Associates, December 2004

Note: ¹The alternatives are grouped for traffic and circulation analysis purposes due to the similarity of impacts on their traffic circulation and demand.

Table 4.3-1 Base Year and Design Year Traffic Volumes

No.	Location	Direction	Base Year	Alternatives ¹							
				Design Year							
				1 No Build	2 Replace and Widen	5a Presidio Parkway Diamond	5b Presidio Parkway Circle	Preferred Alternative: Refined Presidio Parkway			
7	Marina Blvd. from Doyle Drive merger to Lyon St.	EB	16,000	18,000	19,000	18,000	14,000	15,500			
			1,486	873	1,656	1,047	1,676	1,178	1,271	887	1,203
8	Marina Blvd. from Lyon St. to Doyle Drive merger.	WB	17,000	19,000	18,000	13,000	10,000	14,600			
			606	1,820	806	3,970	770	196	1,233	1,276	196
9	Veterans Boulevard from US 101 ramps to Veterans Boulevard tunnel (near Lake St.)	SB	32,000	37,000	38,000	39,000	39,000	38,400			
			2,380	2,251	2,480	2,935	2,485	2,592	3,080	3,094	2,592
10	Veterans Boulevard from (Lake St.) to US 101 ramps.	NB	35,000	41,000	41,000	40,000	40,000	40,600			
			2,379	2,768	3,092	2,864	3,101	3,072	2,790	2,792	3,072
11	US 101 between Veterans Boulevard on-and-off-ramps.	SB	41,000	50,000	51,000	51,000	51,000	48,600			
			4,217	1,884	4,345	2,929	4,314	4,295	3,163	3,190	4,295
12	US 101 between Veterans Boulevard off- and on-ramps.	NB	36,000	46,000	46,000	48,000	47,000	46,800			
			1,601	3,605	2,564	4,016	2,593	4,068	2,641	4,252	2,617

Legend:

ADTV	ADTV: Average Daily Traffic Volumes (vehicles)
AM Peak	AM Peak: AM Peak Hour Volumes (vehicles)
PM Peak	PM Peak: PM Peak Hour Volumes (vehicles)

Source: DKS Associates, December 2004

Note: ¹The alternatives are grouped for traffic and circulation analysis purposes due to the similarity of impacts on their traffic circulation and demand.

Table 4.3-2 Doyle Drive Accident Data

Highway Location	Accidents			Accident Rate	
	Total	Fatalities	Injuries	Actual (MVMT)	Average (MVMT)
NB Doyle Drive: PM 8.052-9.39 (From beginning / end of Richardson Ave. ramps to Presidio Interchange)	42	1	9	0.71	2.54
SB Doyle Drive: PM 8.052-9.39 (From beginning / end of Richardson Ave. ramps to Presidio Interchange)	28	0	8	0.53	2.34
NB/SB Doyle: Drive PM 9.40-9.75 (Combined from Presidio Interchange to PM 9.75, 500 feet east of the Golden Gate Toll Plaza)	98	0	18	1.75	1.95

Ramp Location	Accidents			Accident Rate	
	Total	Fatalities	Injuries	Actual (MVMT)	Average (MVMT)
NB Doyle Drive / SB Highway 1 US 101 PM 9.42	8	0	1	0.87	0.60
SB Doyle Drive / SB Highway 1 US 101 PM 9.46	3	0	2	0.12	0.45
NB Highway 1 / NB Doyle Drive US 101 PM 9.611	4	0	1	0.14	0.55
NB Highway 1 / SB Doyle Drive US 101-9.35	6	0	3	0.66	0.40
Doyle Drive to / from Marina Blvd. US 101 PM 8.440	4	0	2	0.15	0.70

Source: TASAS Table B Selective Accident Rate Calculation Request Activity Report. 01APR2003 to 31MAR2006

SB = Southbound
 NB = Northbound
 MVMT = Million Vehicle Miles Traveled
 PM = Post Mile

5. ALTERNATIVES

Based on the screening results, refinements, and additional information gathered as described below, three alternatives were initially recommended for further study. These alternatives were feasible, addressed the purpose and need of the project, and were reasonable to carry forward for further analysis. The numbering of the alternatives does not reflect any priority for selection or implementation. See Attachment B for a condensed plan and profile of each alternative.

5.1 Identification of the Preferred Alternative

Following release of the DEIS/R in December 2005, individuals and agency staff provided almost eight hundred comments regarding the environmental analysis and project alternatives. Based on these comments and agency/public workshops, it was determined that Alternative 5: Presidio Parkway would best meet the purpose and need of this Doyle Drive Project, if certain modifications to the proposed design were made.

5.1.1 OUTREACH ACTIVITIES

The release of the DEIS/R, selection of the Preferred Alternative and preparation of the FEIS/R have included consultation and coordination with federal, state, and local agencies, and with elected officials, community leaders, organizations and other individuals from neighborhoods and communities within the project area. Outreach efforts have included public hearings, design and sustainability workshops, neighborhood outreach meetings, agency and subcommittee coordination, a public website and printed informational materials.

DEIS/R Public Release and Distribution

The DEIS/R was published in the *Federal Register* and officially released for public review on December 30, 2005. The formal review period ended on March 31, 2006. The DEIS/R was distributed to elected officials, key agencies, community groups and interested citizens. The package mailed with the DEIS/R contained companion materials, including CD's of the technical studies and a *Citizens' Guide to the Environmental Document*.

Copies of the DEIS/R and companion materials were made available to the general public through multiple sources, including local libraries, the project website, and upon request through the website, the project email address, or by calling the Authority.

Citizens' Guide to the Environmental Document

The *Citizens' Guide* is a booklet that summarizes the content of the DEIS/R. The *Citizens' Guide* was developed to provide an overview of the proposed Doyle Drive Project, the alternatives being considered, and key environmental factors that would result from the construction and long-term operation of the project. The guide was included in the DEIS/R packet and was distributed at stakeholder meetings and outreach events.

Public Hearings on the DEIS/R

In January and February 2006, the project team hosted two public hearings on the DEIS/R. The first hearing occurred on January 18, 2006, at 6:00 PM in the California State Building Auditorium. The second hearing was held on February 15, 2006, at 6:00 PM at the Golden Gate Club in the Presidio. Both meetings featured similar formats and content.

The public hearings were formatted as a combination open house and public hearing. The public open house occurred from 6:00 PM to 7:00 PM, during which time attendees could

circulate among exhibit stations and talk to members of the project team. At 7:00 PM, the event shifted into a formal public hearing, which was recorded by a court reporter. A project overview was presented by members of the project team. After the presentation, hearing attendees offered formal comments on the DEIS/R. A panel of key members of the project team was present to respond to comments, as appropriate.

Design Workshops

The project team conducted multiple design workshops to seek input on different elements of the project and to develop appropriate design refinements. Two workshops focused primarily on avoiding and minimizing impacts to cultural resources. Two additional workshops focused on the overall project design, with an emphasis on traffic calming and refinements to Presidio access. A final workshop focused on project refinements to reduce impacts on biological resources and wildlife. These workshops assisted in identifying design refinements to address concerns of interested agencies, organizations, and residents

Sustainability Workshops

As a result of public input, the project team conducted three sustainability workshops to develop concepts for a sustainability program for the Doyle Drive Project. The first workshop focused on generating input for on the development of a vision statement, guiding principles and goals/objectives for the sustainability program. The second workshop was held to develop evaluation criteria and the final workshop identified sustainable strategies for implementation of the sustainability program. The workshops were publicized to the Agency Working Group, Subcommittee and posted at the Authority for the general public.

Citizens' Subcommittee

In June and July 2006, two meetings were held to update Subcommittee members about comments received on the DEIS/R, provide an overview of the status of the alternatives, and for the subcommittee to make a recommendation on the Preferred Alternative.

5.1.2 PUBLIC AND AGENCY COMMENTS

During the formal comment period of the DEIS/R, a total of 808 comments were received from the public. A total of 358 of these comments addressed the project alternatives, while 100 focused on traffic issues. The major categories on which the public and agencies commented included:

- Biological resources;
- Noise;
- Air quality;
- Traffic;
- Stormwater;
- Cultural resources; and
- Selection of the Preferred Alternative.

A summary of the public and agency comments on the design features of the alternatives can be found in Table 5.1-1.

Issues that the public stated were ongoing and that needed resolution included:

- Treatment of roadway surface water runoff and proposed connection to SFPUC system;
- Continuing concerns regarding shading and coordination with marsh restoration;
- Agreement on right of way interests with the Presidio Trust; and
- Identification of cultural mitigation through the MOA and the assessment of any additional impacts of the mitigation measures.

Since the end of the formal comment period on March 31, 2006, additional input was received at project workshops and through other media. Some of the issues commented on during this time included:

- Clarification of the connection to Marina Boulevard;
- Continued concerns regarding potential new traffic patterns;
- Configuration of the southbound exit ramp to Girard Road; and
- Recommendations for the preservation of historic resources.

**Table 5.1-1
Summary of Public Comments on Project Alternatives**

Issue/Option	For (Against)				
	Trust	GGNRA	GGBHTD	Groups	Citizen
Alternative 1			(1)	(1)	2 (1)
Alternative 2				1	18
Detour	(1)			(1)	1 (1)
Alternative 5	1	1		19 (1)	35 (5)
Merchant Road Slip Ramp	(1)	(1)	1	(6)	2 (6)
Hook Ramp	1	1		5 (1)	6
Loop Ramp				(1)	1
Existing Configuration					
Circle Drive				8	6 (16)
Diamond	1	1		3	7
General Concerns					
Construction Schedule	1		1	1	
Transit Improvement			1	1	1
Revise Alt 1 for Weight Restrictions			1		
Save Pool- Open During Construction		1		1	52
Bike Access Needed				2	4
2 Lanes WB from Marina				2	4
Lyon Connection				4	2
Trapped in Tunnels					5
Shorten Tunnels				2	1
Need for Reduce Shading				2	
Against Future Additional Lanes				2	2
Intelligent Transportation Systems				2	1
Fugitive Light				2	
Alternative 5/2 Hybrid					2

5.1.3 DEVELOPMENT OF THE PREFERRED ALTERNATIVE

In response to the comments received on the DEIS/R, and to address the communities' and agencies' concerns regarding traffic circulation, tidal inundation, and parking issues, the following refinements were made to the Presidio Parkway Alternative:

Traffic Circulation

- By redesigning the Richardson connection as ramps connecting to an urban street, rather than mainline segments, the traffic balance between Richardson Avenue and Marina Boulevard is more closely matched to the existing traffic patterns and street network.
- In response to the plans by the San Francisco Department of Recreation and Parks (SFDRP) for the rehabilitation of the Palace of Fine Arts and surrounding grounds, the refined alternative maintains Palace Drive as a two-way road and accommodates the proposed modifications planned by SFDRP at north and south ends where Palace Drive connects to Lyon Street. Based on comments from the Lyon Street residents, the Refined Presidio Parkway Alternative will also maintain Lyon Street as a two-way street with a connection to Bay Street.
- To enhance pedestrian safety and accessibility the proposed design would provide pedestrian access from the Gorgas warehouses to the Palace of Fine Arts and from the Palace of Fine Arts to the Mason Street warehouses.
- The Hook Ramp Option at the Park Presidio Interchange was modified to reuse portions of the existing ramps to reduce impacts to resources while achieving similar improvements to traffic safety.
- To eliminate potential cut-through traffic on Lyon Street the access between Gorgas Avenue and Lyon Street has been eliminated.

Tidal Inundation

The proposed facility may be subject to coastal events such as storm surge and tsunamis. In order to meet serviceability design criteria the profile needed to be raised so the proposed structures would clear the 100-year tsunami elevation of 3.4 meters North American Vertical Datum 1988 (NAVD88). To accommodate the revised mainline profile, the profile of Halleck Street would have to be raised by an additional 0.8 meters (2.6 feet) at the north face of Building 228, with the crest of Halleck Street at an elevation of ten meters (32.8 feet), similar to the previous alternative.

Parking

The refinements to the alternative also include a parking concept that maintains a similar parking supply to the existing condition. The main features are:

- Elimination of underground parking below Doyle Drive;
- Redesign parking west of Palace Drive and south of Mason Street warehouses as surface parking rather than underground parking;
- Modification to Palace Drive to provide perpendicular parking on both sides of a two-way Palace Drive;
- Provide surface parking behind the Gorgas warehouses; and
- Provide on-street parking along Gorgas Avenue.

Other Design Modifications

In order to simplify construction, a portion of the alignment west of the Battery tunnels was adjusted to accommodate single stage construction of each tunnel structure. These modifications were developed through a collaborative process with community members, local and resource agencies, and project team members.

5.1.4 IDENTIFICATION OF THE PREFERRED ALTERNATIVE

Following refinement of the Presidio Parkway Alternative, the project team and agencies performed a thorough evaluation of the build alternatives in relation to the project's purpose and need, and their ability to meet the objectives identified by the project team, including officials with jurisdiction over the *Section 4(f)* properties.

As part of the evaluation process, the project specific objectives, as described in Section 4.1.1 of this Project Report, were broken down into 18 evaluation criteria to assist in the more detailed screening and selection process. The criteria were selected to evaluate how well each of the alternatives satisfied the project purpose and other factors. The evaluation criteria listed below relate to the preservation of the natural, cultural and recreational resources in the project area.

- Improve the seismic, structural and traffic safety;
- Maintain the transportation network and improve the approach to the Golden Gate Bridge;
- Preserve the natural, cultural, scenic and recreational values;
- Consistent with land use plans;
- Minimize the effects of noise and air quality on the natural and recreational areas;
- Improve intermodal and vehicular access to the Presidio; and
- Redesign the corridor as a parkway.

The alternatives were evaluated as to how well they satisfied the various criteria. The Doyle Drive Subcommittee to the Citizens' Advisory Committee (CAC), the Doyle Drive Executive Committee comprised of lead, cooperating and responsible agencies and the Authority CAC all held meetings in July 2006 to consider recommendations for a preferred alternative and design options. All three groups made identical recommendations for selection of the Presidio Parkway and design options. The recommendations were: Alternative 5, Presidio Parkway, with specific design elements including the modified Hook Ramp Option for the Presidio Parkway Interchange and the Diamond Option for Presidio Access. The groups did not support including the Merchant Road Slip Ramp Option. In addition, the subcommittee voted to support three design refinements; 1) move Girard Intersection south, 2) restrict Lyon Street connection for the Presidio and 3) Reserve additional right-of-way for the connection from Marina Boulevard to Doyle Drive.

These recommendations for a preferred alternative were presented to the decision makers for a formal determination. In addition, the Authority received letters of strong support to identify the Presidio Parkway Alternative as the Preferred Alternative from the Presidio Trust (March 31, 2006) and the National Park Service (NPS) Golden Gate National Recreation Area (March 31, 2006).

The evaluation process clearly demonstrated that the Refined Presidio Parkway Alternative had the smallest net impact when the balance of benefits and impacts was considered – it had the best ability to meet the project purpose.

5.1.5 RESULTS OF ALTERNATIVE EVALUATION

Of the 18 evaluation criteria, the Replace and Widen Alternative (Alternative 2):

- Satisfied only five evaluation criteria;
- Was neutral on seven criteria; and
- Failed to satisfy six criteria.

The Replace and Widen Alternative satisfied the safety (standard lanes, full shoulders, and center median), traffic maintenance and preservation of cultural resources (see Figure 1.1.1-6) criteria and was neutral on consistency with land use and minimizing air and water quality impacts. The Replace and Widen Alternative failed to satisfy the evaluation criteria related to the preservation of scenic and recreational values, minimizing noise impacts, improving access to the park (no direct Presidio access), and replacing the facility using the parkway concept.

The Refined Presidio Parkway Alternative fully met the purpose of the project. The evaluation process also determined that the Refined Presidio Parkway Alternative:

- Satisfied 12 of the 18 evaluation criteria; and
- Was neutral on the balance of the evaluation criteria.

When compared with the Replace and Widen Alternative, the Presidio Parkway and Refined Presidio Parkway Alternatives satisfied the safety and traffic maintenance criteria (although they include slightly narrower lanes and shoulders to help reduce the facility width) and was neutral on consistency with land use, minimizing air quality and preservation of cultural resources. However, the seven additional criteria satisfied by the Refined Presidio Parkway Alternative provided a greater benefit to the recreational values of the Presidio. These criteria included the ability of the alternative to:

- Preserve scenic values;
- Preserve recreation values;
- Minimize effects of noise and air quality on natural and recreational areas;
- Minimize the effects of water quality on natural and recreational areas;
- Minimize the traffic impacts on local roadways;
- Improve intermodal and vehicular access to the Presidio; and
- Redesign the corridor using the parkway concept.

While there are fewer impacts to the resources associated with the Replace and Widen Alternative, after extensive consultation with the Presidio Trust, NPS and public, it was determined that the Refined Presidio Parkway Alternative provides an overall greater benefit to the Presidio. The Refined Presidio Parkway Alternative provides several enhancements to the Park, while minimizing take of resources to the greatest extent possible.

5.1.6 CONTEXT SENSITIVE DESIGN AND SUSTAINABILITY

In order to be sensitive to the project's environment, the project team considered its context and physical location carefully during the project planning stage. Additionally, a sizable planning effort had already taken place over the past decade involving residents and other stakeholders in the area.

Working with stakeholders, the development, selection, and refinement of the Preferred Alternative was carried out mindful of the principles of context sensitive design (CSD) and sustainability, as well as the desire to minimize and/or avoid impacts through creative design. In comparison with the Presidio Parkway Alternative, the refined alignment (Preferred Alternative) respects natural contours so the facility sits comfortably within the landscape and minimizes cutting, filling and hauling. When compared to the existing facility, the Preferred Alternative is also a better complement to the spectacular natural environment the facility resides in and restores scenic views of the Presidio and San Francisco Bay by eliminating the existing tall concrete structure.

Although there is now consensus among the project stakeholders on the general geometric design of the Preferred Alternative, the project team has a strong desire to ensure that detailed design and construction decisions enhance the sustainability of the project throughout its life.

Through ongoing workshops held with community members and agencies, a sustainability policy statement was developed. The initial sustainability policy has targeted the following areas to guide the development of specific goals and strategies:

- Water;
- Energy;
- Habitat;
- Landscape;
- Materials and Waste; and
- Community Resources.

Several goals and strategies for meeting those goals are being developed for each of the identified areas. As the project moves into its next phase, the specific goals and strategies will be incorporated into the design, construction and maintenance/operations phases. In addition, the responsibilities for implementation of the strategies, as well as monitoring and assessing the success of the strategies, will be determined.

Working together with stakeholders and resource agencies, the project team has already incorporated many solutions into the design of the Preferred Alternative in order to reduce or eliminate potential impacts to the natural environment, the Presidio, and community resources. Some of these engineering solutions include:

- To reduce disturbance to the existing bluff, the refined alternative raises the original profile of the southbound lanes by up to three meters (ten feet). To further retain the cultural relationship between the upper and lower portions of the Presidio, the landscaping over the Main Post tunnels will recreate the bluff north of the tunnels.
- The revised profile of the mainline facilitated the creation of greater separation between the northbound and southbound roadways over the future marsh expansion

area which provides an opportunity for increased light penetration to the ground. The additional curvature to the southbound roadway also enhances the traffic calming impact of the roadway, reducing traffic speeds before reaching city streets.

- In conjunction with the realignment of the southbound roadway, the intersection of the off-ramp to Girard Road was moved 20 meters south (66 feet). This moved the connection along Gorgas Avenue away from the Gorgas Avenue warehouses thereby preserving the streetscape in front of the buildings.
- The intersection for the northbound on-ramp was also moved 20 meters (66 feet) south. In conjunction with reducing the northbound off-ramp from two lanes to one lane, much of the landscaping area west of the Palace of Fine Arts was preserved.
- Refined the design to avoid and minimize impacts to cultural resources including historic buildings, the historic Halleck streetscape, and the historic bluff.

5.2 Preferred Alternative – Refined Presidio Parkway

The Preferred Alternative would replace the existing facility with a new six-lane facility and would include a southbound auxiliary lane between the Park Presidio Interchange and the Girard Road exit ramp, landscaped medians, continuous shoulders, and direct access to and from the Presidio at Girard Road. To minimize impacts to the park, the alignment would overlap the existing facility east of the Park Presidio Interchange. A temporary detour would divert Doyle Drive traffic in the vicinity of the low-viaduct to the north of the existing facility by using an at-grade roadway. A cross-over would be built in the vicinity of the Sports Basement and would connect the detour to the partially completed southbound Doyle Drive alignment. At the east end of the project the interchange configuration referred to as the Diamond option is preferred. At the Park Presidio Interchange, the Hook Ramp option is the preferred and was modified to reuse portions of the existing ramps to reduce impacts to resources while achieving similar improvements to traffic safety. The Project Plans in Attachment C includes the preliminary plans of the proposed engineering features.

5.2.1 PROPOSED ENGINEERING FEATURES

Typical Section

The typical section for the proposed facility consists of three northbound lanes, three southbound lanes and one southbound auxiliary lane. In the northbound direction lanes 1 and 2 are 3.3 meters (11 feet) wide and lane 3 is 3.6 meters (12 feet) wide. The inside shoulder is 1.2 meters (4 feet) wide and the outside shoulder is 3.0 meters (10 feet). In the southbound direction lanes 1 and 2 are 3.3 meters (11 feet) wide, lane 3 is 3.6 meters (12 feet) wide and the southbound auxiliary lane is 3.3 meters (11 feet) wide. The inside shoulder is 1.2 meters (4 feet) wide with an additional 1.8 meters (6 feet) turf portion to allow for a 3.0-meter (10-foot) wide refuge area. The outside shoulder is 3.0 meters (10 feet). The landscaped median varies from approximately 5.0 meters (16 feet) to 12.5 meters (41 feet).

Alignment

The Preferred Alternative would align the new facility up to 50 meters (164 feet) south of the existing roadway between the Park Presidio Interchange and the National Cemetery. The facility then aligns north of the existing roadway to avoid the limits of the National Cemetery and then returns to overlap the existing alignment at the Main Post. The facility then curves to the south to tie in to Richardson Avenue.

Profile

From the Toll Plaza, the northbound and southbound profiles descend at a 4.3% grade and 4.2% grade respectively, past the Historic Batteries and the National Cemetery. The profile then flattens out to approximately a 0.8% grade for the northbound direction and 1.4% for the southbound direction. Just west of Halleck Street the profile starts ascending at a 3% grade for the northbound direction and a 3.4% grade for the southbound direction to cross over the proposed Quartermaster Reach Restoration area and the realigned Girard Road. The northbound profile then descends at a 2.2% grade while the southbound profile descends at a 2.3% grade to connect to Richardson Avenue.

Right of Way Widths

The right of way interest for the facility would be defined by the facility width. The existing right of way interest would be relinquished in part and additional right of way interests would be acquired from the Presidio Trust. The incumbered area has been estimated based on a right of way interest line located 1.0 meter (3.3 feet) beyond the edge of the facility to minimize the impact to the National Park. The proposed right of way interests are shown in Attachment H and see Section 7.5 for agreements involving right of way.

Access Control

Although the existing Doyle Drive is currently not an access-controlled facility, pedestrians and bicyclists would be prohibited on the proposed facility from the Toll Plaza to the new Presidio access at Girard Road, see Section 7.5 for agreements involving access control on the facility. Other parallel bike paths and trails located within the Presidio provide greater recreational opportunities.

Structural Section

Rubberized hot mix asphalt (RHMA) is proposed for use as the wearing course throughout this project. The use of RHMA is intended to minimize noise intrusion in the park and has been proven to provide a longer life than conventional asphalt concrete. Additionally, State Assembly Bill 338 (AB 338) will require Caltrans to meet minimum RHMA usage amounts, which are targeted to increase annually with a ceiling of 50% of constructed projects using RHMA by January 1, 2015. The complete structural pavement sections are shown in Attachment C. The flexible pavement section will be reevaluated in the final design as Portland Cement Concrete pavement may be more desirable given the limited maintenance access to the facility.

Drainage Structures

The existing drainage system was fully investigated and documented in the Location Hydraulic Study, Manna, 2001 (accepted by Caltrans on December 24, 2001). The tunnel would be constructed using cut and cover construction methods. This would require the replacement of two sections of the storm water drainage system. The existing culvert for Tennessee Hollow would be realigned closer to Girard Road and then discharged to Crissy Marsh. However, the Presidio Trust is planning to restore Tennessee Hollow as a riparian corridor in conjunction with a future Quartermaster Reach Restoration and the Doyle Drive project is coordinating with the Trust to accommodate their future plans. At the Main Post a 1200-millimeter (48-inch) pipe would be replaced to the east of the tunnel portal. The 600-millimeter (24-inch) storm drain along Lincoln Boulevard near the Park Presidio Interchange would be relocated as part of the Lincoln Boulevard realignment. There would be an additional outfall constructed to provide an outfall for the tunnel drainage system. Storm water cut-off drains would be installed at the tunnel portals. Water collected in the tunnel from either tunnel washing operations or fire fighting would collect in a sump, pass through

an oil/waste separator and then be pumped to the discharge point. A summary of the drainage system modifications (and other utility) modifications is included in Attachment I.

Traffic Operation

Traffic operations and capacity would be similar to the No-Build condition, with the exception of increased capacity in the off-peak direction due to the permanent configuration of three lanes in each direction. In the design year, the highest traffic volumes would be observed on the segment of Doyle Drive between Merchant Road and the Park Presidio Interchange. During the morning commute period, the peak direction of travel would be southbound with level of service (LOS) D and a peak hourly volume of 6,540 vehicles. During the afternoon commute period, the peak direction of travel would be northbound with LOS D and a peak hourly volume of 6,360 vehicles. In terms of the average daily traffic volume (ADTV), there would be 80,200 vehicles in the southbound direction and 78,900 vehicles in the northbound direction. Additional AM peak, PM peak, and ADTV's for the entire project area can be found in Table 4.3-1.

Truck Restrictions

The sizes of the intersections at the Girard Road interchange have been minimized to reduce the facility footprint and better accommodate pedestrians. To achieve the tight radii, truck turning movements have not been accommodated. The Presidio Trust, as land managers would be responsible for identifying any proposed vehicular restrictions for the off ramps to Girard Road.

Structures

A 390-meter (1,279-foot) long high-viaduct would be constructed between the Park Presidio Interchange and the San Francisco National Cemetery. The height of the high-viaduct would vary from 20 to 35 meters (66 to 115 feet) above the ground surface.

Twin cut and cover tunnels would extend from north of the intersection of Lincoln Boulevard and Crissy Field Avenue to north of the intersection of Lincoln Boulevard and Sheridan Avenue. The northbound tunnel would be 233 meters (764 feet) long and the southbound tunnel would be 261 meters (856 feet) long. The amount of fill over the tunnels is being coordinated with the Trust based on requirements of the Vegetation Management Plan. The depth of fill will vary from 2.0 to 4.0 meters (6 to 13 feet).

From Building 106 (Band Barracks) a second set of cut-and-cover tunnels would extend to east of Halleck Street. The northbound tunnel would be 278 meters (912 feet) long and the southbound tunnel would be 308 meters long (1010 feet). The expected minimum depth is 2.0 meters (6 feet). Final depth of fill over the tunnels will be coordinated with the Trust based on the approved planting palettes and landscaping plan.

A low level causeway 120 meters (394 feet) long is located over the site of the proposed Quartermaster Reach Restoration area and a depressed Girard Road. The low causeway would rise to approximately 3.0 meters (10 feet) above the surrounding ground surface at its highest point.

See Attachment E, Advance Planning Study (APS), for a detailed description and analysis of the various aerial and tunnel structure replacement options under consideration. In addition to the major structures identified in the attached APS there would be various minor and ancillary structures. Retaining walls would be needed for the ramps at the Park Presidio Interchange and at transitions from at-grade to grade separated portions of Doyle Drive. All

these structures must satisfy the latest seismic requirements as well as complement the aesthetic environment of the Presidio.

Tunnels

As part of maintaining the vision of Doyle Drive promoted by the City and County of San Francisco and supported by previous Doyle Drive planning studies, the Park Presidio build alternative proposes tunnels along a portion of the reconstructed Doyle Drive. See [Final Preliminary Tunnel Systems Report](#), Parsons Brinckerhoff 2004, for the full description of the tunnel systems. The primary criteria for the tunnels are:

- The tunnel shall consist of two sections, a different section for each direction of traffic, separated by a wall.
- For the tunnels over 90 meters (300 feet) long, fire protection, power and lighting, drainage, traffic control, and tunnel monitoring systems would be provided. Mechanical ventilation may be required.
- For the tunnels over 240 meters (800 feet) long require ventilation, fire protection, power and lighting, drainage, traffic control, and tunnel monitoring systems would be provided. Jet fans will be placed in the crown of the tunnel and use the tunnel cross-sectional area to move air and smoke out of the tunnel.
- The tunnels shall be constructed using a cut and cover method, preserving any cultural resource that may be adjacent to the tunnel.

There may be ancillary structures above ground associated with the functioning of the tunnel's ventilation system, especially if larger, more robust ventilation is required. Any building will need to be located in an unobtrusive location, and fit in to the architectural context of the Presidio.

In addition to the major structures identified under the Preferred Alternative, there would be various minor and ancillary structures. Retaining walls would be needed for the ramps at the Park Presidio Interchange and at transitions from at-grade to grade separated portions of Doyle Drive. All these structures must satisfy the latest seismic requirements as well as complement the aesthetic environment of the Presidio.

5.2.2 NONSTANDARD MANDATORY AND ADVISORY DESIGN FEATURES

The Preferred Alternative for the proposed replacement of Doyle Drive meets the Caltrans design standards, with the exception of the mandatory and advisory design standards listed below. There are also some existing nonstandard features that would not be improved by this project because they are not within the scope of a particular alternative as defined by the purpose and need. Among the principal project objectives are preserving the natural, cultural, scenic and recreational values of the Presidio by minimizing impacts. To do so, Preferred Alternative, Refined Presidio Parkway includes a large portion of the existing facility's footprint east of the Park Presidio Interchange. The majority of the design exceptions are necessary to avoid the multitude of resource constraints. The existing nonstandard mandatory design features include stopping sight distance, superelevation rate, curvature, lane width, left and right shoulder width, and a left exit ramp. Existing nonstandard advisory design features include vertical curve length, lane drop tapers, and ramp entrance and exit ramp geometry.

5.2.3 PREFERRED ALTERNATIVE – REFINED PRESIDIO PARKWAY

The Preferred Alternative will replace the existing facility within the same corridor in order to minimize adverse impacts to the adjacent cultural and environmental resources. To avoid the important resources several nonstandard design elements are proposed. The development and approval of these design exceptions was a result of an extensive review process that required multiple design reviews and revisions before reaching a consensus on the appropriate design for the project. It should also be noted that the refinements incorporated into the Preferred Alternative reduced the number of design exception significantly. The nonstandard design features of the existing facility that do not meet current mandatory or advisory standards are shown in Tables 5.2-1 and 5.2-2 respectively. The tables also show which standards have and have not been eliminated with the Preferred Alternative. The required design exceptions, which reflect the minimization of impacts while maintaining traffic safety, are identified as follows:

Mandatory Standards:

- Stopping Sight Distance
- Superelevation Rate
- Standards for Curvature
- Standards for Grade
- Traveled Way and Shoulder Width
- Horizontal Clearances
- Lateral Clearance for Elevated Structures
- Deceleration Length
- Access Control

Advisory Standards:

- Superelevation transition (runoff)
- Compound Curves
- Reversing Curves
- Vertical Curves
- Local Street Interchanges
- Freeway Entrance Design

**Table 5.2-1
Existing Facility Nonstandard Mandatory Features**

Mandatory Design Exception	Existing Conditions Meet Standard	Preferred Alternative Meet Standard	Reason for Preferred Alternative Not Meeting Standard
201.1 Sight Distance Standards	No	No	In various locations the stopping and vertical sight distance is nonstandard and restricted by existing conditions. To make the Preferred Alternative standard would prevent the flow of traffic during construction, involve cultural and environmental impacts and would impact operations of the Golden Gate Bridge Toll Plaza.
202.2 Standards for Superelevation	No	No	In various locations the rate of superelevation is nonstandard and restricted by existing conditions. To make the Preferred Alternative standard would involve environmental impacts, lowering the profile of Girard Road and modifications to Veterans Boulevard and Richardson Avenue.
203.2 Standards for Curvature	No	No	In various locations there are nonstandard curve radii that are restricted by existing conditions. To make the Preferred Alternative standard would prevent the flow of traffic in the Park Presidio Interchange during construction and involve cultural and environmental impacts.
208.1 Bridge Width	No	Yes	None
301.1 Lane Width	No	No	In various locations the lane width is nonstandard and restricted by existing conditions. To make the Preferred Alternative standard would not allow the requirement to minimize the overall footprint of the facility into the Presidio, a National Park and involve cultural and environmental impacts. The Preferred Alternative will improve existing conditions by increasing lane widths by at least 0.3 m (1 ft) in various locations.
301.2(2) Cross Slopes	No	Yes	None
301.2(2) Algebraic Differences in Cross Sections	No	Yes	None
302.1 Shoulder Width 309.1(1) Horizontal Clearances and Stopping Sight Distance	No	No	In various locations the shoulder width and horizontal clearances are nonstandard and restricted by existing conditions. To make the Preferred Alternative standard would not allow the requirement to minimize the overall footprint of the facility into the Presidio, a National Park and involve cultural and environmental impacts. The Preferred Alternative improves the existing condition which has no shoulders by introducing standard outside shoulders and nonstandard inside shoulders. The inside shoulders are nonstandard due to space constraints
302.2 Shoulder Cross Slopes	No	Yes	None
305.1 Median Width	No	Yes	None
309.1(2) Clear Recovery Zone	No	Yes	None
309.2 Vertical Clearances - Major Structures	No	Yes	None
309.4 Lateral Clearances for Elevated Structures	No	No	The lateral clearance for elevated structures is nonstandard at the historic Gorgas Warehouse #1167. To make the Preferred Alternative standard would require the removal of the historic Gorgas Warehouse #1167. The Preferred Alternative improves existing conditions by eliminating the nonstandard lateral clearance at Building 650 (Stillwell Hall).
504.2(2) Ramp Deceleration Lane and "DL" Distance	No	No	In various locations there are nonstandard ramp deceleration length that are restricted by existing conditions. To make the Preferred Alternative standard involve cultural and environmental impacts. At the Northbound Veterans Boulevard to Southbound Doyle Drive on-ramp, the Preferred Alternative introduces a "DL" distance of 110 m (360m) which is an improvement of the existing condition which does not have a "DL" distance.
504.3(1)(b) Ramp Lane Width	No	Yes	None
504.3(1)(c) Ramp Shoulder Width	No	Yes	None

**Table 5.2-2
Existing Facility Nonstandard Advisory Features**

Advisory Design Exception	Existing Conditions Meet Standard	Preferred Alternative Meet Standard	Reason for Preferred Alternative Not Meeting Standard
201.7 Decision Sight Distance	No	Yes	None
202.5(1) Superelevation Transition 202.5(2) Superelevation Runoff	No	No	In various locations the superelevation is nonstandard to the 1/3 within curve, 2/3 within tangent / greater than 1/3 within curve rule and are restricted by existing conditions. To make the Preferred Alternative standard would involve cultural impacts, reconstruction of Southbound Veterans Boulevard and would impact operations to the Golden Gate Bridge Toll Plaza.
204.3 Standards for Grade	No	Yes	None
204.4 Vertical Curves	No	No	In various locations the vertical curves have nonstandard radii that are restricted by existing conditions. To make the Preferred Alternative standard would prevent the flow of traffic during construction, involve cultural and environmental impacts and increase already nonstandard features on Southbound Route 101 by raising the High Viaduct.
206.3(1) Lane Drop Transitions	No	Yes	None
301.2 Algebraic Differences of Cross Slopes	No	Yes	None
305.1 Median Width	No	Yes	None
309.1 Clear Recovery Zone	No	Yes	None
404.3(2) STAA Truck-turn Template	No	Yes	None
502.2 Isolated Ramps and Partial Interchanges	No	Yes	None
504.2(2) Collector-distributor Deceleration Lane and "DL" Distance	No	No	The convergence of the ramp from Northbound Doyle Drive to Southbound Veterans Boulevard is nonstandard because of the need to conform to Veterans Boulevard before the Ruckman Viaduct. To make the Preferred Alternative standard would require widening the Ruckman Viaduct. The Preferred Alternative introduces a "DL" distance of 110 m (360 ft) which is an improvement of the existing condition which does not have a "DL" distance.
504.2(2) Paved Width at Gore	No	Yes	None
504.2(4)(a) Decision Sight Distance at Exits	No	Yes	None
504.3(1)(a) Ramp Design Speed	No	Yes	None
504.7 Weaving Sections	No	Yes	None

Several examples are given below as to why the above design exceptions are requested:

- A non-standard section is proposed between the National Cemetery and the Batteries to reduce lane-width and shoulder-width to avoid both the National Cemetery and the Batteries.
- In the Gorgas Warehouse area there is a request for an exception to the design speed stopping sight distance to move the alignment north with a tighter curve to avoid the Gorgas Warehouses.
- In the southbound portion of the roadway in the area of Building 106 requires additional construction complexity and staging to build the roadway in two sections to avoid any construction or permanent damage to Building 106.
- At the Park Presidio Interchange, the Preferred Alternative has proposed non-standard design elements to provide adequate separation of the Calvary Stables buildings from the roadway.

The design exception fact sheets for the Preferred Alternative were approved by Mike Thomas, Headquarters Design Coordinator on August 1, 2007.

5.2.4 INTELLIGENT TRANSPORTATION SYSTEM (ITS)

The replacement of existing ITS elements will include installation of loop detectors, changeable or variable message signs (minimum of two), surveillance cameras (minimum of five), traffic monitoring stations (minimum of seven in each direction) and highway advisory radio system are considered an ITS strategy and would be included in all of the build alternatives.

Mainline traffic monitoring stations (loop detectors) would be installed on Route 101 in both directions at a minimum of three locations: north of the Park Presidio interchange, between the Battery and Main Post tunnels and south of the Girard Road interchange. Count loops would be installed at each on- and off-ramp within the project limits. One sensor per ramp lane would be installed for counting purposes.

5.2.5 INTERIM FEATURES

There would be no interim features in the proposed project.

5.2.6 HOV (BUS AND CARPOOL) LANES

High-occupancy vehicle (HOV) lanes on a replacement facility were considered and eliminated from further consideration because there is no existing or proposed system of HOV lanes on the connecting roadway network, and there would be physical constraints on the eastern and western approaches of Doyle Drive. Without a larger network to connect to, a Doyle Drive HOV lane would have limited effectiveness in terms of travel time savings. This is in compliance with the MTC's 2002 HOV Lane Master Plan Update that does not propose HOV lanes in the project corridor.

5.2.7 RAMP METERING

Currently, there would be no ramp metering included in the project since the current ramp metering plan does not show ramp metering planned for Doyle Drive.

5.2.8 CALIFORNIA HIGHWAY PATROL (CHP) ENFORCEMENT AREAS

CHP enforcement areas are required for multi-lane ramps with an HOV bypass lane. As there are no HOV lanes proposed on the project, there would be no CHP enforcement areas.

5.2.9 PARK AND RIDE FACILITIES

No park and ride facilities would be included in the project. The PTMP outlines a transportation strategy designed to minimize private automobile use and increase the availability of public transit, pedestrian and bicycle travel options. In addition, previous planning studies have identified multi-modal and direct vehicular access into and out of the Presidio as a central feature. Each of the build alternatives would include a multi-modal transit center and accommodate transit vehicles in mixed flow conditions. Several recommendations made to implement this strategy included improved connections between the Presidio and existing city roadway and transit systems, the creation of a transit hub, and the promotion of alternative fuel shuttle vehicles and water taxis. Therefore, a park and ride facility would not meet the PTMP transportation strategy.

5.2.10 UTILITY AND OTHER OWNER INVOLVEMENT

The existing utilities within the Doyle Drive corridor include Presidio Trust storm water drainage, sanitary sewer, natural gas, water, communication, and electricity. Portions of all of these utility systems would be relocated prior to, or during, reconstruction of the Doyle Drive facility. The majority of the utilities cross the Doyle Corridor, but are not part of this project. During the construction of the tunnels, which is proposing cut and cover methods, temporary utility systems would be provided for continued service during construction. Where appropriate, relocated utilities will be replaced above the completed tunnels. See Attachment I for proposed utility relocations. Note that Attachment I illustrates non State-owned facilities.

The condition of the existing utility system varies greatly. Parts of some systems are very old and in poor condition, while others have recently been replaced or repaired by the US Army, NPS, or the Trust. The Trust has an on-going program to up-grade utility systems, and plans to repair or replace some of the utilities within the Doyle Drive corridor in the near future. The Trust also has plans to develop a water recycling facility within the project limits near Girard Road and Gorgas Avenue. At present, there are no approved plans for the recycling system; however, a Draft Environmental Assessment was circulated. Comments were provided to the Trust requesting future coordination to address and coordinate the needs of both projects.

PG&E owns the gas and electric utilities. The Trust owns the remainder of the utilities, including storm water drainage, within the project corridor. Initial contact with the Trust determined that the Doyle Drive Project would be liable for the costs of all project related utility relocations. The Right of Way Data Sheets identify the owners of public utilities within the project corridor. See Attachment H for Right of Way Data Sheets.

5.2.11 RAILROAD INVOLVEMENT

There is no railroad involvement on this project.

5.2.12 HIGHWAY PLANTING

Planting would be an important feature of the final design project, especially since the proposed project lies within a National Recreation Area and several future restoration projects are in the initial planning stages. The final design project should ensure restoration of any disturbed planting and take special care in areas where rare plant species are present. In addition, any new landscaping would include 150 millimeters (6 inches) of imported topsoil and would be consistent with the approved Presidio Vegetation Management Plan. Maintenance responsibility of these plantings by Caltrans or others would be assigned in a Maintenance Agreement developed prior to the start of construction.

Based on data gathered from the NPS, US Fish and Wildlife Service, California Native Plant Society Electronic Inventory, and California Department of Fish and Game; a total of 45 special status plant species were considered. However, only two of these species are present in the project study area, and none present within the Doyle Drive construction corridor. (Final Natural Environmental Study, July 2005).

5.2.13 WATER POLLUTION AND EROSION CONTROL

The Preferred Alternative would involve standard construction activities including the excavation, grading, and stockpiling of soil as well as the tunnel and bridge construction. These activities would expose soil that would be susceptible to erosion due to run-off generated during rainstorms, if not protected. Currently the majority of run-off generated in the project area flows directly to the Bay through storm drainage system throughout the Presidio or as overland flow. During construction, storm water run-off and non-storm water discharges could transport and release sediment into the Bay, resulting in water quality degradation. Therefore measures to control sedimentation, erosion and the discharge of other pollutants will be utilized during construction. Furthermore disturbed soil areas that will remain unpaved upon completion of construction will be permanently protected with erosion control measures or highway planting.

Since the project construction activities would result in a disturbance of more than one acre, the project would comply with the terms of the National Pollutant Discharge Elimination System (NPDES) Permit for Construction Activities (Order No. 99-08-DWQ, NPDES No. CAS00002) and the Statewide Storm Water Permit (Order No. 99-06-DWQ, NPDES No. CAS00003) issued by the State Water Resources Control Board to Caltrans resulting in the development and implementation of a Storm Water Pollution Prevention Plan (SWPPP). Under the latter permit all discharges from State (Caltrans) roadway facilities are regulated.

5.2.14 NOISE BARRIERS

Construction of noise barriers at locations that are on local streets such as Richardson Avenue, Lyon Street, Marina Boulevard, Mason Street, Lincoln Boulevard, Gorgas Avenue, Montgomery Street, Girard Road and Halleck Street, would not be feasible because driveways would need to be maintained to provide access to those properties.

Other noise receptor locations in the Battery area, Armistead Road area, Log Cabin area, and associated with residences along Storey Avenue and the National Cemetery have the potential to be benefited by the construction of noise barriers (depending on cost and effectiveness considerations). The Caltrans protocol was applied to a series of noise barriers at each site and the results of the preliminary reasonableness determination are provided in Table 5-2.3.

For the Preferred Alternative, a noise barrier could reduce noise by approximately 10 dBA at the five affected residential receptors located north of Doyle Drive in the area along Armistead Road. This noise barrier would measure 3.05 meters (10 feet) high and 318 meters (1,043 feet) long and would extend along the edge of the Doyle Drive right of way line along the northbound on-ramp from Veterans Boulevard to Doyle Drive and extend westward to Merchant Road. Results of the initial investigation indicate that this barrier would not be considered reasonable according to the Caltrans protocol. In addition, the noise barrier was determined to not be desirable or consistent with the cultural landscape of the Presidio. The Presidio Trust as land managers have indicated that the benefits from building this noise barrier would be outweighed by the negative effects on the cultural landscape. This determination was made through the application of the historic preservation and architectural criteria developed for the Doyle Drive Project as part of the *Built Environment Treatment Plan*. The *Built Environment Treatment Plan* is part of the Programmatic Agreement (PA) which has been developed as part of the Section 106 process to document the measures which will be taken to mitigate the adverse effects of the Project on cultural and historic resources and can be seen in Attachment P. The preliminary reasonable noise barrier location is shown in Figure 5.2.14-1.

5.2.15 NON-MOTORIZED AND PEDESTRIAN FEATURES

Few continuous bicycle or pedestrian routes occur within the Presidio. However, future improvements and goals are highlighted in the following planning documents: [San Francisco Bicycle Plan](#), and the [Presidio Trails and Bikeways Master Plan](#).

On the Doyle Drive facility, pedestrians and bicyclists would remain prohibited on the mainline facility from the Toll Plaza to the Marina and Richardson connections. Proposed tunnels, aerial structures, sidewalks, and signalized intersections would improve pedestrian and bicycle circulation by providing connectivity across (but not on) Doyle Drive. Access across the improved roadway would be maintained via Marshall Street, Crook Street, at the Girard Street Interchange at the Lincoln Boulevard/Park Presidio Interchange and at the Lincoln Boulevard/Golden Gate Bridge Toll Plaza. To enhance pedestrian safety the proposed Preferred Alternative design would provide pedestrian access under Doyle Drive from the Gorgas Avenue warehouses to the Palace of Fine Arts and under Girard Road from the Palace of Fine Arts to the Mason Street warehouses.

A transit transfer hub on Richardson Avenue at Lyon Street consisting of a series of nearby bus stops, including directional information and waiting areas, would be created near the direct Presidio access to maximize transit connectivity and encourage increased ridership. Pedestrian access to the transit transfer hub will be through controlled crosswalks located at the intersection of Richardson Avenue and Gorgas Avenue.

**Table 5.2-3
Noise Barrier Preliminary Reasonableness Determination**

Noise Barrier No. ⁵	Alternative	Location	Length	Height	Preliminary Reasonable Cost Allowance Per Benefited Unit ¹	Number of Benefited Units ²	Preliminary Reasonable Barrier Total Construction Cost Allowance	Estimated Barrier Construction Cost ⁶	Preliminary Reasonable (Yes/No)
1	Alternative 2 - Replace and Widen	National Cemetery Station 13+70 to 16+42 ³	278 m (912 ft)	4.27 m (14 ft)	\$54,000	8*	\$432,000	\$501,046	No
2	Alternative 2 - Replace and Widen	National Cemetery Area Station 13+70 to 17+61 ⁴	398 m (1,306 ft)	4.88 m (16 ft)	\$48,000	9*	\$432,000	\$819,800	No
3	Alternative 2 - Replace and Widen	Armistead Rd. Area Station 0+50 to 5+93	318 m (1,043 ft)	3.05 m (10 ft)	\$52,000	5	\$260,000	\$409,385	No
4	Alternative 5 - Presidio Parkway	Armistead Rd. Area Station 101+60 to 104+78	318 m (1,043 ft)	3.05 m (10 ft)	\$54,000	5	\$270,000	\$409,385	No
5**	Alternative 2 - Replace and Widen, and Alternative 5 - Presidio Parkway	Storey Ave. Area Station 102+00 to 107+65	565 m (1,854 ft)	4.88 m (16 ft)	\$46,000	0	\$0	\$1,163,786	No
6	Alternative 2 - Replace and Widen	Battery Area Station 12+48 to 16+22	380 m (1,247 ft)	3.05 m (10 ft)	\$50,000	7*	\$350,000	\$489,202	No
7	Preferred Alternative - Refined Presidio Parkway	Armistead Rd. Area Station 101+60 to 104+78	318 m (1,043 ft)	3.05 m (10 ft)	\$54,000	5	\$270,000	\$409,385	No
8**	Preferred Alternative - Refined Presidio Parkway	Storey Ave. Area Station 102+00 to 107+65	565 m (1,854 ft)	4.88 m (16 ft)	\$46,000	0	\$0	\$1,163,786	No
9	Preferred Alternative - Refined Presidio Parkway (Temporary Construction Detour)	Crissy Field Center	117 m (384 ft)	3.05 m (10 ft)	\$50,000	1	\$50,000	\$150,623	No

Source: Environmental Science Associates, 2004, 2006, 2008

Notes: ¹Based on Caltrans TNAP, October 1998 as modified in 2006.

²Residential units that receive 5 dBA reduction or more.

³This barrier designed to protect the frontage area of the National Cemetery only.

⁴This barrier designed to protect the frontage area of the National Cemetery and residential and office buildings located east of the cemetery.

⁵Refer to Figures 5.1.13-1, 5.2.15-1 and 5.2.15-2.

⁶Cost factor per square meter is \$422.09 based on construction cost index for 2006 provided by Caltrans.

*The number of benefited units is based on a frontage factor of 30.5 m (100 ft) being equivalent to one residential lot where the area will receive a reduction of 5 dBA or more based on Caltrans TNAP.

**Noise Barrier No. 5 & 8 are not shown in Figures 5.1.13-1, 5.2.15-1 and 5.2.15-2 since these barriers do not benefit any units.

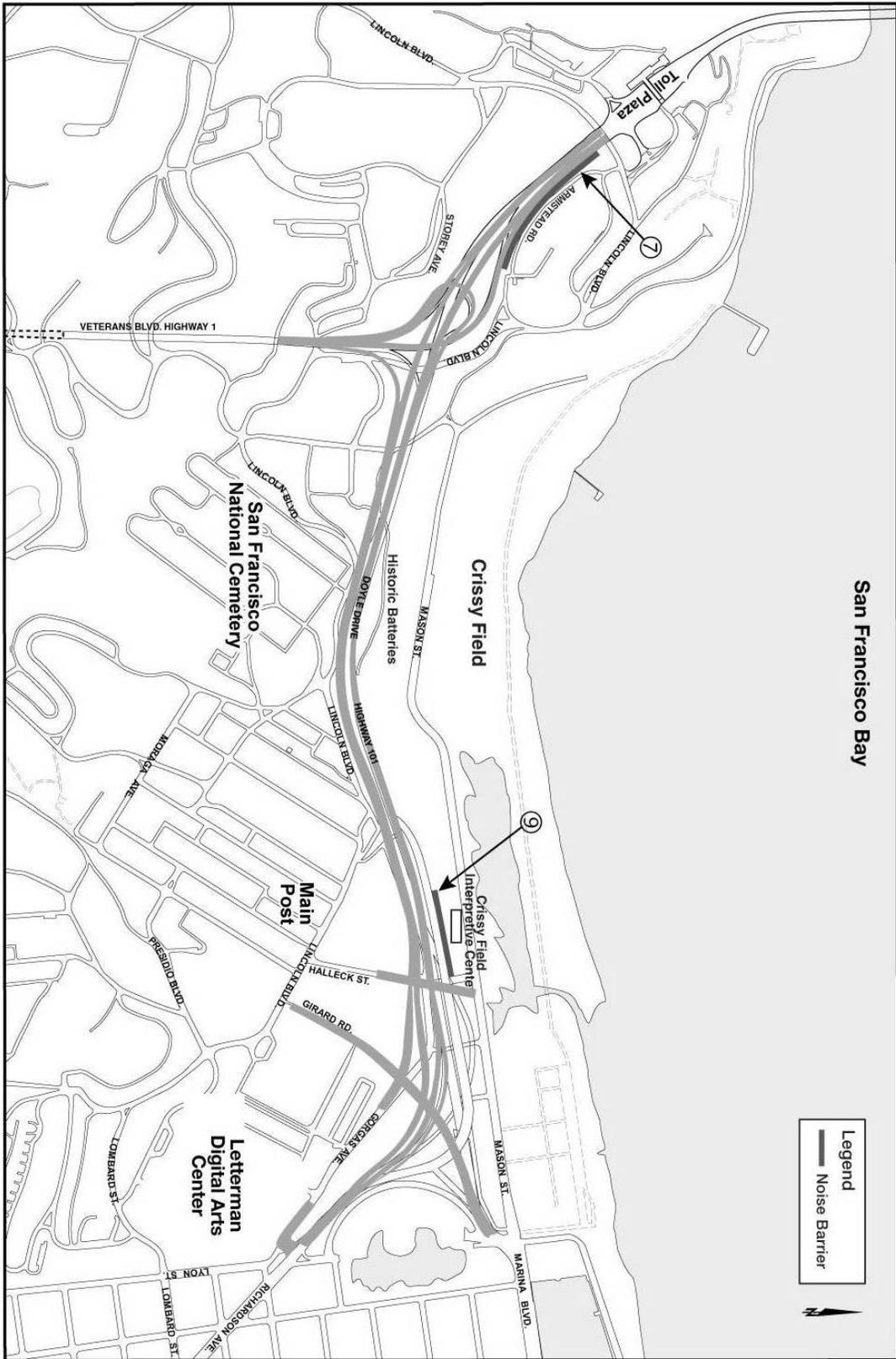


FIGURE 5.2.14-1
PREFERRED ALTERNATIVE
PRELIMINARY REASONABLE NOISE BARRIER LOCATIONS

5.2.16 NEEDED ROADWAY REHABILITATION AND UPGRADING

Because Doyle Drive is primarily on structures, there is little at-grade roadway. The structures and roadway would be replaced in the Preferred Alternative.

5.2.17 NEEDED STRUCTURE REHABILITATION AND UPGRADING

The long-term effects of heavy traffic and exposure to salt air have caused the viaduct structures to deteriorate. Partial rehabilitation of the concrete decks was completed in early 1993. This work was expected to add only six to ten years to the service life of the decks. In 1995, the bridge substructures received a seismic retrofit; however, the bridge decks have continued to deteriorate. The Federal National Bridge Inventory recommends that the existing structure be replaced. As mentioned in Section 3.3 an interim rehabilitation is currently underway to assess the condition of the structural members, replace them if needed, and paint the structure. It is expected that ongoing maintenance would then be required to maintain the service load carrying capacity and safety of the facility to prevent it from being posted with a weight restriction. Because of the long-term effects of heavy traffic and exposure to salt air, it is believed that the interim rehabilitation (repair and repaint primary load carrying members of the truss) would be at best a stopgap measure, only negligibly extending the transitory useful life of the structure. The Preferred Alternative would remove and replace the existing structures with a combination of new structures and tunnels.

5.2.18 COST ESTIMATES

The preliminary costs for the alternatives, by components are shown in Table 5.2-4. Detailed cost estimates are shown in Attachment J. Capital outlay support costs and design services are shown in Table 8-3. Capital costs are presented in year 2008 dollars with right of way cost escalated to an anticipated start of construction in 2010. Escalation to the year of expenditure is also shown using a total escalation of 20.5%. Due to the continual increases in project costs, the longer it takes to start construction of the project, the higher the project cost will be. Potential factors that could increase project cost are changes to the project during detailed design, increases in material quantities, increases in material costs and unanticipated subsurface conditions. The cost estimates have been revised to take into account project risks per Caltrans Risk Management Plan in July 2007. See Attachment M for the status of the items in the Risk Management Plan.

In October 2007, Caltrans performed an independent check of the Preferred Alternative cost estimate. The project team then reconciled this independent estimate against the previous estimate which resulted in the validated cost that was completed in December 2007.

**Table 5.2-4
Alternative Cost Matrix**

Alternative	Option	Roadway		Structures		Right of Way	Total Project Capital Outlay		
		2008	YOE ¹	2008	YOE ¹		2008	YOE ¹	
1	No Build		\$0		\$0		\$0		
			\$108,600,000	\$130,300,000	\$548,600,000	\$657,800,000	\$7,700,000	\$665,000,000	\$795,800,000
2	Replace & Widen With Detour		\$115,100,000	\$140,000,000	\$577,000,000	\$702,100,000	\$56,500,000	\$748,600,000	\$898,600,000
		Loop Ramp	\$244,200,000	\$298,800,000	\$658,400,000	\$805,500,000	\$34,900,000	\$937,500,000	\$1,139,200,000
		Hook Ramp	\$242,900,000	\$297,300,000	\$639,100,000	\$782,000,000	\$34,900,000	\$917,000,000	\$1,114,100,000
		Loop Ramp	\$244,400,000	\$299,100,000	\$658,400,000	\$805,500,000	\$35,800,000	\$938,600,000	\$1,140,400,000
		Hook Ramp	\$243,200,000	\$297,500,000	\$639,100,000	\$782,000,000	\$35,800,000	\$918,100,000	\$1,115,300,000
5	Presidio Parkway Circle Option	Loop Ramp	\$244,400,000	\$299,100,000	\$658,400,000	\$805,500,000	\$35,800,000	\$938,600,000	\$1,140,400,000
		Hook Ramp	\$243,200,000	\$297,500,000	\$639,100,000	\$782,000,000	\$35,800,000	\$918,100,000	\$1,115,300,000
		Merchant Ramp ²	\$13,200,000	\$16,100,000	\$1,100,000	\$1,300,000	\$2,200,000	\$16,400,000	\$19,600,000
	Preferred Alternative	\$233,300,000	\$281,100,000	\$474,300,000	\$571,500,000	\$36,300,000	\$743,800,000	\$888,900,000	

Source: Parsons Brinckerhoff, 2008

Notes: ¹ Year of expenditure (YOE) costs are based on the following escalation: 2007-2008 at 5%, 2008-2010 at 4% per year, 2010-2012 at 3.3% per year. Length of construction per alternative can be located in Section 7.7 - Stage Construction.

² The Merchant Ramp Option is a stand alone option that can be incorporated into Alternative 5 if requested.

In March 2008, the FHWA conducted a cost estimate review of the Preferred Alternative to verify the accuracy and reasonableness of the current total cost estimate to complete the project and to develop a probability range for the cost estimate that represents the project's stage of design. The FHWA worked with the Project team to review the material quantities and unit costs and develop the expected variance for each. The FHWA input the expected variance into a Monte Carlo¹ simulation to develop forecast curves that represent a cost estimate range for the project.

The Project team met with the FHWA in April 2008 and May 2008 to determine the confidence level of the cost estimate range based on the project's current stage of development. Based on those discussions, the FHWA performed a Monte Carlo simulation which resulted in total project cost estimate range of \$1.05 to \$1.18 billion.

During the FHWA review, costs were separately escalated to the midpoint of construction however the reality of cost escalation for 2008 has been proven differently. The faltering of the economy and housing industry collapse have increased competition for highway construction contracts and have dramatically lowered prices. Recent bids from Contractors to Caltrans have routinely been 20% to 40% below the Engineer's Estimate.

The FHWA has since reevaluated the Monte Carlo simulation using new inflation rate for 2008. The new inflation rate along with the unchanged inflation rates for beyond 2009 have decreased total project cost estimate range to \$958 million to \$1.08 billion, placing the \$1.045 billion just outside the 70% confidence level or the minimum amount of funding to sign the Record of Decision (ROD). The FHWA did however sign the ROD with the notion that Caltrans has guaranteed the funding in the amount of \$1.045 billion. The signed ROD can be seen in Attachment R.

5.2.19 RIGHT OF WAY DATA

The project is located on federal land in the Presidio within the GGNRA, and as such, Caltrans does not own the right of way associated with the facility. Caltrans owns and maintains Doyle Drive within a right of way permit originally granted by the US Army that is now under the jurisdiction of the Trust. The right of way permit varies between 18.3 and 24.4 meters (60 and 80 feet). It is understood that Caltrans would quit claim all rights under the existing permit and obtain a new right of way interest through FHWA, pursuant to FHWA's authority under 23 USC 317, as a Federal Land Transfer. The details of this transfer would be subject to negotiation with the Trust, the land managers of Area B, and Caltrans once the project is approved.

The permanent and temporary right of way required for the Preferred Alternative and all build alternatives are shown in Tables 5.2-5 and 5.2-6 respectively. The existing right of way interest for Doyle Drive occupies approximately 9.5 hectares (22 acres) within the Presidio. Attachment H contains the Right of Way Data Sheets for the project that outline the right of way requirements.

¹A Monte Carlo simulation calculates multiple scenarios of the outcome by continually sampling random values from the expected variance. The simulations ran by FHWA consisted of 10,000 iterations.

The Preferred Alternative would remove and replace the existing structures with a combination of new structures and tunnels. The land above the tunnels constructed with the Preferred Alternative, although part of the permanent right of way interests, would become available for recreational purposes following construction. This would result in additional 2.0 hectares (4.9 acres) of parkland being made available in the Doyle Drive corridor under the Preferred Alternative.

Table 5.2-5 Land Required for Permanent Right of Way of Alternatives

Alternative		Option		Total Area of Permanent Right of Way Required hectares (acres)	Increase from Existing Permit hectares (acres)
1	No Build			9.5 (23.5)	None
2	Replace and Widen	No Detour		10.4 (25.7)	0.9 (2.2)
		With Detour		10.1 (24.9)	0.6 (1.5)
5	Presidio Parkway	Diamond Option	Loop Ramp	14.1 (34.8)	4.6 (11.4)
			Hook Ramp	13.6 (33.4)	4.1 (10.1)
		Circle Option	Loop Ramp	14.0 (34.6)	4.5 (11.1)
			Hook Ramp	13.4 (33.1)	3.9 (9.6)
		Merchant Ramp		0.7 (1.7)	0.5 (1.2)
Preferred Alternative				10.8 (26.7)	1.3 (3.2)

Source: Chaudhary and Associates, September 2004.

Table 5.2-6 Temporary Construction Right of Way of Alternatives

Alternative		Option		Area of Temporary Right of Way Required hectares (acres)	Increase from Existing Permit hectares (acres)
1	No Build			None	None
2	Replace and Widen	No Detour		46.2 (114.2)	36.7 (90.7)
		With Detour		46.2 (114.2)	36.7 (90.7)
5	Presidio Parkway	Diamond Option	Loop Ramp	46.2 (114.2)	36.7 (90.7)
			Hook Ramp	46.2 (114.2)	36.7 (90.7)
		Circle Option	Loop Ramp	46.2 (114.2)	36.7 (90.7)
			Hook Ramp	46.2 (114.2)	36.7 (90.7)
		Merchant Ramp		1.1 (2.8)	1.1 (2.8)
Preferred Alternative				46.2 (114.2)	36.7 (90.7)

Source: Chaudhary and Associates, September 2004.

5.2.20 EFFECT OF SPECIAL FUNDED PROPOSAL ON STATE HIGHWAY

Funding has not yet been conclusively identified for this project. Therefore, the project's status as a Special Funded project may not be determined at this point.

5.3 Viable Alternatives

5.3.1 ALTERNATIVE 1 - NO-BUILD

The No-Build Alternative is the existing condition with no project-related activities. This alternative would include only those projects located within the project study area identified in the 2030 Regional Transportation Improvement Plan. The No-Build Alternative does not meet the project need, purpose and objectives but is included to provide the baseline for existing environmental conditions and future travel conditions against which all other alternatives are compared.

According to the Project Scope Summary Report (Structure Rehabilitation) EA 44940K, October 2001, the high-viaduct is in great need of rehabilitation. This is evidenced by its low Health Index Rating of 34.22 and Sufficiency Rating of 2 (both out of 100), indicating poor condition.

The existing high-viaduct structure has a sufficiency rating of 2, one of the lowest in the state. Part of this low rating is due to pack rust and section loss in the steel members as well as the deck geometry. There is currently an on going rehabilitation project, EA 44940K, in progress for the No-Build Alternative. The structure rehabilitation project does not address the deck, rails, lighting standards, narrow lanes and no shoulders. The sufficiency rating will still be low after this project is complete. Furthermore, the project is only intended as an interim measure to keep the structure fully operational until it could be replaced in 10 years.

Within the limits of the eight steel truss spans, the high-viaduct PSSR is removing the existing paint system, removing and replacing various steel elements and connection rivets due to sectional loss, and repainting the steel truss spans. Within the limits of the 10 steel stringer spans, the PSSR is cleaning the entire paint system, removing the existing paint system in spot locations, and repainting the steel approach spans.

5.3.2 ALTERNATIVE 2 – REPLACE AND WIDEN

This alternative would replace the high-viaduct and the low-viaduct with new structures to provide the most current seismic and structural design standards in order to improve seismic safety. The new facility would remain on the existing alignment and incorporate improvements for increased traffic safety. This alternative would include three lanes in the northbound direction and three lanes in the southbound direction separated by a median barrier. In addition, a southbound auxiliary lane is proposed from the Park Presidio Interchange to the Richardson Avenue/Marina Boulevard junction to match the current operation of existing facility.

There are two staging options available for this alternative and they are referred to as:

- Alternative 2 – Replace and Widen No Detour
- Alternative 2 – Replace and Widen With Detour

These options differ in that the “With Detour” option requires temporary detour structures to be constructed for all maneuvers before permanent construction can commence. The “No Detour” option was developed to provide staged construction of the permanent structure with minimal temporary structures. The two options would require slightly different engineering features and where applicable, these differences are described below.

5.3.2.1 Proposed Engineering Features

Typical Section

This alternative consists of six 3.6-meter (12-foot) lanes; one 3.6-meter (12-foot) southbound auxiliary lane; 3.0-meter (10-foot) left and right shoulders. Concrete barriers would be constructed on both sides of the roadway. The overall width of this alternative is 37.8 meters (124 feet). This alternative would require localized northbound lane width reduction to 3.3 meters (11 feet) and inside shoulder reduction to 0.6 meters (2 feet) to reduce the overall facility width to 32.4 meters (106 feet) to avoid impacts to the historic batteries and Lincoln Boulevard.

Alignment

The horizontal alignment would be similar to the existing roadway alignment, adjusted to accommodate the wider facility. The existing alignment is maintained to minimize the disturbance to the surrounding park resources.

The configuration of the Park Presidio Interchange is a typical terminal junction and the basic layout would remain the same. The exit geometry of ramps from southbound Doyle Drive to southbound Veterans Boulevard and northbound Veterans Boulevard to southbound Doyle Drive would be improved. The ramp from northbound Doyle Drive to southbound Veterans Boulevard would be partially replaced in the same location, but a deceleration lane would be added at the approach to the ramp diverge to allow vehicles to slow for the exit, without interfering with mainline traffic.

Improvements to the Merchant Road intersections east of the Golden Gate Bridge Toll Plaza are included with the Replace and Widen alternative to improve access to and from the Presidio. The improvements include signing, pavement delineation, sidewalks, and curb and gutter to clarify access and appropriate traffic movements. These improvements would be coordinated with an overall master plan developed by the GGBHTD to improve the overall operations at Merchant Avenue, the Toll Plaza, and Golden Gate Bridge Overlook.

The ramps connecting Doyle Drive to Marina Boulevard and Richardson Avenue would be replaced with aerial structures in the same location to avoid the many historic buildings located at the eastern end of the project limits.

Profile

The profile would be similar to the existing facility. However the No Detour option requires that the low-viaduct profile is raised approximately 2.0 meters (6 feet) higher than the existing facility. The With Detour option maintains the same profile for the low-viaduct as the existing facility.

No Detour Option:

From the Toll Plaza, the profile descends at 4.0% grade to the National Cemetery. It then flattens out to approximately a 1% grade past the cemetery. The profile then descends off the bluff at 3.6% to the Main Post where it flattens out to 0.3% until it reaches the Marina ramps, where it descends at 4% to connect to Marina Boulevard and approximately 6% to connect to Richardson Avenue.

With Detour Option:

From the Toll Plaza, the profile descends at 4.0% grade to the National Cemetery. It then flattens out to 0.7% grade past the cemetery. The profile then descends off the bluff at 3.6% to the Main Post where it flattens out to 0.3% until it reaches the Marina ramps,

where it descends 3.9% to connect to Marina Boulevard and approximately 4.5% to connect to Richardson Avenue.

Right of Way Widths

The right of way interest for the facility would be defined by the facility width. The existing right of way interest would be relinquished in part and additional right of way interests would be acquired from the Presidio Trust. The incumbered area has been estimated based on a right of way interest line located 1.0-meter (3.3 feet) beyond the edge of the facility.

Access Control

Although the existing Doyle Drive is currently not an access-controlled facility, pedestrians and bicyclists would be prohibited on the proposed facility from the Toll Plaza to the Marina and Richardson connections, see Section 7.5 for agreements involving access control on the facility. Other parallel bike paths and trails located within the Presidio provide greater recreational opportunities.

Structural Section

Rubberized hot mix asphalt (RHMA) is proposed for use as the wearing course throughout this project. The use of RHMA is intended to minimize noise intrusion in the park and has been proven to provide a longer life than conventional asphalt concrete. Additionally, State Assembly Bill 338 (AB 338) will require Caltrans to meet minimum RHMA usage amounts, which are targeted to increase annually with a ceiling of 50% of constructed projects using RHMA by January 1, 2015. The flexible pavement section will be reevaluated in the final design as Portland Cement Concrete pavement may be more desirable given the limited maintenance access to the facility.

Drainage Structures

The impacts to the drainage system were fully investigated and the results of the analysis are contained in the Location Hydraulic Study, Manna, 2001 (accepted by Caltrans on December 24, 2001). As the new facility would be a similar location as the existing facility, the existing drainage system would be maintained and essentially replaced "in-kind". The only potential impact to the storm sewer system would be minor relocations due to conflicts from proposed footings and bents. No major impact is anticipated. The existing system (which ties into the larger Presidio system and subsequently to the Bay) has sufficient capacity for the run-off from the widened roadway.

Traffic Operation

Traffic operations and capacity would be similar to the No-Build condition, with the exception of increased capacity in the off-peak direction due to the permanent configuration of three lanes in each direction. In the Year 2030, the highest traffic volumes would be observed on the segment of Doyle Drive between Merchant Road and the Park Presidio Interchange. During the morning commute period, the peak direction of travel would be southbound with LOS D and a peak hourly volume of 6,414 vehicles. During the afternoon commute period, the peak direction of travel would be northbound with LOS D and a peak hourly volume of 5,096 vehicles. In terms of the ADTV, there would be 81,000 vehicles in the southbound direction and 78,000 vehicles in the northbound direction. Additional AM peak, PM peak, and ADTV's for the entire project area can be found in Table 4.3-1.

Structures

A new 463-meter (1,520-foot) high-viaduct would be constructed between the Park Presidio Interchange and the National Cemetery. A new 1,137-meter (3,730-foot) low-viaduct would

be constructed with ramps to tie into Marina Boulevard and Richardson Avenue. The No Detour option would construct the low-viaduct 2.0 meters (6 feet) higher than the With Detour option. The Federal National Bridge Inventory recommends that the existing structure be replaced. Caltrans has programmed an estimated \$23 million interim rehabilitation of the high-viaduct at the beginning of September 2006 and is anticipated to be completed by the end of November 2009. However, it is believed that an interim rehabilitation (repair and repaint primary load carrying members of the truss) would be at best a stopgap measure, only negligibly extending the transitory useful life of the structure.

In addition to the major structures identified in the APS there would be various minor and ancillary structures. Retaining walls would be needed for the ramps at the Park Presidio Interchange and at transitions from at-grade to grade separated portions of Doyle Drive. All these structures must satisfy the latest seismic requirements as well as complement the aesthetic environment of the Presidio.

5.3.3 ALTERNATIVE 5 – PRESIDIO PARKWAY

This alternative would include replacing the existing facility with a new six-lane facility and a southbound auxiliary lane between the Park Presidio Interchange and new Presidio access, landscaped median, continuous shoulders, and direct access to and from the Presidio at Girard Road. To minimize impacts to the park, the alignment would overlap the existing facility east of the Park Presidio Interchange. A temporary detour facility would be constructed to the north of existing Doyle Drive to maintain traffic through the construction period. As described in section 1 of this report there are two interchange alternatives on the east end of the project referred to as “Diamond Option” and “Circle Drive Option”. At the Park Presidio Interchange there are two alternatives for the direct connector from northbound Route 1 to southbound Doyle Drive referred to as “Hook Ramp Option” and “Loop Ramp Option”. In addition the Merchant Road slip ramp is a stand alone alternative that could be incorporated with any of the above options and is called the “Merchant Ramp Option”. The overall engineering features for the mainline alignment would be similar for the different option; however, ramp design would differ.

5.3.3.1 Proposed Engineering Features

Typical Section

The typical section for the proposed facility consists of three northbound lanes, three southbound lanes and one southbound auxiliary lane. In the northbound direction lanes 1 and 2 are 3.3 meters (11 feet) wide and lane 3 is 3.6 meters (12 feet) wide. The inside shoulder is 1.2 meters (4 feet) wide the outside shoulder is 3.0 meters (10 feet). In the southbound direction lanes 1 and 2 are 3.3 meters (11 feet) wide, lane 3 is 3.6 meters (12 feet) wide and the southbound auxiliary lane is 3.3 meters (11 feet) wide. The inside shoulder is 1.2 meters (4 feet) wide with an additional 1.8 meters (6 feet) turf portion to allow for a 3.0 meters (12 feet) wide refuge area. The outside shoulder is 3.0 meters (10 feet). The landscaped median varies from approximately 5.0 to 12.5 meters (16 to 41 feet).

Alignment

This alternative would align the new facility up to 50 meters (164 feet) south of the existing roadway between the Park Presidio Interchange and the National Cemetery. The facility then aligns north of the existing roadway to avoid the limits of the National Cemetery and then returns to overlap the existing alignment at the Main Post. The facility then curves to the south to tie in to Richardson Avenue.

At the Park Presidio Interchange there are two configurations under consideration:

Loop Ramp Option:

The Park Presidio Interchange is reconfigured with this option. The curvature of the northbound Doyle Drive to southbound Veterans Boulevard ramp is realigned to provide a smooth loop from the Doyle Drive exit to the Veterans Boulevard merge. The southbound Doyle Drive to southbound Veterans Boulevard ramp would be widened to two lanes to accommodate the latent traffic demand identified in the traffic analysis. At the merge with the northbound Doyle Drive to southbound Veterans Boulevard ramp, south of the interchange, there would be a right lane drop to taper the ramps to connect to the existing two-lane southbound Veterans Boulevard. The northbound Veterans Boulevard to southbound Doyle Drive ramp would become would be a loop ramp instead of the existing directional ramp configuration.

Hook Ramp Option:

This interchange alternative would have the same layout as proposed for the loop ramp option with the exception of the northbound Veterans Boulevard to southbound Doyle Drive ramp. This ramp would be rebuilt similar to the configuration of the existing directional ramp with a curve to the right and improved exit and entrance geometry.

At the eastern project limit there are also two interchange configurations under consideration:

Diamond Option:

The Diamond option would provide direct access to the Presidio and indirect access to Marina Boulevard in both directions via access ramps from Doyle Drive connecting to an extension of Girard Road. East of the new Letterman garage, Gorgas Avenue is a one-way street and connects to Richardson Avenue with access to Palace Drive via a signalized intersection at Lyon Street.

Circle Drive Option:

This option would provide direct access to the Presidio and indirect access to Marina Boulevard for southbound traffic via access ramps connecting to an extension of Girard Road. Northbound traffic from Richardson Avenue would access the Presidio through a jug handle intersection to Gorgas Avenue.

An additional ramp could be included into this alternative to provide direct access from northbound Doyle Drive to Merchant Road near the GGB Visitors' center and this alternative is called the Merchant Ramp Option. This ramp would alleviate the existing traffic congestion caused by the conflicting two-lane weave condition as northbound Veterans Boulevard traffic merges on to Doyle Drive while Doyle Drive traffic merges right to exit at Merchant Road.

Profile

From the Toll Plaza, the northbound and southbound profiles descend at a 4.3% grade and 4.1% grade past the Historic Batteries. The profile then flattens out to approximately a 0.6% grade. Just west of Halleck Street the profile starts ascending at a 2.7% grade for the northbound direction and a 3% grade for the southbound direction to cross over the proposed Quartermaster Reach Restoration and the realigned Girard Road. The northbound profile then descends at a 2.9% grade while the southbound profile descends at a 3.1% grade to connect to Richardson Avenue.

Right of Way Widths

The right of way interest for the facility would be defined by the facility width. The existing right of way interest would be relinquished in part and additional right of way interests would be acquired from the Presidio Trust. The incumbered area has been estimated based on a right of way interest line located 1.0 meter (3.3 feet) beyond the edge of the facility to minimize the impact to the National Park. See Section 7.5 for agreements involving right of way.

Access Control

Although the existing Doyle Drive is currently not an access-controlled facility, pedestrians and bicyclists would be prohibited on the proposed facility from the Toll Plaza to the new Presidio access at Girard Road, see Section 7.5 for agreements involving access control on the facility. Other parallel bike paths and trails located within the Presidio provide greater recreational opportunities.

Structural Section

Rubberized hot mix asphalt (RHMA) is proposed for use as the wearing course throughout this project. The use of RHMA is intended to minimize noise intrusion in the park and has been proven to provide a longer life than conventional asphalt concrete. Additionally, State Assembly Bill 338 (AB 338) will require Caltrans to meet minimum RHMA usage amounts, which are targeted to increase annually with a ceiling of 50% of constructed projects using RHMA by January 1, 2015. The flexible pavement section will be reevaluated in the final design as Portland Cement Concrete pavement may be more desirable given the limited maintenance access to the facility.

Drainage Structures

The existing drainage system was fully investigated and documented in the Location Hydraulic Study, Manna, 2001 (accepted by Caltrans on December 24, 2001). The tunnel would be constructed using cut and cover construction methods. This would require the replacement of two sections of the storm water drainage system. The existing culvert for Tennessee Hollow would be realigned closer to Girard Road and then discharged to Crissy Marsh. However, the Presidio Trust is planning to restore Tennessee Hollow as a riparian corridor in conjunction with a future Quartermaster Reach Restoration and the Doyle Drive project is coordinating with the Trust to accommodate their future plans. At the Main Post a 1200-millimeter (48-inch) pipe would be replaced to the east of the tunnel portal. The 600-millimeter (24-inch) storm drain along Lincoln Boulevard near the Park Presidio Interchange would be relocated as part of the Lincoln Boulevard realignment. There would be an additional outfall constructed to provide an outfall for the tunnel drainage system. Storm water cut-off drains would be installed at the tunnel portals. Water collected in the tunnel from either tunnel washing operations or fire fighting would collect in a sump, pass through an oil/waste separator and then be pumped to the discharge point.

Traffic Operation

Traffic operations and capacity for the Diamond and Circle Options would be similar to the No-Build condition, with the exception of increased capacity in the off-peak direction due to the permanent configuration of three lanes in each direction. In the Year 2030, the highest traffic volumes would be observed on the segment of Doyle Drive between Merchant Road and the Park Presidio Interchange. For the Diamond Option's morning commute period, the peak direction of travel would be southbound with LOS D and a peak hourly volume of 5,572 vehicles. During the afternoon commute period, the peak direction of travel would be northbound with LOS E and a peak hourly volume of 6,448 vehicles. Although, the LOS is E

for the afternoon peak direction, the traffic volume increases are not considered significant, as significance applies to increases of greater than five percent. In terms of the ADTV, there would be 83,000 vehicles in the southbound direction and 80,000 vehicles in the northbound direction. For the Circle Option's morning commute period, the peak direction of travel would be southbound with LOS D and a peak hourly volume of 6,556 vehicles. During the afternoon commute period, the peak direction of travel would be northbound with LOS E and a peak hourly volume of 6,431 vehicles. Although, the LOS is E for the afternoon peak direction, the traffic volume increases are not considered significant, as significance applies to increases of greater than five percent. In terms of the ADTV, there would be 83,000 vehicles in the southbound direction and 79,000 vehicles in the northbound direction. Additional AM peak, PM peak, and ADTV's for the entire project area can be found in Table 4.3-1.

Truck Restrictions

The sizes of the intersections at the Girard Road interchange have been minimized to reduce the footprint of the facility. To achieve the tight radii, truck turning movements have not been accommodated. The Presidio Trust, as land managers would be responsible for identifying any proposed vehicular restrictions for the off ramps to Girard Road.

Structures

A 450-meter (1,476-foot) long high-viaduct would be constructed between the Park Presidio Interchange and the San Francisco National Cemetery. The height of the high-viaduct would vary from 20 to 35 meters (66 to 115 feet) above the ground surface.

Twin cut and cover tunnels would extend from north of the intersection of Lincoln Boulevard and Crissy Field Avenue to north of the intersection of Lincoln Boulevard and Sheridan Avenue. The northbound tunnel would be 230 meters (755 feet) long and the southbound tunnel would be 240 meters (787 feet) long. The amount of fill over the tunnels is being coordinated with the Trust based on requirements of the Vegetation Management Plan. The depth of fill will vary from 2.0 to 4.0 meters (6 to 13 feet).

From Building 106 (Band Barracks) a second set of cut-and-cover tunnels would extend to east of Halleck Street. The northbound tunnel would be 278 meters (912 feet) long and the southbound tunnel would be 314 meters long (1,030 feet). The expected minimum depth is 2.0 meters (6 feet).

A low level causeway 160 meters (525 feet) long is located over the site of the proposed Tennessee Hollow restoration / Crissy Marsh expansion and a depressed Girard Road. The low causeway would rise to approximately 3.0 meters (10 feet) above the surrounding ground surface at its highest point.

In addition to the major structures identified in the APS there would be various minor and ancillary structures. Retaining walls would be needed for the ramps at the Park Presidio Interchange and at transitions from at-grade to grade separated portions of Doyle Drive. All these structures must satisfy the latest seismic requirements as well as complement the aesthetic environment of the Presidio.

Tunnels

As part of maintaining the vision of Doyle Drive promoted by the City of San Francisco and supported by previous Doyle Drive planning studies, the Veterans Boulevard build alternative proposes tunnels along a portion of the reconstructed Doyle Drive. See [Final Preliminary](#)

Tunnel Systems Report, Parsons Brinckerhoff 2004, for the full description of the tunnel systems. The primary criteria for the tunnels are:

- The tunnel shall consist of two sections, a different section for each direction of traffic, separated by a wall.
- For the tunnels over 90 meters (300 feet) long, fire protection, power and lighting, drainage, traffic control, and tunnel monitoring systems would be provided. Mechanical ventilation may be required.
- For the tunnels over 240 meters (800 feet) long require ventilation, fire protection, power and lighting, drainage, traffic control, and tunnel monitoring systems would be provided. Jet fans will be placed in the crown of the tunnel and use the tunnel cross-sectional area to move air and smoke out of the tunnel.
- The tunnels shall be constructed using a cut and cover method, preserving any cultural resource that may be adjacent to the tunnel.

There may be ancillary structures above ground associated with the functioning of the tunnel's ventilation system, especially if larger, more robust ventilation is required. Any building will need to be located in an unobtrusive location, and fit in to the architectural context of the Presidio.

In addition to the major structures identified under each of the alternative descriptions there would be various minor and ancillary structures. Retaining walls would be needed for the ramps at the Park Presidio Interchange and at transitions from at-grade to grade separated portions of Doyle Drive. All these structures must satisfy the latest seismic requirements as well as complement the aesthetic environment of the Presidio.

5.3.4 NONSTANDARD MANDATORY AND ADVISORY DESIGN FEATURES

5.3.4.1 Alternative 2 – Replace and Widen

Alternative 2 proposes to replace the existing facility in a similar location in order to minimize adverse impacts to the adjacent ecological and historical resources. To avoid the important resources several nonstandard design elements are proposed. The following describes the required design exceptions which reflect the minimization of impacts while maintaining traffic safety for Alternative 2:

Mandatory Standards:

- Stopping Sight Distance
- Superelevation Rate
- Standards for Curvature
- Traveled Way Width
- Shoulder Width
- Median Width
- Horizontal Clearances
- Lateral Clearance for Elevated Structures
- Deceleration Length

Advisory Standards:

- Superelevation transition (runoff)
- Vertical Curve Length
- Median Width
- Decision Sight Distance

Several examples are given below as to why the above design exceptions are requested for this alternative:

- The non-standard section proposed between Lincoln Boulevard on the north side of the National Cemetery and the Batteries to reduce lane-width and shoulder-width to avoid both the National Cemetery and the Batteries.
- In the Gorgas Warehouse area there is a request for an exception to the design speed stopping sight distance to move the alignment north with a tighter curve to avoid the Gorgas Warehouses.
- Non-standard design is proposed for the northbound Route 1 to southbound Route 101 connector ramp (Park Presidio Interchange) to minimize impacts to the stables.

The Alternative 2 design exception fact sheets were reviewed by Rebecca Mowry, Headquarters Design Reviewer on September 29, 2004 and she had no comments

5.3.4.2 *Alternative 5 – Presidio Parkway*

Alternative 5 would replace the existing facility within the same corridor in order to minimize adverse impacts to the adjacent cultural and environmental resources. To avoid the important resources several nonstandard design elements are proposed. The development and approval of these design exceptions was a result of an extensive review process that required multiple design reviews and revisions before reaching a consensus on the appropriate design for the project. The required design exceptions, which reflect the minimization of impacts while maintaining traffic safety for Alternative 5, are identified below:

Mandatory Standards:

- Stopping Sight Distance
- Superelevation Rate
- Standards for Curvature
- Standards for Grade
- Traveled Way Width
- Shoulder Width
- Horizontal Clearances
- Lateral Clearance for Elevated Structures
- Deceleration Length
- Access Control

Advisory Standards:

- Superelevation transition (runoff)
- Compound Curves
- Reversing Curves
- Vertical Curves
- Local Street Interchanges
- Freeway Entrance Design

Several examples are given below as to why the above design exceptions are requested for this alternative:

- A non-standard section is proposed between the National Cemetery and the Batteries to reduce lane-width and shoulder-width to avoid both the National Cemetery and the Batteries.
- In the Gorgas Warehouse area there is a request for an exception to the design speed stopping sight distance to move the alignment north with a tighter curve to avoid the Gorgas Warehouses.
- In the southbound portion of the roadway in the area of Building 106 there is additional construction complexity and staging to build the roadway in two sections to avoid any construction or permanent damage to Building 106.

- At the Park Presidio Interchange, the Presidio Parkway Alternative has proposed non-standard design elements to provide adequate separation of the Calvary Stables buildings from the roadway.

The design exception fact sheets for Alternative 5 were approved by Mike Thomas, Headquarters Design Coordinator on November 10, 2005.

5.3.5 INTELLIGENT TRANSPORTATION SYSTEM (ITS)

The replacement of existing ITS elements will include installation of loop detector stations (minimum of six), changeable or variable message signs (minimum of two), surveillance cameras (minimum of five), traffic monitoring stations (minimum of seven in each direction) and highway advisory radio system are considered an ITS strategy and would be included in all of the build alternatives.

5.3.6 INTERIM FEATURES

There would be no interim features in the proposed project.

5.3.7 HOV (BUS AND CARPOOL) LANES

HOV lanes on a replacement facility were considered and eliminated from further consideration because there is no existing or proposed system of HOV lanes on the connecting roadway network, and there would be physical constraints on the eastern and western approaches of Doyle Drive. Without a larger network to connect to, a Doyle Drive HOV lane would have limited effectiveness in terms of travel time savings. This is in compliance with the MTC's 2002 HOV Lane Master Plan Update that does not propose HOV lanes in the project corridor.

5.3.8 RAMP METERING

Currently, there would be no ramp metering included in the project since the current ramp metering plan does not show ramp metering planned for Doyle Drive.

5.3.9 CALIFORNIA HIGHWAY PATROL (CHP) ENFORCEMENT AREAS

CHP enforcement areas are required for multi-lane ramps with an HOV bypass lane. As there are no HOV lanes proposed on the project, there would be no CHP enforcement areas.

5.3.10 PARK AND RIDE FACILITIES

No park and ride facilities would be included in the project. The PTMP outlines a transportation strategy designed to minimize private automobile use and increase the availability of public transit, pedestrian and bicycle travel options. In addition, previous planning studies have identified multi-modal and direct vehicular access into and out of the Presidio as a central feature. Each of the build alternatives would include a multi-modal transit center and accommodate transit vehicles in mixed flow conditions. Several recommendations made to implement this strategy included improved connections between the Presidio and existing city roadway and transit systems, the creation of a transit hub, and the promotion of alternative fuel shuttle vehicles and water taxis. Therefore, a park and ride facility would not meet the PTMP transportation strategy.

5.3.11 UTILITY AND OTHER OWNER INVOLVEMENT

The existing utilities within the Doyle Drive corridor include Presidio Trust storm water drainage, sanitary sewer, natural gas, water, communication, and electricity. Portions of all of these utility systems would be relocated prior to, or during, reconstruction of the Doyle Drive facility. The majority of the utilities cross the Doyle Corridor, but are not part of this project. During the construction of the tunnels, which is proposing cut and cover methods, temporary utility systems would be provided for continued service during construction. Where appropriate, relocated utilities will be replaced above the completed tunnels.

The condition of the existing utility system varies greatly. Parts of some systems are very old and in poor condition, while others have recently been replaced or repaired by the US Army, NPS, or the Trust. The Trust has an on-going program to up-grade utility systems, and plans to repair or replace some of the utilities within the Doyle Drive corridor in the near future. The Trust also has plans to develop a water recycling facility within the project limits near Girard Road and Gorgas Avenue. At present, there are no approved plans for the recycling system; however, a Draft Environmental Assessment was circulated. Comments were provided to the Trust requesting future coordination to address and coordinate the needs of both projects.

PG&E owns the gas and electric utilities. The Trust owns the remainder of the utilities, including storm water drainage, within the project corridor. Initial contact with the Trust determined that the Doyle Drive Project would be liable for the costs of all project related utility relocations. The Right of Way Data Sheets identify the owners of public utilities within the project corridor.

5.3.12 RAILROAD INVOLVEMENT

There is no railroad involvement on this project.

5.3.13 HIGHWAY PLANTING

Planting would be an important feature of the final design project, especially since the proposed project lies within a National Recreation Area and several future restoration projects are in the initial planning stages. The final design project should ensure restoration of any disturbed planting and take special care in areas where rare plant species are present. In addition, any new landscaping would include 150 millimeters (6 inches) of imported topsoil and would be consistent with the approved Presidio Vegetation Management Plan. Maintenance responsibility of these plantings by Caltrans or others would be assigned in a Maintenance Agreement developed prior to the start of construction.

Based on data gathered from the NPS, US Fish and Wildlife Service, California Native Plant Society Electronic Inventory, and California Department of Fish and Game; a total of 45 special status plant species were considered. However, only two of these species are present in the project study area, and none present within the Doyle Drive construction corridor. (Final Natural Environmental Study, July 2005).

5.3.14 WATER POLLUTION AND EROSION CONTROL

Each build alternative would involve standard construction activities including the excavation, grading, and stockpiling of soil as well as the tunnel and bridge construction. These activities would expose soil that would be susceptible to erosion due to run-off generated during rainstorms, if not protected. Currently the majority of run-off generated in the project

area flows directly to the Bay through storm drainage system throughout the Presidio or as overland flow. During construction, storm water run-off and non-storm water discharges could transport and release sediment into the Bay, resulting in water quality degradation. Therefore measures to control sedimentation, erosion and the discharge of other pollutants will be utilized during construction. Furthermore disturbed soil areas that will remain unpaved upon completion of construction will be permanently protected with erosion control measures or highway planting.

Since the project construction activities would result in a disturbance of more than one acre, the project would comply with the terms of the National Pollutant Discharge Elimination System (NPDES) Permit for Construction Activities (Order No. 99-08-DWQ, NPDES No. CAS00002) and the Statewide Storm Water Permit (Order No. 99-06-DWQ, NPDES No. CAS00003) issued by the State Water Resources Control Board to Caltrans resulting in the development and implementation of a SWPPP. Under the latter permit all discharges from State (Caltrans) roadway facilities are regulated.

5.3.15 NOISE BARRIERS

Construction of noise barriers at locations that are on local streets such as Richardson Avenue, Lyon Street, Marina Boulevard, Mason Street, Lincoln Boulevard, Gorgas Avenue, Montgomery Street, Girard Road and Halleck Street, would not be feasible because driveways would need to be maintained to provide access to those properties.

Other noise receptor locations in the Battery area, Armistead Road area, Log Cabin area, and associated with residences along Storey Avenue and the National Cemetery have the potential to be benefited by the construction of noise barriers (depending on cost and effectiveness considerations). The Caltrans protocol was applied to a series of noise barriers at each site and the results of the preliminary reasonableness determination are provided in Table 5.2-3. The locations of the preliminary reasonable noise barriers are shown in Figures 5.3.15-1 & 2.

After completion of the public input process, Noise Barrier Nos. 1 through 9 have been determined to be not reasonable and will not be included in the project.

5.3.16 NON-MOTORIZED AND PEDESTRIAN FEATURES

Few continuous bicycle or pedestrian routes occur within the Presidio. However, future improvements and goals are highlighted in the following planning documents: [San Francisco Bicycle Plan](#), and the [Presidio Trails and Bikeways Master Plan](#).

On the Doyle Drive facility, pedestrians and bicyclists would remain prohibited on the mainline facility from the Toll Plaza to the Marina and Richardson connections. Proposed tunnels, aerial structures, sidewalks, and signalized intersections would improve pedestrian and bicycle circulation by providing connectivity across (but not on) Doyle Drive. Access across the improved roadway would be maintained via Marshall Street, Crook Street, McDowell Avenue/Crissy Field Avenue (Replace and Widen Alternative), at the Girard Street Interchange (Veterans Boulevard Alternative) at the Lincoln Boulevard/Park Presidio Interchange and at the Lincoln Boulevard/Golden Gate Bridge Toll Plaza. To enhance pedestrian safety the proposed Preferred Alternative design would provide pedestrian access under Doyle Drive from the Gorgas Avenue warehouses to the Palace of Fine Arts and under Girard Road from the Palace of Fine Arts to the Mason Street warehouses.

A transit transfer hub on Richardson Avenue at Lyon Street consisting of a series of nearby bus stops, including directional information and waiting areas, would be created near the direct Presidio access to maximize transit connectivity and encourage increased ridership. Pedestrian access to the transit transfer hub will be through controlled crosswalks located at the intersection of Richardson Avenue and Gorgas Avenue.

5.3.17 NEEDED ROADWAY REHABILITATION AND UPGRADING

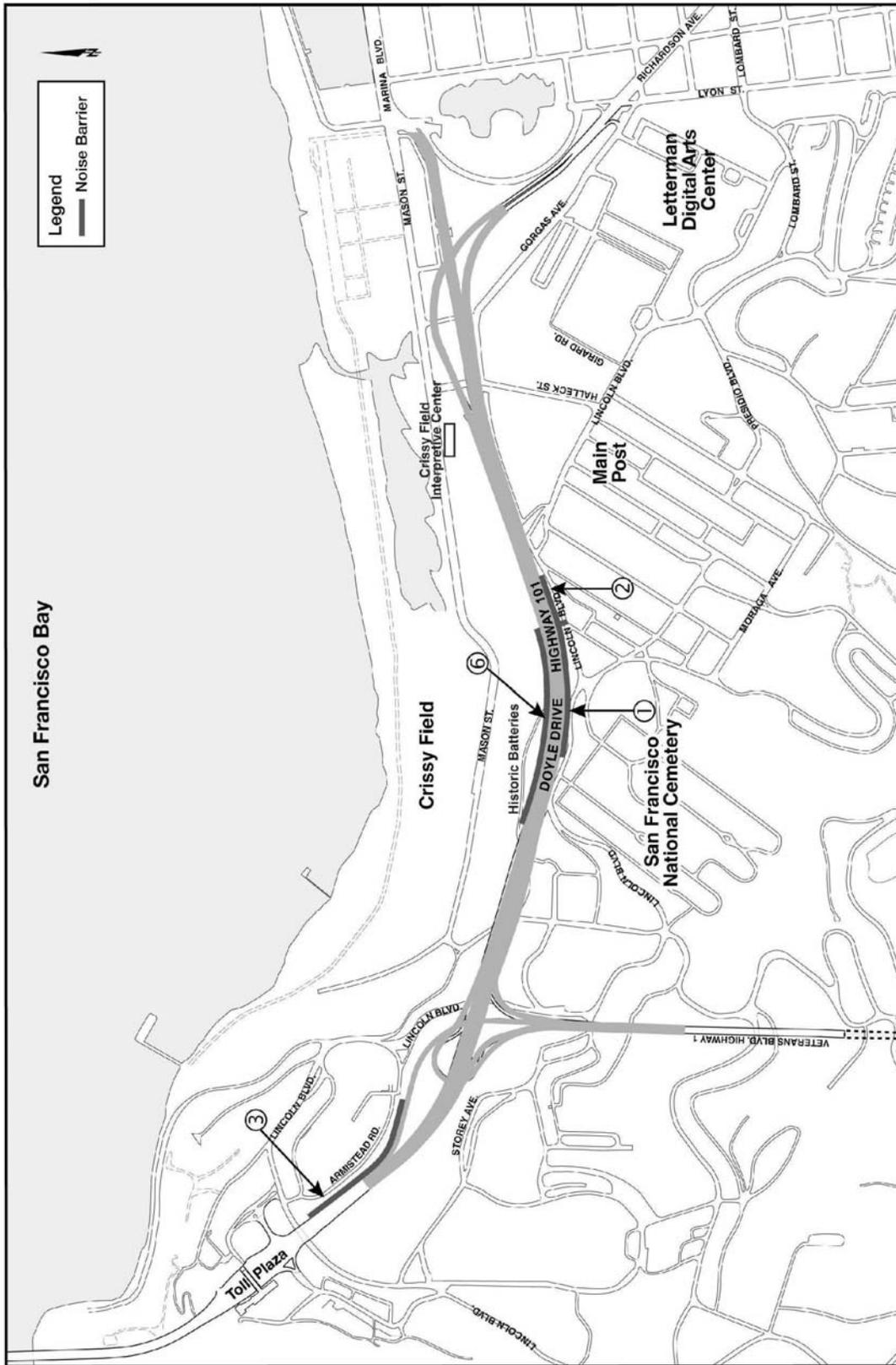
Because Doyle Drive is primarily on structures, there is little at-grade roadway. The structures and roadway would be replaced in all the build alternatives.

5.3.18 NEEDED STRUCTURE REHABILITATION AND UPGRADING

The long-term effects of heavy traffic and exposure to salt air have caused the viaduct structures to deteriorate. Partial rehabilitation of the concrete decks was completed in early 1993. This work was expected to add only six to ten years to the service life of the decks. In 1995, the bridge substructures received a seismic retrofit; however, the bridge decks have continued to deteriorate. The Federal National Bridge Inventory recommends that the existing structure be replaced. As mentioned in Section 3.3 an interim rehabilitation is currently underway to assess the condition of the structural members, replace them if needed, and paint the structure. It is expected that ongoing maintenance would then be required to maintain the service load carrying capacity and safety of the facility to prevent it from being posted with a weight restriction. Because of the long-term effects of heavy traffic and exposure to salt air, it is believed that the interim rehabilitation (repair and repaint primary load carrying members of the truss) would be at best a stopgap measure, only negligibly extending the transitory useful life of the structure. Alternative 2, Replace and Widen would replace the existing structures in a similar location and Alternative 5, Presidio Parkway would remove and replace the existing structures with a combination of new structures and tunnels.

5.3.19 COST ESTIMATES

The preliminary costs for the alternatives, by components are shown in Table 5.2-4. Capital outlay support costs and design services are not included. Capital costs are presented in year 2008 dollars with right of way cost escalated to an anticipated start of construction in 2010. Escalation to the year of expenditure is also shown using a total escalation of 20.5%. Due to the continual increases in project costs, the longer it takes to start construction of the project, the higher the project cost will be. Potential factors that could increase project cost are changes to the project during detailed design, increases in material quantities, increases in material costs and unanticipated subsurface conditions. The cost estimates have been revised to take into account project risks per Caltrans Risk Management Plan in July 2007.



**FIGURE 5.2.15.3.15-1
ALTERNATIVE 2 – REPLACE AND WIDEN
PRELIMINARY REASONABLE NOISE BARRIER LOCATIONS**

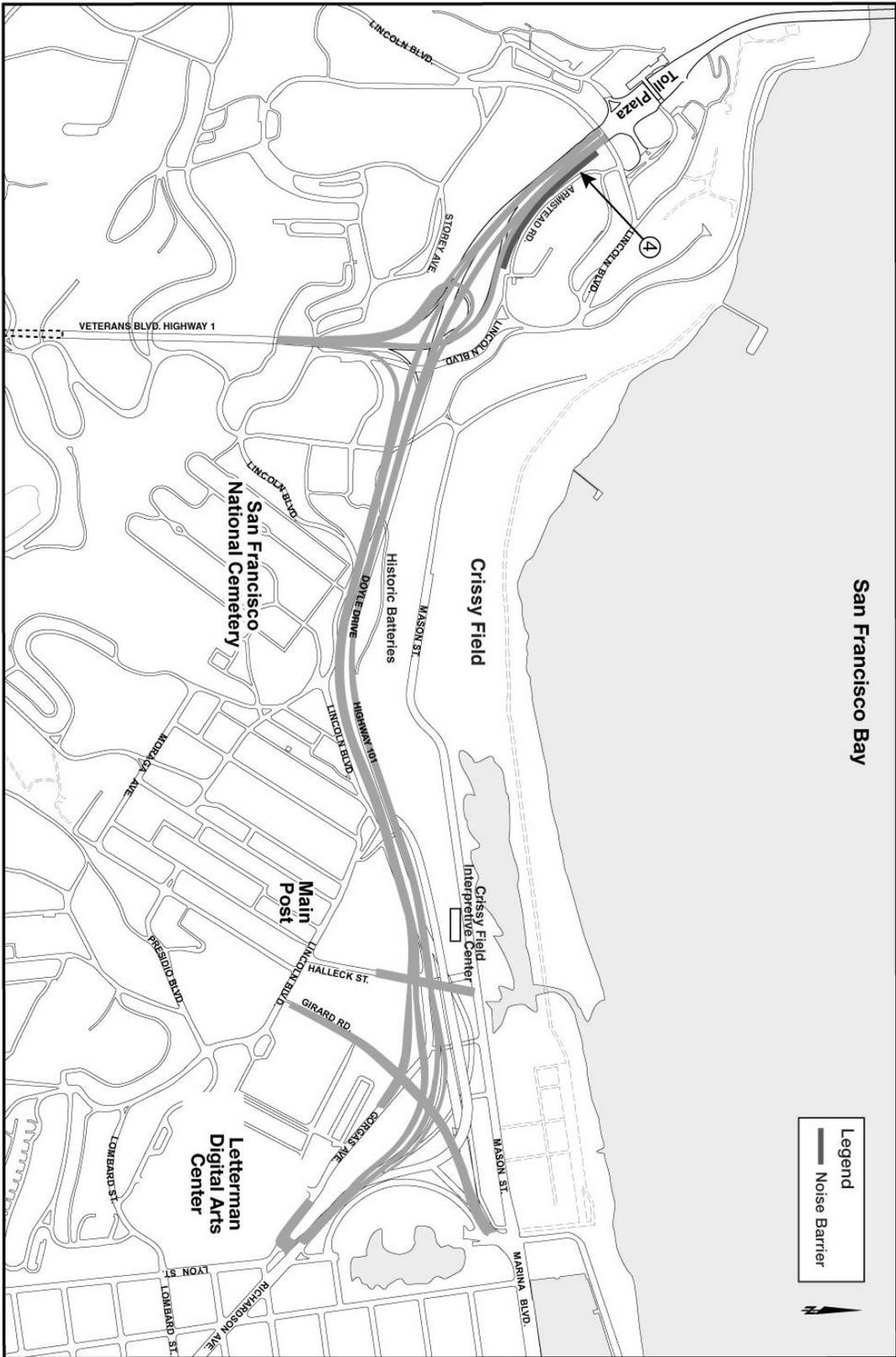


FIGURE 5.3.15-2
ALTERNATIVE 5 - PRESIDIO PARKWAY
PRELIMINARY REASONABLE NOISE BARRIER LOCATION

5.3.20 RIGHT OF WAY DATA

The project is located on federal land in the Presidio within the GGNRA, and as such, Caltrans does not own the right of way associated with the facility. Caltrans owns and maintains Doyle Drive within a right of way permit originally granted by the Army that is now under the jurisdiction of the Trust. The right of way permit varies between 18.3 and 24.4 meters (60 and 80 feet). It is understood that Caltrans would quit claim all rights under the existing permit and obtain a new right of way interest through FHWA, pursuant to FHWA's authority under 23 USC 317, as a Federal Land Transfer. The details of this transfer would be subject to negotiation with the Trust, the land managers of Area B, and Caltrans once the project is approved.

The permanent and temporary right of way required for all alternatives are shown in Tables 5.2-5 and 5.2-6 respectively. The existing right of way interest for Doyle Drive occupies approximately 9.5 hectares (22 acres) within the Presidio.

Alternative 2, Replace and Widen would replace the existing structures in a similar location and Alternative 5, Presidio Parkway would remove and replace the existing structures with a combination of new structures and tunnels. The land above the tunnels constructed with Alternative 5, although part of the permanent right of way interests, would become available for recreational purposes following construction. This would result in additional 2.0 hectares (4.9 acres) of parkland being made available in the Doyle Drive corridor under Alternative 5.

5.3.21 EFFECT OF SPECIAL FUNDED PROPOSAL ON STATE HIGHWAY

Funding has not yet been conclusively identified for this project. Therefore, the project's status as a Special Funded project may not be determined at this point.

5.4 Rejected Alternatives

A set of fifteen initial transportation improvement alternatives and five access options were developed (Doyle Drive Environmental and Design Study Final Alternatives Report, October 6, 2000). These alternatives were developed based on past studies, public and agency input at the scoping meetings and consideration by the study team. They were subjected to an iterative screening process to identify the alternatives that would be analyzed in more detail in the EIS/EIR. The process applied screening measures derived from the Purpose and Need Statement and in agreement with technical resource staff from Caltrans, the NPS, and the Trust. The screening process permitted the study team to assess the conceptual alternatives and options in an expeditious and efficient way.

This initial set of alternatives included both capital and operational strategies that emphasize different potential alignments to provide the full range of options. As part of the screening evaluation, some alternatives and access options were eliminated from further consideration. Fifteen alternatives were initially identified for the Doyle Drive Corridor. They are listed below:

- Retrofit Without Widening (Minimal Improvements) Alternative
- Transit Exclusive Alternative
- Retrofit with Widening Alternative
- Park Presidio (Highway 1) Alternative
- Doyle Drive Boulevard Alternative
- In Corridor – Phased Construction Alternatives: Tunnel

- In Corridor – Phased Construction Alternatives: Depressed
- In Corridor – Phased Construction Alternatives: At-grade
- In Corridor – Phased Construction Alternatives: Elevated
- In Corridor – Detour Construction Alternatives: Tunnel
- In Corridor – Detour Construction Alternatives: Depressed
- In Corridor – Detour Construction Alternatives: At-grade
- In Corridor – Detour Construction Alternatives: Elevated
- Lombard to Lincoln Alternative
- North of Corridor Alternative

Several access options were also identified for some of the alternatives and vary by location, neighborhood impact, and level of access. They included an access alignment between Doyle Drive and Lyon Street along Gorgas Avenue; new Presidio access or no new Presidio access; and whether existing Marina Boulevard access should be maintained or eliminated. For ease of reference they are listed below:

- Gorgas Access
- Richardson Access
- Presidio Access
- No Presidio Access
- Marina Access
- No Marina Access

5.4.1 ALTERNATIVES CONSIDERED AND WITHDRAWN DURING INITIAL EVALUATION AND TRAFFIC SCREENING

As part of the alternatives evaluation, some build alternatives, access options, and design elements were eliminated from further consideration. These are listed below:

Retrofit Without Widening (Minimal Improvements). This alternative represented the maximum transportation system improvement that could be derived from relatively modest expenditures in the Doyle Drive corridor. The intent of the improvements in this alternative was to improve seismic and structural safety and extend the life of the existing facility as much as possible with minimal improvements. However, it was withdrawn from further consideration for the following reasons:

Presidio Viaduct

- Geometry of the substructure of the west approach precluded widening and required replacement of the entire west approach.
- Sufficiency Rating based on Biennial Maintenance Inspections indicated the deterioration has compromised the gravity load carrying capacity of the structure as well as the lateral load carrying capacity (seismic safety) of the structure.
- The Retrofit and Widen Alternative cannot meet the seismic performance goals of the corridor given that the structure is designated as an “important route” (see Caltrans Lifeline memo—it is not a lifeline but the next class below—current Presidio Viaduct Retrofit was based on No-Collapse Performance).

- The only feasible widening scenario, namely a parallel widening with the same structure type, permanently impacted the pet cemetery.

Marina Viaduct

- The Retrofit and Widen Alternative is not feasible due to the fact that the existing structure cannot be retrofitted to the Maximum Credible Earthquake and as a result has been recommended to be replaced prior to the year 2008.

In addition, the minimal improvements would not provide wider travel lanes, a median barrier, or shoulders; and would not meet the project's purpose and objectives of improving traffic safety.

Transit Exclusive Alternative. This alternative would have modified the existing Doyle Drive roadway for transit use only (buses and/or light rail vehicles). No provisions would be made to retain Doyle Drive's current function serving non-transit vehicles. It was withdrawn from further consideration because this alternative would no longer serve its current function as part of the local and regional transportation network and would not improve vehicular access to the Presidio; therefore, it would not meet the Doyle Drive project's purpose and objectives.

Park Presidio (Highway 1) Alternative. This alternative was developed by NPS to reduce potential impacts to resources in the Doyle Drive corridor by providing access between the Golden Gate Bridge and San Francisco via Highway 1 (Veterans Boulevard) with local access to the Presidio. Veterans Boulevard between the Golden Gate Bridge and Geary Street would be widened to accommodate both Veterans Boulevard and Doyle Drive traffic and re-designated as Route 101. This alternative was withdrawn from further consideration because a substantial amount of right of way would be needed to accommodate improved intersections along Veterans Boulevard, affecting both parkland and residential properties. Additional right of way would also be needed along the Geary Boulevard corridor from commercial and residential properties to accommodate an additional lane. Even with an increased number of lanes, the intersections of Veterans Boulevard at both California Street and Geary Boulevard would operate at unacceptable service levels.

Doyle Boulevard Alternative. This alternative was developed by Trust to provide an at-grade facility between the National Cemetery and Lyon Street along Richardson Avenue Marina Boulevard and Girard Road would be extended to create a new at-grade intersection with access to the Presidio near the Letterman Complex. In addition, a new at-grade intersection at Bank Street would provide access to the Main Post, and a new at-grade intersection at Halleck Street would provide cross-access between Mason Street and the Main Post. Veterans Boulevard and Geary Boulevard could be improved to accommodate some Doyle Drive traffic to facilitate the use of at-grade intersections. Of all alternatives evaluated for this project the Doyle Boulevard Alternative was the closest to a Conventional Highway definition and applied standards. This alternative was withdrawn from further consideration because the Doyle Boulevard intersections would require additional lanes to accommodate the turning volumes and increasing the project footprint that would have additional adverse impacts to cultural, biological, and recreational resources in this area. The southbound approach to the Veterans Boulevard and California Street intersection would also require three additional approach lanes to accommodate a double left turn and exclusive right turn.

Parallel Construction - Elevated. This vertical alignment was eliminated from further consideration because it would require the removal of historic Buildings 105 and 106 of the

Montgomery Barracks, both integral and contributing structures to the National Historic Landmark District, and would take a portion of the San Francisco National Military Cemetery. This profile does not provide enough depth to pass under these resources without removal.

Parallel Construction - Depressed. This vertical alignment was eliminated from further consideration because it would not accommodate the restoration of Tennessee Hollow to the more natural state of open hydrological flow included in the General Management Plan Amendment and it would limit pedestrian and bicycle access to overpass structures. Pedestrians and bicycles crossing Doyle Drive could only cross at overpasses constructed to “bridge” the depressed roadway or over park extension over the east tunnel.

Detour Construction - Elevated. This vertical alignment was eliminated from further consideration because it would require the removal of historic Buildings 105 and 106 of the Montgomery Barracks, both integral and contributing structures to the National Historic Landmark District, and would take a portion of the San Francisco National Military Cemetery. This profile does not provide enough depth to pass under these resources without removal.

Detour Construction - Depressed. This vertical alignment was eliminated from further consideration because it would not accommodate the restoration of Tennessee Hollow to the more natural state of open hydrological flow included in the General Management Plan Amendment and it would limit pedestrian and bicycle access to overpass structures. Pedestrians and bicycles crossing Doyle Drive could only cross at overpasses constructed to “bridge” the depressed roadway or over park extension over the east tunnel.

Lombard to Lincoln Alternative. The Lombard to Lincoln Alternative would include the construction of a new facility south of existing Doyle Drive crossing the Presidio at a diagonal with no curves through the Main Post and the Letterman Complex to connect directly to Lombard Street. This alternative was eliminated from further analysis because it would require the removal of Buildings 4, 5, 34, 38, 102 and 103 on the Main Post, all of which are integral and contributing structures to the National Historic Landmark District. It would also destroy the relationship between the historic buildings and historic landscape features and conflict with the development of the Letterman Complex. It would also require a small taking of a portion of the National Cemetery as well as change the visual setting.

North of Corridor Alternative. The North of Corridor Alternative would include a new, elevated facility located north of existing Doyle Drive that would cross Crissy Field to align with the Palace of Fine Arts Dome. This alternative was eliminated from further analysis because it would require the removal of two Laundress Quarter buildings on Crissy Crescent, both of which are integral and contributing structures to the National Historic Landmark District, and destroy the relationship between the historic buildings and landscape features. It would take a significant portion of the recently completed Crissy Field and wetland restoration area and conflict with any possible expansion of Crissy Marsh that was included in the GMPA and PTIP.

Gorgas Access Option. This access option would connect Doyle Drive to Richardson Avenue at Lyon Street along a Gorgas Avenue alignment. It was withdrawn from further analysis because it would require the removal of historic buildings along Gorgas Avenue and warehouses, the historic gymnasium, and indoor pool, all of which are integral and contributing structures to the National Historic Landmark District. It would also destroy the relationship between the historic buildings and historic streetscape features and conflict with the Letterman Complex by removing Gorgas Avenue as the primary internal vehicular and

bicycle circulation road. Moving mainline Doyle Drive south of the existing historic buildings would also degrade the Historic Landmark District boundary.

No Presidio Access Option. This access option would eliminate the addition of any new access to the Presidio near the Main Post. This option was withdrawn from further analysis because it was not consistent with the project's purpose or the GMPA's and PTMP's objectives to improve intermodal or vehicular access to the Presidio.

No Marina Access Option. This access option would eliminate the existing access between Marina Boulevard and Doyle Drive. It was withdrawn from further analysis because it would result in additional traffic on Richardson Avenue and poor traffic operations. Changing traffic patterns would increase intrusion in the residential areas of Cow Hollow, Pacific Heights, and the Marina by increasing local traffic between Marina Boulevard and Richardson Avenue.

5.4.2 ALTERNATIVES AND ACCESS OPTIONS ELIMINATED AFTER FURTHER REVIEW

The alignment requirements of each of these construction alternatives were eliminated from further review following additional analysis and evaluation.

In Corridor – Phased Construction Alternative: Tunnel. Tunnel under Halleck – Direct Marina Connector.

In Corridor – Phased Construction Alternative: Tunnel. Tunnel under Halleck – Signalized Marina Connector.

In Corridor – Phased Construction Alternative: At-Grade. Bridge over Halleck – Direct Marina Connector.

In Corridor – Phased Construction Alternative: At-Grade. Bridge over Halleck – Signalized Marina Connector.

The Alignment requirements of the phased construction alternatives unavoidably put them under the northern portion of the National Cemetery and would also have resulted in adverse impacts to it as well as to a number of historic buildings, raising concerns with the VA. In addition, these alternatives would require longer construction durations, more complex traffic staging and higher construction costs than the detour construction alternatives.

In Corridor – Detour Construction: Couplet Alternative: This alternative was designed to maximize views of the Palace of Fine Arts from the Doyle Drive roadway and enhance pedestrian accessibility. Because the couplet would have significant adverse impacts to historic buildings on Gorgas Avenue, the National Historic Landmark District boundary, and additional traffic and noise impacts, it would not meet the project's Purpose and Need Statement.

5.4.3 ALTERNATIVES AND DESIGN OPTIONS WITHDRAWN AFTER PRELIMINARY ENVIRONMENTAL ANALYSIS

Following completion of the Administrative DEIS/R and development of a new alternative (Presidio Parkway), additional evaluation and analysis were performed. As a result, all four detour construction alternatives with single tunnels (listed below) were eliminated from further review.

Alternative 3a: Detour Construction. Tunnel under Halleck, Direct Marina Access.

Alternative 3b: Detour Construction. Tunnel under Halleck and Girard, Signalized Marina Connector

Alternative 4a: Detour Construction. Bridge over Halleck, Direct Marina Access.

Alternative 4b: Detour Construction. Bridge over Halleck and Girard, Signalized Marina Connector

5.4.4 VARIOUS DESIGN ELEMENTS CONSIDERED AND WITHDRAWN

Lyon Street Portal. An extension of the tunnel with a portal at Lyon Street was also evaluated. This refinement would separate Doyle Drive, via the tunnel, from the Presidio and require significant amounts of right of way along Richardson Avenue.

Tunnels. The Doyle Drive Task Force developed a scenic parkway concept that would have placed Doyle Drive in separate tunnels. One 300-meter (984-foot) long tunnel was located north of the National Cemetery and another 300-meter (984-foot) long tunnel was located north of the Main Post area. Engineering analysis indicated that a large retaining wall would be required in addition to separate ventilation systems. This would not be cost effective and therefore this arrangement was removed from further consideration.

Moveable Barrier Option. An option considered with Alternative 2 – With Detour was to provide a continuation of the moveable barrier proposed for use on the Golden Gate Bridge. The moveable barrier option would consist of three 3.6-meter (12-foot) lanes southbound, two 3.6-meter (12-foot) lanes northbound, and one 3.6-meter (12-foot) reversible lane to accommodate peak traffic for a total of six lanes; 1.2-meter (4-foot) left shoulders adjacent to the moveable barrier; and 3.0-meter (10-foot) right shoulder widths. Concrete barriers would be constructed on both sides of the roadway. The minimum overall width of this option would be 30.3 meters (99.4 feet). However, because of construction staging constraints, this minimum width could only be realized in limited locations north of the National Cemetery and on the west portion of the high-viaduct. The remaining portions of the facility would be the same width as the fixed barrier option. Further analysis of this option indicated that there would be no project benefit from the use of a moveable barrier and hence this option was removed from further consideration.

Other concepts include shifting the Doyle Drive tunnel west of the Park Presidio Interchange. However, it would cross Cavalry Stables and Tennessee Hollow at-grade and would create an additional major obstruction to Park resources. There was also a proposal for a split-level couplet (northbound lanes at-grade; southbound lanes in a tunnel) but it would significantly increase construction and staging complexity. Other proposals included constructing a double-deck tunnel with parking on the top of the tunnel. However, the transition to the existing Doyle Drive alignment and the Park Presidio Interchange would be difficult. A triple-deck tunnel was also proposed. However, due to insufficient space conditions, there would be impacts to Tennessee Hollow and the existing roadway system.

6. CONSIDERATIONS REQUIRING DISCUSSION

6.1 Hazardous Waste

A Preliminary Site Investigation (PSI) October 2004 (approved by Caltrans August 20, 2004) evaluated the potential presence of hazardous materials at and near the Doyle Drive study

area. All work was performed in accordance with guidelines in Caltrans' Project Development Procedures Manual (7th Edition, July 1999). Within and near the study area, hazardous materials have been used, stored, generated, and released at several locations. Hazardous materials may also be present in surface and subsurface soils and groundwater at sites along the alignment because of releases from current and historical land uses. The key findings of the PSI are described below:

- Several areas of concern identified in previous investigations may have the potential to affect project construction. These include hexavalent chromium and serpentinite identified in several areas at the Presidio, as well as soils and groundwater affected by releases of metals, petroleum hydrocarbons, and volatile organic compounds (VOCs). The identified areas of concern potentially affecting project development are summarized in the PSI.
- Serpentinite bedrock was identified at sites throughout the study area. Serpentinite contains a naturally occurring form of asbestos as well as heavy metals such as nickel. As the serpentinite is a natural feature of the study area geology, and poses no significant health risks when undisturbed, no remedial actions are proposed. However, if the bedrock were to be disturbed during construction activities, asbestos fibers and metal particulates could be released to the air, which could potentially affect construction workers and nearby Presidio users.
- Hexavalent chromium was also detected in the groundwater, above drinking water standards at several areas in the Presidio. The extent of chromium contamination and potential sources would be evaluated by the Presidio Trust as part of their base-wide groundwater-monitoring program. The presence of hexavalent chromium in groundwater could affect the project alternatives if groundwater dewatering was proposed.
- Thirty-four sites within 0.8 kilometers (0.5 miles) of the study area that use, store, dispose of, or have released hazardous materials were identified in regulatory agency databases. None of these sites would likely affect the project development.
- Based on the age of the study area structures, lead-based paint and/or asbestos-containing building materials may be present in buildings demolished or relocated during project development.
- There is a potential for aeriually deposited lead (ADL) from vehicle exhaust in shallow soils near Doyle Drive. If present, soils near Doyle Drive could be classified as hazardous waste and once excavated, special soil management and disposal and/or construction worker health and safety measures may be required during project construction. The cost of ADL removal was limited to an area adjacent to the Presidio Viaduct at a cost of \$3,206,110. This cost is included in the Hazardous Waste Mitigation Work item in the cost estimate for the Preferred Alternative located in Attachment J.

Based on the findings of the PSI, the main recommendations include:

- Prior to project construction, geotechnical borings from the site should be reviewed to identify areas of serpentinite bedrock that would be disturbed during project construction.
- Prior to project construction, a soil investigation should be performed to determine if aerially deposited lead from vehicle exhausts have affected shallow soils near Doyle Drive. No other compounds of potential concern were identified. Information provided by Caltrans in support of their Variance with DTSC indicates that lead-impacted soils are generally limited to areas immediately adjacent to roadways. Therefore, only those areas are proposed to be tested during the soil investigation. In meetings between Caltrans, NPS, and the Trust during 2003, it was established that Caltrans would not reuse lead contaminated soil within the project area, and the reuse criteria established by the Trust would be used during project development. However it is possible to invoke the Lead Variance and reuse the ADL soil on a different Caltrans project within the Route 101 corridor outside the boundaries of the Trust and the NPS.
- Prior to demolition or relocation of buildings for project construction, a lead-based paint survey and asbestos-containing materials survey should be conducted.
- Prior to project construction, a Site Management Program/Contingency Plan (SMP/CP) should be prepared to address known and potential hazardous material issues during construction.
- If groundwater dewatering is required during project construction, a permit from SFRWQCB, PTUD and/or SFPUC would be required.

6.2 Value Analysis

A Value Analysis (VA) study was performed for this project in October, 2001. Thirteen key alternatives were developed for improvement of the project. Two of the VA Alternatives that pertain to the tunnel scenarios were accepted, while the remaining ten VA Alternatives were conditionally accepted pending outcome of additional review and analysis. Descriptions of the alternatives are provided in Table 6.2-1.

The performance of the original concept and each VA alternative was evaluated to determine its effect on the performance criteria identified by Caltrans and the project stakeholders. The performance criteria included:

- Access
- Construction Impacts
- Constructability
- Cultural Resources
- Natural Resources
- Recreational Resources
- Public Safety
- Mainline Operations
- Local Operations

A Performance Rating Matrix was used to evaluate the performance of the original design concept. VA sets were then developed and compared to the original design concept. VA sets are complimentary groups of the VA Alternatives that offer distinct strategies. The overall performance rating is divided by the total cost of the concept to establish a relative performance/cost index. The difference between the VA set concepts and the original design concept is expressed as a net percent change in value improvement.

As the Presidio Parkway Alternative was developed after the initial VA study, a second VA study was conducted in May 2006. The second VA study focused on the Parkway Alternative to identify and develop alternatives that could reduce project costs while maintaining the necessary functions in order to assist and accommodate stakeholder agencies in funding the project.

Table 6.2-1 Value Analysis Alternatives, 2001

Description	Potential Initial Cost Savings	Change in Performance
Accepted VA Alternatives		
Tunnel VA Alternatives		
Use Slurry Wall as Part of Permanent Tunnel Structure	\$6,796,000	+4%
Raise Tunnel Profile at National Cemetery	\$25,000,000	+6%
Conditionally Accepted VA Alternatives		
Retrofit & Widen VA Alternatives		
Span-by-Span Replacement of Presidio Viaduct Using Existing Substructure	\$13,500,000	+2%
Span-by-Span Replacement of Presidio Viaduct by Widening Existing Substructure	\$10,800,000	+2%
Temporarily Support Presidio Viaduct Truss and Replace in Stages	\$4,814,000	+2%
Replace and Widen High-Viaduct without Constructing a Temporary Bridge	\$24,187,000	+2%
Use Reinforced Fill in lieu of Structure West of Station 18+50	\$27,969,000	+1%
Use Retained Fill in lieu of Aerial Structure East of Station 24+50	\$8,329,000	+1%
Use of Reinforced Fill in lieu of Aerial Structure	\$9,852,000	+1%
Construct Off-Ramp from US 101 to Lincoln Blvd.	(\$698,000)	+1%
Tunnel VA Alternatives		
Reduce Tunnel Width by Eliminating Longitudinal Cross-Passage	\$3,600,000	0%
Reduce Height of Tunnel Recessing Jet Fan Mountings	\$5,091,000	0%

Source: Value Analysis Report, Value Management Strategies, Inc., November 2001.

The focused VA study consisted of a one-day brainstorming session with team members from the project design team, Caltrans, San Francisco County Transportation Authority, Presidio Trust, National Park Service and the Golden Gate Bridge Highway and Transportation District. This one-day workshop consisted of abbreviated portions of the information gathering and speculation phases of the VA study methodology. Using the results from this one-day session, the team members were divided into separate groups based upon the categories of the ideas generated. The categories of ideas included project staging alternatives, tunnel alternatives, and structures alternatives. These groups analyzed the brainstormed ideas and either developed the ideas into proposed alternatives, identified them for further development in detailed design or eliminated them.

The VA team identified five VA alternatives to improve the performance of the project and/or reduce construction costs. These are shown in Table 6.2-2. The cost savings potential for these alternatives is approximately \$123.2 million. The accepted alternatives and other ideas are documented in the VA Report, September 2006. Of the \$123 million identified, so far \$108 million have been incorporated into the project, equivalent to \$130 million savings in year of expenditure dollars.

Table 6.2-2 Summary of VA Alternatives, 2006

Alt Number	Description	Potential Savings shown in millions
A	Eliminate replacement underground parking near the Palace of Fine Arts	\$50.5
B	Retain existing Park Presidio Interchange configuration	\$19.5
C	Allow extended weekend closures during construction	\$14.2
D	Construct temporary at-grade mainline crossover	\$18.7
E	Simplify stage construction sequence	\$20.3
	TOTAL	\$123.2

Source: Value Analysis Study Report, URS Corporation, September 2006.

6.3 Resource Conservation

The resource analysis estimated the total amount of direct and indirect energy (construction) expected to be consumed by each of the alternatives. Because the alternatives would not increase capacity over the existing facility, direct or operational energy analysis indicated that direct energy consumption would not be significantly different among the alternatives.

Indirect energy effects involve the one-time, non-recoverable energy costs associated with construction of roadways and transportation-related facilities, such as bridges. Facility-related energy accounts for energy consumed during the following activities: production of construction materials used in new construction and maintenance; and construction of the various build alternatives, including pavement and structures.

Construction of the build alternatives for Doyle Drive would be a large-scale effort, with many issues, techniques, and methods. Particular issues associated with this project include work to be conducted within a national park, access to materials, demolition activities, excavation activities, pile driving, and others.

Construction-related energy use would total about 0.5 million barrels of oil under the Replace and Widen alternatives, and just over 0.5 million barrels of oil under the Parkway alternatives. The indirect energy analysis was conducted using the Input-Output Method, a standard Caltrans method outlined in the Energy and Transportation Systems manual (Caltrans 1983). This method was used to convert the 2000 construction dollars into energy consumption. Although the cost of fuels varies from region to region, this is an appropriate method for analyzing construction energy when limited engineering information is available.

Energy is measured in British thermal units (Btu's). For this analysis, the Btu's were converted to the equivalent barrels of crude oil for comparison of alternatives.

It is expected that an increase in energy consumption would occur in the study area over the next 20 years. Energy used by the proposed projects associated with project construction and vehicle use would contribute to this increase, but would be partially offset by increased energy efficiency due to improved roadway operations. Improved roadway operations would result in improved air quality and more efficient energy use. The cumulative effect of energy use is uncertain, but it is not expected to be substantial.

The existing roadway consists primarily of the concrete bridge decks. There is a short portion of Asphalt Concrete pavement between the high and low-viaducts. This material would be recycled or stockpiled on State property for future use. Where feasible the material produced from the structure demolition would be recycled for future use. A sustainability policy statement will be crafted and implemented through a consensus process and supported by qualified consultants. The recycling of Asphalt Concrete Pavement would be an example of a sustainability strategy for the Doyle Drive project.

6.4 Right of Way

The project is located in the Presidio of San Francisco within the Golden Gate National Recreation Area. All right of way requirements are from lands controlled by the Government. Doyle Drive was constructed under a permit from the Secretary of War that granted a right of way for the extension, maintenance, and operation of a state road across the Presidio. New right of way requirements will be obtained by Caltrans, through FHWA, pursuant to FHWA's authority under 23 USC 317 as a Federal Land Transfer. In practice, this transfer is at no cost to the receiving agency. The details of this transfer would have to be coordinated with the Presidio Trust, land managers of Area B, once the project is approved. Tables 5.1-6 and 5.1-7 indicate the right of way required. Estimated cost information is contained in the Right of Way Data Sheets. Attachment H contains the Right of Way Data Sheet for the Preferred Alternative outlining the right of way requirements.

A right of entry permit would be required from GGBHTD for construction access to the Merchant Road area if the Merchant Road option is selected.

All of the Doyle Drive Project build alternatives would result in the temporary and/or permanent removal of buildings in the study area. Temporary removals and returns and permanent removals were estimated using preliminary design drawings. The Preferred Alternative will require the permanent removal of Buildings 201, 204, 205, 230, 231, 605, 606, 670, and 1158. The top portion of Building 201 will be returned to the site of the original building following construction of the Main Post Tunnel.

Table 6.4-1 provides a summary of potentially affected buildings that could be temporarily removed and returned or permanently removed as a result of the proposed project alternatives. The No-Build Alternative would not require any temporary removals and returns or permanent removals. The Replace and Widen Alternative – No Detour Option would require the fewest temporary removals and returns and permanent removals of the build alternatives with only Building 1158 being permanently removed. The Preferred Alternative and Presidio Parkway Alternative and associated options would require the most permanent removals. The Preferred Alternative and Presidio Parkway Alternative would also potentially result in the temporary displacement of the occupants of Building 106.

As indicated on the attached right of way data sheets, there is no railroad involvement with any of the build alternatives.

A review of available existing utility information indicates the following existing companies/agencies are present in the project area:

- Presidio Trust
- Pacific Gas and Electric

Verification of utilities will be required. Potholing may be necessary if indicated by results of verification. Attachment I includes the preliminary utility relocation plan for the Preferred Alternative.

Table 6.4-1 Property Displacements by Alternative

	Alternative	Temporarily Removed and Returned	Permanently Removed	Vacancy During Construction
1	No-Build	None	None	None
2	Replace and Widen – No Detour Option	None	Building 1158	None
2	Replace and Widen – Detour Option	Buildings 1182 ^{1,4} , 1183 ^{1,4} , 1184 ^{1,4} , 1185 ^{1,4}	Buildings 605, 606, 610, 653	None
5	Presidio Parkway – Diamond Option ²	None	Buildings 201 ⁴ , 204 ⁴ , 205, 230 ⁴ , 231, 605, 606, 670 ⁴ , 1158	Building 106 ⁴
5	Presidio Parkway – Circle Drive Option ²	None	Buildings 201 ⁴ , 204 ⁴ , 205, 230 ⁴ , 231, 605, 606, 670 ⁴ , 1151 ⁴ , 1158	Building 106 ⁴
5	Presidio Parkway – Merchant Road Slip Ramp Option ³	None	Buildings 1253, 1254, 1255, 1256	None
	Preferred Alternative	Building 201 ^{4,5} (top portion only)	Buildings 204 ⁴ , 205, 230 ⁴ , 231, 605, 606, 670 ⁴ , 1158	Building 106 ⁴

Source: Parsons Brinckerhoff, December 2006

Notes: The temporary removal and return period would last approximately four to five years during construction.

¹ The four Mason Street Warehouses could be temporarily removed and returned or permanently removed to accommodate the temporary detour structure.

² Does not include the Merchant Road slip ramp option, which would permanently remove Buildings 1253, 1254, 1255 and 1256.

³ The Merchant Road slip ramp option could be used as an additional design feature with either the Diamond Option or Circle Drive Option. The impacts associated with the Merchant Road slip ramp would be in addition to the impacts of either the Diamond Option or Circle Drive Option.

⁴ Buildings that are contributors to the Presidio National Landmark District.

⁵ The top portion of Building 201 (approximately 532 square meters [5,727 square feet]) will be returned following the completion of construction activities.

6.5 Environmental Issues

All of the Doyle Drive Project viable alternatives and the preferred alternative have long term and temporary effects on the natural and human environment in the project area. Some items of particular concern to stakeholders are:

- Maintenance of traffic during construction;
- Implementation of the measures agreed to by the cooperating agencies on the PA to resolve adverse effects on cultural resources;
- The aesthetics of the bridges and tunnel portals.

The environmental issues pertaining to the project are outlined below and are fully discussed in the accompanying FEIS/R, see Attachment T.

6.5.1 AESTHETICS

The Visual Impact Assessment methodology was developed using FHWA guidelines. The project area was divided into discrete landscape units and the existing visual condition of each area was evaluated in terms of landscape type and distinct visual features. Visual simulations of the alternatives were prepared to assess the changes that would be introduced by the project and evaluate the degree of visual impact.

In essence, the Visual Impact Assessment recognizes Doyle Drive as a dominant feature within the Presidio acting as both a physical and visual barrier between the Main Post and Crissy Field. The No-Build Alternative would produce no change and the Replace and Widen – Detour Alternative would produce some change in existing visual conditions. The Replace and Widen – No Detour Alternative requires the raising of the low-viaduct structure approximately 2.0 meters (6 feet) which would result in a negative visual effect (increased view blockage and visual dominance), primarily when viewed from the Main Post area. Both the Presidio Parkway Alternative and the Preferred Alternative would place portions of the low-viaduct structure in tunnels, which would remove a significant visual obstruction and result in dramatic improvements to the unity of the Presidio and expanded views of Crissy Field and the Bay. For further details reference the “Final Visual Impact Assessment” dated September 2004.

The technical report entitled “Revised Preliminary Draft Planning and Design Guidelines” dated November 2002 serves as a design framework for the replacement of Doyle Drive. The guidelines cover all roadway elements including the alignment, structure type, signage, lighting and landscaping associated with the project. In addition, they address how Doyle Drive relates to the existing historic, cultural, and scenic resources of the Presidio as a National Historic Landmark District in accordance with the Secretary of the Interior’s standards and guidelines. These design guidelines would be refined as a project deliverable during detailed design.

The character-defining design and engineering components of the Golden Gate Bridge and approach roads will also influence the visual image of the replacement Doyle Drive. The character-defining elements of the Golden Gate Bridge and approach roads include: the red color, light posts, railing with Art Deco relief, signage, concrete on the low-viaduct, steel truss forms and concrete columns with Art Deco form on the high-viaduct, and concrete anchorages/pylons and steel towers of the Bridge. New design elements (e.g., tunnel

portals) will need to reflect or relate to the character of the original Doyle Drive and the Bridge as well.

The guidelines are intended to identify ways in which construction can occur through the use of contemporary methods and materials, while maintaining a sense of connectivity with the area and protecting the recreational and historical significance of the Presidio.

The alignment, lighting, signing, striping and other elements of the roadway replacement should focus on sensitivity to the surroundings. Design features and roadway alignments should be compatible with topography, vegetation, and other elements that contribute to the scenic qualities of the corridor.

Vegetation removal will be required for the construction of a cut-and-cover tunnel through the east bluff and portions of the Main Post area. Following construction, vegetation and landscaping will be restored in accordance with the Presidio Vegetation Management Plan.

6.5.2 CULTURAL RESOURCES

An archaeology site exists within the project corridor. Because of the sensitive nature of these kinds of resources, records that relate to archaeological findings are restricted. Therefore no detailed information regarding this site will be discussed in this report. The preferred alternative has been designed to avoid adverse effect to the site. The actual efforts to minimize harm to this site will be provided in the PA that is currently under development. During construction there is the potential for inadvertent discovery of unknown archaeological resources. The PA will provide guidelines for the handling of a discovery, including treatment and monitoring plans.

The Presidio is designated as a NHLD of which Doyle Drive is a contributing structure. There are also several historic properties within the project area, as well as many buildings, structures, and landscape features that are contributors to the NHLD. All buildings that would be either permanently or temporarily displaced are identified in Table 6.4.1; buildings that are contributors to the NHLD that would be adversely affected by either alternative are identified by the Table's footnote 4.

6.5.2.1 Preferred Alternative – Refined Presidio Parkway

The Preferred Alternative would adversely affect the Presidio NHLD, including the cultural landscape, contributors to the NHLD, and to individual historic properties. In addition to the removal of Doyle drive, Buildings 204, 230 and 670 would be demolished. The raising of Halleck Street would affect the setting of Building 228. Building 201 would have its top story removed and stored during construction and restored to its original Halleck Street location after construction.

The Preferred Alternative would adversely affect the Presidio NHLD by removing and/or altering a portion of the historic bluff in the area north of the Main Post and by adding a non-historic topographic feature. The presence of a continuous bluff is a character-defining feature of the Presidio. Its removal or alteration would impact the integrity of the Presidio and would lessen the understanding of the development of the Presidio over time.

The Preferred Alternative would adversely affect the Presidio NHLD by altering the alignment of several contributing roads including Halleck Street. Halleck Street dates to between 1870

and 1885 and was part of the Quartermaster's Depot functional area in what are now the Crissy Field and Letterman Planning Districts.

The Preferred Alternative would adversely affect the Doyle Drive viaducts through their removal and replacement with new structures. This alternative would adversely affect the Golden Gate Bridge property directly through the removal of Doyle Drive, (a contributing element of the bridge property), and indirectly through the introduction of new Doyle Drive structures that are dissimilar to the existing roadway structures. The Preferred Alternative would not adversely affect the Palace of Fine Arts.

Avoidance, minimization, and/or mitigation measures for the Preferred Alternative will be negotiated among the cooperating agencies and finalized in the PA and the associated archaeological and built environmental treatment plans being developed for the project. The Authority, Caltrans, and FHWA will work closely with the SHPO, the Trust, the NPS, the ACHP and other interested parties to ensure appropriate measures are developed and implemented.

6.5.2.2 Alternative 2 - Replace and Widen

The Replace and Widen Alternative (under either the No Detour or With Detour option) would cause adverse effects to the Presidio NHL, the cultural landscape, and individual contributors to the landmark district, and to individual historic properties. The Replace and Widen, No Detour Alternative would adversely affect the Presidio NHL by removal of the contributing element of the district known as Doyle Drive. This alternative would also adversely affect the district by altering the alignment of several contributing roads. Additionally, the increased width of the new structure would increase the structure's visual presence in areas immediately adjacent to the structure and would therefore cause an indirect adverse effect.

The With Detour alternative would also result in other adverse effects to the Presidio NHL and some of its contributing elements, specifically, the removal of Buildings 1182, 1183, 1184, and 1185. These warehouses date to the World War I period and are located in the Crissy Field Planning District. The removal of the buildings is an adverse direct and cumulative effect. The replacement of these warehouses after construction would mitigate the loss of contributing elements and potential boundary erosion in this northeastern corner of the Presidio NHL.

The Replace and Widen Alternative (under both options) would adversely affect the Doyle Drive viaducts as historic properties through their removal and replacement with new structures. This alternative would cause an adverse direct effect to the Golden Gate Bridge property through the removal of Doyle Drive, which is a contributing element of the bridge property. The Replace and Widen Alternative would not have an adverse effect on the Palace of Fine Arts property

6.5.2.3 Alternative 5 - Presidio Parkway

The Presidio Parkway Alternative would cause adverse effects to the Presidio NHL, the cultural landscape, and individual contributors to the landmark district, and to individual historic properties. Under either the Diamond option or the Circle Drive option, this alternative would adversely affect the Presidio NHL by removal of the contributing element of the district known as Doyle Drive. The alternative would also require the demolition of Buildings 201, 204, 230, and 670, causing an additional adverse effect to the NHL.

The Presidio Parkway Alternative would adversely affect the Presidio NHLD by altering the alignment of several contributing roads including Halleck Street. Halleck Street dates to between 1870 and 1885 and was part of the Quartermaster's Depot functional area in what are now the Crissy Field and Letterman Planning Districts.

The Presidio Parkway Alternative would adversely affect the Presidio NHLD by removing and/or altering a portion of the historic bluff in the area north of the Main Post and by adding a non-historic topographic feature. The presence of a continuous bluff is a character-defining feature of the Presidio. Its removal or alteration would impact the integrity of the Presidio and would lessen the understanding of the development of the Presidio over time.

The Presidio Parkway Alternative, Circle Option would also have an additional adverse effect on the NHLD resulting from the demolition of Building 1151 (built in 1945 and located in the Letterman Planning District). The Presidio Parkway Alternative, Hook Ramp Option would also have an additional adverse effect on the NHLD resulting from the alteration of Cowles Street, a street established in 1912 near the stables in the Crissy Field Planning District.

The Presidio Parkway Alternative would adversely affect the Doyle Drive viaducts through their removal and replacement with new structures. This alternative would adversely affect the Golden Gate Bridge property directly through the removal of Doyle Drive, (a contributing element of the bridge property), and indirectly through the introduction of new Doyle Drive structures that are dissimilar to the existing roadway structures. The Presidio Parkway Alternative would not adversely affect the Palace of Fine Arts.

To facilitate development of measures to mitigate the project's adverse effects on historic properties, a conceptual mitigation plan has been developed to provide a basis for the discussion and negotiation that is to occur between FHWA, other agencies, and interested parties in preparation of the PA.

6.5.3 GEOLOGY

A subsurface investigation will be completed as part of final design. The results of the investigation will be incorporated in to the design to address soil liquefaction, slope stability, and corrosive soils.

6.5.4 HYDROLOGY

The Base Floodplain is defined as the area subject to flooding by the base flood and the base flood is further defined as the flood or tide having a 1 percent chance of being exceeded in any given year (100-year flood). Due to the proximity of the San Francisco Bay, there are two separate events that must be considered: the 100-year flood and the 100-year tide. The basic design rule for new structures is that the lowest structural member is above the 100-year event.

The Federal Emergency Management Agency (FEMA) conducted a hydraulic analysis of San Francisco approximately thirty years ago and concluded that there are no floodplains of any significance within the city and declared San Francisco as a "No Special Flood Hazard Area" (NSFHA). FEMA gave San Francisco an opportunity to participate in the National Flood Insurance Program (NFIP) but they declined; thus, FEMA did not prepare a Flood Insurance Relief Map (FIRM) for San Francisco.

The 100-year tide in the Bay Area, and in particular in the area near the Presidio has been studied in detail in a report published by the United States Army Corps of Engineers (USACOE) in 1984 entitled *San Francisco Bay Tidal Stage vs. Frequency Study*¹. Tidal data has been collected at the Presidio since 1855. The Corps analyzed this data, both statistically and graphically. The results of this study are an adopted 100-year tide elevation National Geodetic Vertical Datum (NGVD) at, or near the Presidio of 1.8 to 1.9 meters (5.9 to 6.2 feet). Converted to the project baseline, the North American Vertical Datum (NAVD), the 100-year tide is 2.6 meters (8.5 feet)². The Location Hydraulics Study identified the extent of the 100-year tidal inundation and concluded that the project area does not extend within the existing 100-year floodplain.

The estimated maximum wave run-up for a projected 100-year tsunami event at the project area was based on information published by the USACOE in 1975 entitled *Type 16 Flood Insurance Study: Tsunami Predictions for Monterey and San Francisco Bays and Puget Sound, Technical Report H-75-17*³ and the University of Southern California in 2006 entitled *Numerical Modeling of Tsunami Effects at Oil Terminals in San Francisco Bay*⁴. According to Technical Report H-75-17, the maximum expected wave run-up at the Presidio is calculated to be 2.1 meters (6.9 feet) above mean sea level (NGVD 1929) neglecting tidal effects. Technical Report H-75-17 also includes a statistical analysis estimating the effect of astronomical tides on tsunami run-up. When astronomical tides are considered, the maximum expected wave run-up increases to 2.4 meters (8 feet) above mean sea level at the project area. Sea level rise associated with global warming should also be considered in determining the maximum wave run-up elevation. Most models predict a 0.2-meter (0.7-foot) sea level rise associated with global warming for the next 50 years. Adding the predicted sea level rise to the wave run-up elevations described in Technical Report H-75-17 results in a maximum expected wave run-up not to exceed elevation 2.6 meters (8.5 feet) above mean sea level (NGVD 1929) or elevation 3.4 meters (11.2 feet) NAVD88.

With the potential expansion of Crissy Marsh, the proposed facility may be subject to coastal events such as tidal inundation and tsunamis. In order to meet serviceability design requirements the profile bottom of the structures over Tennessee Hollow would need to clear the 100-year tsunami elevation. For the Preferred Alternative, this would also require raising Halleck Street an additional 0.8 meters (2.6 feet) at the north face of Building 228, with subsequently setting the crest of Halleck Street at to an elevation of 10 meters (32.8 feet). If this 100-year tsunami criterion were applied to Alternative 5, there would be no clear opening below the southbound off-ramp. Flows from Tennessee Hollow would have to be conveyed into the marsh by way of a culvert below the off-ramp.

Design of the depressed segment of Girard Road will include flood protection against the projected 100-year tide and tsunami events. The flood protection features will consist of a sealed U-section unless other designs are developed with the Presidio Trust and NPS which achieve the necessary flood protection.

¹ United States Army Corps of Engineers, 1984, *San Francisco Bay Tidal Stage vs. Frequency Study*

² Baseline Environmental, 2004, *Hydrology and Water Resources Report for Doyle Drive*

³ Houston, J.R., Garcia, A.W., 1975, *Type 16 Flood Insurance Study: Tsunami Predictions for Monterey and San Francisco Bays and Puget Sound, Technical Report H-75-17*

⁴ University of Southern California, 2006, *Numerical Modeling of Tsunami Effects at Oil Terminals in San Francisco Bay*

The placement of the Battery Tunnel through the eastern bluff, north of the National Cemetery, could disrupt local groundwater flow. A conceptual groundwater transfer system has been developed to transfer locally occurring groundwater through a series of geocomposite strip drains to the opposite side of the tunnel.

With the Main Post Tunnel, two buried box tunnels surrounded by fill, there is a possibility that infiltrated rainwater may back up against the lower portion of the south tunnel wall, creating excessively moist conditions on the south side. If this were to occur, excessive moisture levels might reach the surface, potentially causing problems with drainage and vegetation management. In addition, it is possible that the fill on top of the tunnel box and on the downgradient (north) side of the tunnel box could become excessively dry due to lack of upgradient recharge and distance from a groundwater source. Studies of groundwater elevations do not suggest that under normal conditions groundwater levels in the fill upgradient of the tunnel would rise because damming effects of the tunnel would be minimal. It is possible, however, that during stormy wet periods that affect regional groundwater levels that the water table in the vicinity of the tunnel could rise and come into contact with the tunnel.

6.5.5 STORMWATER – BEST MANAGEMENT PRACTICES

Doyle Drive is located within a national park. As such, special consideration must be given to the treatment of stormwater runoff. The following treatment options are favored for implementation to eliminate or reduce pollutants in runoff from the proposed project. Doyle Drive stormwater runoff is currently discharged to existing drainage facilities without treatment. The Preferred Alternative would include some form of treatment controls, and therefore will provide a net benefit to stormwater runoff quality and the quality of receiving waters.

Stormwater Treatment Option 1: Stormwater runoff from the proposed roadway, including washdown water (water from cleaning the tunnel) and incidental runoff from within the tunnels will be collected and discharged to the existing sanitary sewer system. This runoff will then be treated at the city and county of San Francisco wastewater treatment facility. This option is subject to approval from the San Francisco Public Utilities Commission (SFPUC) and as noted earlier, will require studies to ensure that runoff volumes that are discharged are compatible with the ability of the sewer system to accept flows.

Stormwater Treatment Option 2: Runoff from the new roadway will be treated prior to discharge to surface waters, to the extent feasible, at or near the new structure. Caltrans will coordinate with the Trust and NPS during the permanent treatment control selection process. The Preferred Alternative will incorporate, to the maximum extent practicable (MEP), the treatment of roadway pollutants in runoff prior to discharge to any surface water systems. In accordance with the Storm Water Management Plan (SWMP), Best Management Practices (BMP) will be designed, constructed, and maintained to treat stormwater runoff from the new roadway associated with this project within the roadway right of way. Frequent small storms, which over the long-term carry the substantial quantity of total pollutant load, will be the focus of the treatment BMPs. Most modern, well-designed runoff treatment systems include bypass features that allow the safe passage of larger untreated storm flows. Based on the physical constraints along the alignment, it will be challenging to identify feasible treatment controls that are effective in the removal of specific pollutants. However, preliminary hydraulic analysis indicates that there is adequate space adjacent to the proposed structure to treat stormwater runoff to the MEP level. Caltrans will conform to the requirements of its

SWMP to incorporate treatment controls and, during the design phase, will use Caltrans approved BMPs to treat roadway runoff to the MEP. Caltrans-approved BMPs include:

- land-based biofiltration, detention and infiltration treatments that employ filtering medium in combination with vegetation to filter and treat stormwater; and
- “in-line” structural BMPs such as media filters and multi-chamber treatment trains that treat concentrated runoff. The structural BMPs typically require less area for installation and are more maintenance intensive.

If none of the approved BMPs appear feasible, Caltrans, the NPS and the Trust will work cooperatively to develop other mitigation measures for stormwater treatment. Washdown water (from cleaning the tunnel) and any incidental stormwater runoff collected from within the tunnels will be discharged to the sanitary sewer system. If discharge to the sanitary sewer system is infeasible, this water will be collected and hauled off-site for treatment and disposal, or treated on-site in specially designed facilities. Caltrans will collaborate with the NPS and the Trust to develop feasible stormwater treatment measures for implementation. If more than one type of Caltrans-approved BMP is determined to meet the MEP requirement, Caltrans will select the preferred BMP in consultation with the NPS and the Trust.

Project personnel have, on separate occasions, met with representatives of the SFPUC, and then participated in a SFPUC Citizens Advisory Committee meeting to address questions from the public about stormwater management.

A large-scale meeting attended by interested members of the public, volunteer groups, action committees, the SFPUC, the Authority, the GGNRA, the National Park Service and the Presidio Trust took place on August 30, 2007. The meeting was called as a first step towards achieving consensus between this wide range of groups on the means and methods of treating the Doyle Drive stormwater runoff for water quality through Best Management Practices.

The National Park Service and Presidio Trust are primarily interested in protecting park resources and are particularly focused on the quality of discharges to the recently-restored Crissy Marsh. The SFPUC and many of the participants from non-governmental organizations are most focused on avoiding introducing new stormwater flows into the City and County of San Francisco combined sewer system. The goal of the Authority is to achieve a consensus solution that best serves the overall public interest.

A Storm Water Data Report has been prepared for this project. The report summarizes the actions taken in compliance with the Statewide Storm Water Permit (Order No. 99-06-DWQ, NPDES No. CAS00003), see Attachment L for signature sheet. The project will also comply with the Storm Water Resource Control Board Phase II Small MS4 General Permit for the proposed work done within the Presidio Trust Property Order No. 2003-0005-DWQ (NPDES No. CAS000004).

For more detail regarding water quality issues refer to Final Hydrology and Water Resources Technical Report, Baseline 2004.

6.5.6 NOISE

The technical report entitled “Final Noise and Vibration Study” (December 2004) was prepared to address noise impacts from each alternative. The results of the study indicate

that the extent of exposure to construction noise would vary depending on the alternative selected and the distance sensitive receptors are from the noise sources. With the exception of the No-Build scenario, all Alternatives would generate construction noise. An addendum to the Final Noise and Vibration Study was prepared in October 2006 to assess the potential impacts of the Preferred Alternative and the Temporary Construction Detour (TCD).

Locations within the project study area that are considered to be particularly sensitive to noise and vibration, as identified by the Trust and NPS, are:

- Crissy Field and Marsh;
- Crissy Field Center;
- Stilwell Hall;
- San Francisco National Cemetery; and
- Cavalry Stables.

Residential areas within the project study area considered particularly sensitive to noise and vibration are:

- Armistead Road (northwest of the junction of Highway 1 and Doyle Drive);
- Storey Avenue (north of Ruckman Avenue);
- Riley Avenue;
- Girard Road;
- Baker Street from Marina Boulevard to Richardson Avenue;
- the south side of Marina Boulevard from Baker Street to Broderick Street;
- the east side of Lyon Street north of Francisco Street; and
- Richardson Avenue from Doyle Drive to Francisco Street.

Measures for reducing construction noise impacts may include prohibiting night time construction activities near residential neighborhoods. In addition, the use of quieter construction methods such as the use of drilled shafts versus driven piles will be investigated. Other noise reduction methodologies will also be considered and incorporated into the construction plans as appropriate. The specific techniques to be employed by the Contractor will be delineated in the Contract Plans as part of the design process.

It is expected that conventional pile driving techniques will be effectively eliminated on the project, largely due to the 60-meter (200-foot) vibration buffer area established around each historic building. Noise due to conventional pile driving is determined in the FEIS/R to be an adverse impact, and if used it will be seasonally restricted to a period outside the peak bird breeding activity season (January 1 through July 31).

The October 2006 Addendum to the Noise and Vibration Study considered abatement measures for the traffic noise associated with the TCD in the Preferred Alternative. These included alteration of horizontal and vertical alignment and temporary noise barriers. Because of the limited space to place the TCD between the existing roadway and nearby buildings, further options to shift the horizontal or vertical roadway alignment appear to be very limited. While minor adjustments are possible, major shifts in alignment that would provide substantial noise relief to the impacted sites will not be possible. Noise barrier walls were investigated and preliminary locations identified, see Sections 5.1.19, Preferred

Alternative Noise Barriers and 5.2.15, Viable Alternatives Noise Barriers for additional information. Other noise abatement measures are identified as retrofitting of windows, alternative paving materials and absorptive tunnel linings. The effectiveness and reasonableness of these measures will be further considered as part of the detailed design phase.

6.5.7 TRANSPORTATION

All build alternatives maintain the traffic capacity of the existing facility. The design year traffic volumes are shown in Table 4.3-1. The Preferred Alternative and Alternative 5 also provide direct Presidio access through different roadway configurations at Girard Road. The additional intersections to provide Presidio access generally increase travel times slightly for both private and transit travel. New pedestrian crossings will improve pedestrian access and reduce trip times. The most significant traffic impacts will be during the construction period as discussed in Section 7.7 Transportation Management Plan, especially with the proximity of the Marina District and Cow Hollow neighborhoods to the project area.

The Final Traffic and Transit Operations Report, dated December 2004 was prepared to detail traffic and transit impact associated with the Doyle Drive Replacement Project. In response to comments received during the public circulation period of the DEIS/R and to address traffic circulation, tidal inundation issues, the elimination of the underground parking below Doyle Drive, and the provision of additional surface parking to more closely match the existing condition, some refinements were made to the Presidio Parkway Alternative with the Diamond Option. These refinements were selected as the Preferred Alternative in August, 2006. Additional traffic modeling was conducted, as well as an expansion of the traffic study to include analysis of interchanges in several neighborhoods. An addendum to the December 2004 Traffic Study was produced in October 2006 which concluded that the modifications to Alternative 5 did not provide any additional substantial impacts to traffic.

The construction period for all build alternatives is approximately three to four years and will often require short-term traffic and transit changes. Because Doyle Drive is heavily traveled, the construction could easily disrupt traffic flow and increase congestion and travel time for vehicles and buses. To address this detailed stage construction plans have been developed. In conjunction with a transportation management plan, these detailed plans help determine the duration, flow, signage and times of day when lane closures and other traffic controls can be implemented to create a safe and effective construction environment.

Recent local transportation projects in the vicinity of Doyle Drive include several significant roadway and access changes to the existing condition area as part of the redevelopment of the Letterman Digital Arts Center. These are described in the "Letterman Environmental Impact Statement" and "Letterman Redevelopment Richardson Avenue Access Traffic Operations Analysis (November 2001) and have been included as existing conditions in the Doyle Drive project.

In addition, there are a number of new traffic signals and other traffic changes that were identified to occur as part of the PTMP. This plan (and its accompanying EIS and traffic report) includes a number of improvements to accommodate the increased traffic anticipated for this urban national park.

The Doyle Drive impact analysis conducted contained the combined effect of projected traffic growth and local transportation projects in the area, which therefore presents a cumulative analysis of design year transportation conditions.

6.5.8 VEGETATION

Construction of all build alternatives would result in localized permanent effects on the important plant communities of northern coastal scrub on sandy soils and northern coastal scrub on sandy soils with serpentine inclusions. Effects on riparian plant communities, which are also considered important plant communities, are discussed below.

Plant communities occurring in the Doyle Drive construction corridor include northern coastal scrub on sandy soils, northern coastal scrub on sandy soils with serpentine inclusions, and non-native vegetation. There are other vegetation types with serpentine soil inclusions present in the construction corridor near the Park Presidio Interchange; however, these areas support only non-native plant communities and are accounted for within the non-native introduced forest and ornamental wildlife habitat.

All of the build alternatives would result in permanent effects on important plant communities. The build alternatives would remove, damage or alter northern coastal scrub (on sandy soil and on sandy soil with serpentine inclusions). A total 0.71 hectares (1.76 acres) of northern coastal scrub on sandy soil with serpentine inclusions and 0.30 hectares (0.73 acres) of northern coastal scrub on sandy soil are within the Doyle Drive construction corridor.

Of these amounts, project alternatives would disturb a larger proportion of the coastal scrub on sandy soils than of the scrub on sandy soils with serpentine inclusions. For northern coastal scrub on sandy soils, the impacts are similar between all alternatives, with the Alternative 2 No Detour and With Detour options disturbing 0.16 hectares (0.40 acres) and 0.17 hectares (0.43 acres), respectively. The Presidio Parkway Alternatives would disturb 0.20 hectares (0.50 acres) of scrub on sandy soils. The Preferred Alternative would disturb 0.21 hectares (0.53 acres).

For the northern coastal scrub on sandy soil with serpentinite inclusions, the Alternative 2 options (Detour and No Detour) would both have the same area of disturbance at 0.20 hectares (0.50 acres). The Presidio Parkway Alternatives would disturb between 0.20 hectares (0.49 acres) and 0.37 hectares (0.91 acres) of northern coastal scrub on serpentine inclusions, depending on the options. Inclusion of the Merchant Road option increases the disturbance area by 0.10 hectares (0.44 acres). The Preferred Alternative would disturb 0.21 hectares (0.53 acres).

All sensitive habitat and special-status plant species within or immediately adjacent to the Doyle Drive Project corridor, which are not temporarily or permanently affected by the project, will be designated as an Environmentally Sensitive Area (ESA) that will be off-limits to all construction activities. The ESA's will be clearly marked on the project plans, fenced on the project site and adjacent areas, and avoided by the Contractor. ESA's will be flagged in coordination with a Biological Monitor prior to construction activities. ESA's will be monitored by a Biological Monitor during construction to ensure that these sites are avoided. Removed vegetation, such as trees, will be clearly marked and identified on construction drawings.

In the event that it is infeasible to avoid special-status plant species, then federal or state species of concern habitat will be restored at a 1.5:1 ratio. If on-site federal or state species of concern restoration is impracticable, funding of NPS and Trust projects would be available to achieve the necessary mitigation. Revegetation would be followed by a maintenance, monitoring and reporting period.

The overall mitigation goal is to avoid and minimize temporary construction-related impacts and long-term project impacts. In regard to temporary construction-related impacts, Caltrans standard construction dust control, erosion control, and ESA avoidance mitigation measures would be incorporated as part of the Doyle Drive Project. Avoidance, minimization, and mitigation measures would be implemented through a general biological resource monitoring program for the project. The mitigation measures are more fully described in Section 3.4.1 of the attached FEIS/R.

6.5.9 WETLANDS

The construction corridor supports 0.17 hectares (0.43 acres) of USACE wetlands, and 0.49 hectares (1.21 acres) of Cowardin wetlands protected by the NPS or the Trust.

ESA's would be designated so that no temporary impacts would occur to riparian scrub (central coast arroyo willow, blackberry and wetland) and other USACE wetlands located within or next to the construction corridor, but outside the area of temporary effect. These communities are generally more susceptible to disturbance and need to be protected. Temporary impacts will be mitigated by in-kind, in-place restoration after construction at a 1:1 ratio. Following the 2005 NPS/Trust Strategy, three basic strategies for mitigation of permanent and indirect wetland impacts have been discussed with the Trust and NPS. These are: 1) wetland creation, 2) intensive wetland enhancement, and 3) wetland enhancement. The compensatory value, respectively, are 2:1, 3:1 and 5:1 ratios of created or enhanced habitat to impacted habitat based on current discussions with the NPS and the Trust.

Potential indirect impacts to the identified Cowardin wetlands protected by the NPS or the Trust and USACE jurisdictional waters of the U.S. due to tunneling as a result of implementing the Presidio Parkway Alternative or the Preferred Alternative would conflict with the NPS' natural resource management policies and the Trust's objectives of the management actions stated in the Vegetation Management Plan (VMP) and the PTMP.

The permanent effects of all build alternatives on USACE wetlands are expected to be identical; construction would potentially adversely affect a total of 0.13 hectares (0.33 acres) of USACE jurisdictional waters of the U.S. The impacts to Cowardin wetlands protected by the NPS or the Trust for all build alternatives are also identical, affecting 0.08 hectares (0.19 acres).

The total number of Cowardin and USACE wetlands protected by the NPS or the Trust that any one of the build alternatives may remove or substantially disturb is 0.21 hectares (0.5 acres).

The overall mitigation goal is to avoid and minimize temporary construction-related impacts and long-term project impacts. In regard to temporary construction-related impacts Caltrans standard construction dust control, erosion control, and ESA avoidance mitigation measures would be incorporated as part of the Doyle Drive Project.

Avoidance, minimization, and mitigation measures are identified below and more fully described in Section 3.4.2 of the attached FEIS/R:

- Implement a General Biological Resource Monitoring Program

- Implement a Wetland Mitigation/Compensation Plan including pre, during and post construction monitoring of groundwater and surface water, site preparation, planting, irrigation and maintenance. A monitoring program would report on achievement of defined success criteria. Refer to Wetland Restoration and Enhancement Mitigation Plan in Appendix K of the attached FEIS/R.

It should also be noted that a nationwide permit will be required from the USACE under the Clean Water Act Section 404. A Water Quality Certification (401) from the San Francisco Regional Water Quality Control Board may also be required. The application for the 401 Certification shall be completed nine months prior to the Ready to List date.

A Conceptual Mitigation Plan was prepared and approved in April 2008. Following the approval of the Conceptual Mitigation Plan, a Final Mitigation Plan will be prepared in conjunction with the Trust and NPS. An MOA, PA, or Cooperative Agreement will be necessary to ensure that all agencies are in agreement that the mitigation proposal will mitigate the impacts of the proposed project and provide the mechanism to implement the mitigation proposal. The MOA, PA, or Cooperative Agreement needs to clearly identify the roles and responsibility of each party.

6.5.10 WILDLIFE

Long-term impacts of all build alternatives would be permanent loss of minor amounts of wildlife habitat due to the increase in the footprint of the facility. Permanent, direct construction-related effects on vegetation under all build alternatives would also involve removal of or damage to non-native vegetation.

For northern coastal scrub on sandy soil with serpentinite inclusions, Alternative 2 would result in the loss of approximately 0.20 hectares (0.50 acres). The Alternative 5 Loop Ramp option would result in the loss of 0.37 hectares (0.91 acres), while the Hook Ramp option would result in 0.30 hectares (0.73 acres). The Preferred Alternative would disturb 0.21 hectares (0.53 acres). Alternative 5 would result in the loss of a small amount of non-native grassland: 0.02 hectares (0.04 acres) for the Loop Ramp option and slightly less at 0.01 hectares (0.03 acres) for the Hook Ramp option and the Preferred Alternative. Alternative 5 would result in varying degrees of permanent impacts to non-native introduced forest and ornamental wildlife habitat, varying from 4.54 to 5.07 hectares (11.23 to 12.54 acres). The Preferred Alternative would impact 4.61 hectares (11.39 acres) of non-native introduced forest and ornamental wildlife habitat. These introduced habitats are capable of supporting nesting birds and other wildlife. Nesting substrate in the Doyle Drive Project study area and its vicinity for raptors and other birds, and other habitat types such as woodlands and scrubs, are sufficient in quality and extent relative to project-related habitat loss to offset any long-term effects.¹ The abundance and diversity of wildlife on the Presidio would not be adversely reduced over the long-term, and therefore the impact is minor for all build alternatives.

¹ For example, there are approximately 2 hectares (4.94 acres) of riparian habitat along Lobos Creek. Considering the arroyo willow scrub as equivalent wildlife habitat, its loss within the Doyle Drive construction corridor would constitute a reduction of about 2.5 percent of the total. Moreover, the impact would likely be mitigated (by willow planting elsewhere) as part of wetland restoration.

6.5.10.1 *Special-status Invertebrate Species*

Dust generated by construction activities could indirectly affect plant vigor and survival, and cause plants to become unsuitable for potential perching, metamorphosis of nymphs (immature stage), or laying of eggs, or unpalatable for foraging invertebrates. Impacts to tree lupine moth habitat would be limited to clearing of the larval host plant, yellow bush lupine for construction of all build alternatives. Effects on special-status invertebrate species due to dust emissions during the dry season would be minor because Bay Area Air Quality Management District's (BAAQMD) basic dust control procedures and Caltrans Special Provisions will be implemented as part of the proposed Doyle Drive Project.

6.5.10.2 *Special-status Avian Species*

Project construction activities of all build alternatives could result in the mortality, or disturbance resulting in reduced productivity, of potentially nesting non-listed special-status raptors and other avian species, protected under California Fish and Game Codes 3503 and 3503.5 and the Migratory Bird Treaty Act within, and adjacent to, the Doyle Drive construction corridor due to impacts on suitable roosting and nesting habitat during the breeding season. Bird nest surveys will be conducted immediately prior to construction to determine the actual number of bird nests that could be affected by the proposed project and formulate appropriate mitigation measures; mitigation measures are further described in detail, below and on the following page.

The temporary loss of nesting habitat for all build alternatives would not be extensive with the following mitigation measures:

- **Habitat Avoidance:** Any wildlife habitat which is either within the construction corridor but not directly affected by construction, or immediately adjacent to the corridor, will be avoided. These areas will be designated ESA's on Doyle Drive Project plans and will be flagged and fenced prior to construction activities
- **Removal of Nesting Substrate:** Trees and woody shrubs that would be suitable for nesting birds, and that would need to be removed as part of the Doyle Drive Project will be removed during the non-nesting season (September 1 through January 31).

The protection of nesting birds for all build alternatives would be accomplished with the following mitigation measures:

- **Breeding Bird Surveys Prior to and During Construction:** Regardless of mitigation carried out as discussed above, periodic surveys will be conducted before (pre-construction) and during construction for raptors and other native avian species. These surveys will be conducted during the week prior to ground disturbance in any part of the site, and will include the actual area of disturbance in order to make sure that the pre-construction removal of nesting substrate was successful. While construction is ongoing during the period February 1 through August 31, weekly surveys will be performed within the construction corridor where active operations are scheduled to occur. Positive results (i.e., an active nest) of both pre-construction and "during construction" surveys will be forwarded to the California Department of Fish and Game (CDFG) for review and, on a case-by-case basis, avoidance procedures will be proposed by the biologist and coordinated with the Doyle Drive project lead agency. These can include construction buffer areas, 91.4 to 152.4

meters (300 to 500 feet) in the case of raptors, or restrictions on certain types of nearby construction activity.

- **Monitoring Methods and Adaptive Management:** The Monitoring Program will include the measures specific to nesting birds.

6.5.10.3 Special-status Avian Species – Temporary Disturbance due to Construction Noise and Vibration

Many animals habituate to levels of regular disturbance (noise and human and mechanical activity). Raptors choosing to nest or forage near ongoing disturbance perceived as non-threatening are, more prepared for human intrusion than those inhabiting more remote areas. This suggests that there will be negligible indirect effects from construction activity within the corridor, since there is a high ambient (pre-existing) level of noise, motion of vehicles, and human presence.

However, an exception is required for the impact of conventional pile driving, which can cause concussive noises in excess of 100 dBA. In general, animals exposed to such sounds at first instance can be expected to display a startle reaction that might cause, for example, a bird to briefly abandon a nest, with some increase in the exposure of the eggs to heating, cooling, or predation. These reactions probably fall within the range of disturbances occasionally encountered (cars backfiring, sonic boom, humans approaching the nest site, etc.), and the impact on birds due to pile driving is considered adverse for all build alternatives. It is expected that conventional pile driving techniques will be effectively eliminated on the project, largely due to the 60-meter (200-foot) vibration buffer area established around each historic building. Noise due to conventional pile driving is determined in the FEIS/R to be an adverse impact, and if used it will be seasonally restricted to a period outside the peak bird breeding activity season (January 1 through July 31).

6.5.10.4 Special-status Bats

No bats were observed, nor was evidence of use of potential habitat, during the habitat assessment for the Doyle Drive Project. However, there is habitat available at: a) the wood framed, composite-shingled single-level building (Bldg. 230) scheduled for removal and b) portions of the existing elevated roadway, which contains expansion joints that provide possible sites for day and/or night roosting. Pre-construction surveys for breeding or roosting bat species (including Yuma myotis bat) are proposed in the event that bats occupy buildings or structures during the year preceding actual demolition and construction.

To protect breeding bats at the Doyle Drive project site, pre-construction surveys and avoidance measures will be implemented. To minimize effects on bat species large trees and riparian vegetation (which serve as important foraging habitat) will be designated as ESA's, which will be flagged and fenced on the project plans and off-limits to all construction activities. Buildings and elevated roadways with open expansion joints will be inspected by a qualified biologist for the presence of bats during the spring or summer of the year preceding construction and/or their removal.

In the event these habitats are occupied by bats, removal of structures will not occur between May 1 and September 15 (bat breeding season) unless the result of the surveys are discussed with CDFG, and either (1) suitable avoidance measures are developed or (2) the bats are removed and relocated by a qualified specialist holding the appropriate permit(s).

6.6 Air Quality Conformity

Pursuant to the federal Clean Air Act (1990), the Environmental Protection Agency (EPA) established national ambient air quality standards. National standards have been established for ozone, carbon monoxide (CO), nitrogen dioxide (NO₂), sulfur dioxide (SO₂), particulate matter (PM-10 and PM-2.5), and lead. California has adopted more stringent ambient air quality standards for most of the criteria air pollutants. Under amendments to the federal Clean Air Act, U.S. EPA has classified air basins, or portions thereof, as either "attainment" or "nonattainment" for each criteria air pollutant, based on whether or not the national standards have been achieved. In 1988, the State Legislature passed the California Clean Air Act, which is patterned after the federal Clean Air Act to the extent that areas are required to be designated as attainment or nonattainment, but, under the California Clean Air Act, the designations relate to the state standards, rather than the national standards. States containing areas that exceed the standards must submit plans for attainment of the standards in those areas. These plans are called State Implementation Plans (SIPs).

In April 2004, the U.S. EPA declared the San Francisco Bay Area as attainment for the national one-hour ozone standard. It will not officially be reclassified until the BAAQMD submits a plan for demonstrating how the area will maintain the standard for the next ten years. However, in June 2004 the Bay Area was designated as a marginal nonattainment area for the newly adopted national 8-hour ozone standard.

In 1998, U.S. EPA redesignated a subregion of the Bay Area, referred to as the urbanized area, from nonattainment to attainment for the national carbon monoxide standard (U.S. EPA, 1998a). At the same time, U.S. EPA approved a "maintenance" plan, which shows how the subregion will continue to maintain the standard now that it has been achieved. Thus, the subregion is now known as a "maintenance area" for the national carbon monoxide standard. Once an area is designated as a maintenance area that status lasts for 20 years.

The Bay Area is in attainment of the national annual average PM-10 standard and is unclassified for the national 24-hour PM-10 standard. With regard to the newly adopted national PM-2.5 standards, the Bay Area is unclassified for both the annual average and 24-hour average standards. It should be noted the new national PM-2.5 standards are being implemented in the Bay Area.

The Bay Area is currently designated as nonattainment for state standards for ozone, PM-2.5 and PM-10 and is attainment or unclassified for the other state standards (CARB, 1999). As with national PM-2.5 standards, the new State PM-2.5 standards are being implemented in the Bay Area.

In addition to other SIP and Air Quality Plan activities, federal agencies must also make a determination of conformity with the SIP before taking any action on a proposed project located in a non-attainment or maintenance area. In 1993, EPA published the General Conformity Rule that indicates how federal agencies are to make such a determination. A similar rule (the Transportation Conformity Rule) was created to specifically address conformity issues related to highway or transit projects that receive funding or approval from the FHWA or the Federal Transit Administration

For a transportation project, such as the Doyle Drive Project, to satisfy transportation conformity requirements, it must not interfere with the implementation of any transportation control measures in the applicable SIP, must demonstrate through a "hot spot" analysis that it would not cause or contribute to new violations of the carbon monoxide standard, and must

be consistent with the motor vehicle emissions budgets in the applicable SIP. In addition, there must be a currently conforming transportation plan and transportation improvement program in effect at the time of project approval. The Doyle Drive Project meets all of these requirements, and its design concept and scope are consistent with the assumptions used in the regional conformity analysis.

For the Bay Area, the RTP and RTIP are the subjects of a conformity analysis, which determines whether or not transportation activities will produce new air quality violations or delay timely attainment of national ambient air quality standards. The RTP, which is updated every three years, was adopted by the MTC on February 25, 2005. Every two years, the MTC prepares a RTIP, a comprehensive listing of all Bay Area transportation projects that receive federal funds or that are subject to a federally required action. The final 2008 RTIP was adopted by MTC on January 23, 2008 and it has been determined that the Doyle Drive Project conforms to the state air quality implementation plan.

Construction activities associated with the project would generate emissions of criteria pollutants over the construction duration. Dust emissions from construction would vary from day to day, depending on the level and type of activity, silt content of the soil, and the weather. During construction, the construction contractor would be required to implement BAAQMD's basic dust control procedures, to maintain project construction-related impacts at acceptable levels. Elements of the dust abatement program for this project could include, but may not be limited to the following:

- Water all active construction areas at least twice daily.
- Cover all trucks hauling soil, sand, and other loose materials or require all trucks to maintain at least 0.6-meters (2.0 feet) of freeboard.
- Pave, apply water three times daily, or apply (non-toxic) soil stabilizers on all unpaved access roads, parking areas and staging areas at construction sites.
- Sweep streets at the end of each day if visible soil material is carried onto adjacent paved roads.

It should be noted that in May 2004, the EPA signed the final rule introducing Tier 4 emission standards, which are to be phased-in over the period of 2008-2015. This timeframe coincides with the anticipated construction period for the project. The Tier 4 standards require that emissions of PM and NO_x be further reduced by about 90%. Such emission reductions are to be achieved through the use of control technologies — including advanced exhaust gas after treatment—similar to those required by the 2007-2010 standards for highway engines. To enable sulfur-sensitive control technologies in Tier 4 engines—such as catalytic particulate filters and NO_x absorbers—the EPA mandated reductions in sulfur content in nonroad diesel fuels, which will serve to reduce NO_x, VOC, and toxic PM-10 emissions, as follows:

- 500 ppm effective June 2007 for nonroad (construction), locomotive and marine (NRLM) diesel fuels, and
- 15 ppm (ultra-low sulfur diesel) effective June 2010 for nonroad fuels.

In February 2006, the FHWA released the Interim Guidance on Air Toxic Analysis in NEPA Documents, which provided guidance on when and how to analyze Mobile Source Air Toxics (MSAT) in the NEPA process for highways. Pursuant to the Interim Guidance, the proposed

project would be considered in the category of “Exempt Project or Projects with no Meaningful MSAT Effects”. The proposed project will have no meaningful impact on traffic volumes (less than 2.5 percent increase over future No Build scenario) or vehicle mix, and traffic will flow more freely with less idling. Accordingly, no analysis or discussion of MSATs is required. As such, FHWA has determined that this project will generate minimal air quality impacts for Clean Air Act criteria pollutants and has not been linked with any special MSAT concerns. Consequently, this effort is exempt from analysis for MSATs.

6.7 Title VI Considerations

The proposed project is designed to maintain or improve the current accessibility of public transit stops to enter the Park by consolidating transit facilities in a primary location and connecting to the Presidio shuttle service. Improved signage along the roadway will further facilitate the access to the Park. In addition, at any location where pedestrian crossing is necessary, curb ramps would be installed in accordance with Caltrans’ standards and in compliance with the American with Disabilities Act (ADA). Pedestrian traffic would remain prohibited on the mainline facility. Pedestrians and bicycles would be accommodated by new bicycle and pedestrian pathways created in accordance with the Presidio Trails and Bikeways Master Plan. Access to public facilities and the Park Presidio recreational areas would also be maintained or improved by the planned project. The use of tunnels will enhance the views of the Park while providing new connections to Battery Blaney, Main Post and Crissy Field.

7. OTHER CONSIDERATIONS

7.1 Public Hearing Process

There was a public comment period during which time comments were accepted on the DEIS/R. The formal review period ended on March 31, 2006. In January and February 2006, the project team hosted a series of two public hearings on the DEIS/R. The first hearing occurred on January 18, 2006 and the second was held on February 15, 2006. Both meetings featured similar formats and content and were conducted in accordance with all NEPA and CEQA related requirements. During the formal comment period a total of 808 comments were received from the public. A total of 335 of these comments addressed the project alternatives, while 100 comments focused on traffic issues. The remaining comments addressed a wide variety of topics. The comments have been reviewed and are being responded to in the FEIS/R and have been used to determine a recommendation for a Locally Preferred Alternative.

7.2 Route Matters

There are no route matters.

7.3 Permits

Based on the analyses and findings of the FEIS/R, necessary permits and approvals have been identified. Coordination, consultation, and preparation of permit documents will be initiated by the project proponent. Table 7.3-1 on the following page identifies the necessary permits, reviews, and approvals.

In addition, an agreement to obtain right of way from the Trust to build the proposed facility would be necessary. Currently, no agreement has been drafted. An agreement between the City and County of San Francisco (CCSF) and Caltrans would also be necessary since the proposed project would overlap into CCSF streets, which would require modifications to existing traffic signals. A Programmatic Agreement between the FHWA, the NPS, the Trust, the Veterans Administration, the Authority, Caltrans, Advisory Council on Historic Preservation (ACHP), and California State Historic Preservation Officer (SHPO) was signed in October 2008. The document records the terms and conditions agreed upon to resolve the adverse effects of the project upon the National Historic Landmark.

Table 7.3-1 Project Permits, Reviews and Approvals

Agency	Permit/Approval	Status
United States Army Corps of Engineers	Section 404 Clean Water Act/ Nationwide Permit	New wetland delineation completed in May 2007. Wetland mitigation planning begun. (see <i>Wetland Restoration and Enhancement Mitigation Plan</i> in Appendix K)
United States Fish and Wildlife Service	Endangered Species Act Section 7 Consultation	Caltrans made a "no effect" determination and that formal consultation with USFWS is not necessary
State Historic Preservation Office	Section 106 National Historic Preservation Act Compliance	Have received SHPO concurrence on project identification documents and finding of effect. Programmatic Agreement has been signed.
California/Regional Water Quality Control Board (RWQCB)	<p>The RWQCB must certify that a Corps Section 404 Nationwide permit action meets state water quality objectives by issuing a Water Quality Certification.</p> <p>The RWQCB regulates waters of the state that are not within federal jurisdiction. For these areas Waste Discharge Requirements must be identified and a WDR permit obtained.</p>	<p>Ongoing coordination regarding water treatment.</p> <p>Ongoing coordination regarding water treatment.</p>
California State Water Resources Control Board (SWRCB)	Notice of Intent and Storm Water Pollution Prevention Program (SWPPP)	DEIS/R was sent to SWRCB. Further consultation will occur during final design.
San Francisco Bay Conservation and Development Commission (BCDC)	BCDC Negative Determination	Had initial coordination with BCDC. Preparation of the Negative Determination is in progress.
San Francisco Public Utilities Commission (SFPUC)	The SFPUC must be consulted and approve any project-related discharges to the regional sanitary sewer system.	Ongoing coordination regarding water treatment options.
Presidio Trust Utilities Department	<p>The Presidio Trust must be consulted and approve any project-related discharges to the local sanitary sewer system.</p> <p>The Presidio Trust Utilities Department must approve all relocations of Trust owned utilities</p>	<p>Ongoing coordination regarding water treatment options..</p> <p>Prior to construction the appropriate approvals will be obtained</p>
Presidio Trust Permitting Department	Contractor must obtain a Dig Permit for any work causing ground disturbance	Prior to construction the appropriate approvals will be obtained
	The Contractor must obtain a hot work permit for any cutting, welding, or heat gun work (no open flame torch will be allowed)	Prior to construction the appropriate approvals will be obtained
Bay Area Air Quality Management District	Naturally-Occurring Asbestos Dust Mitigation Plan (Airborne Toxic Control Measure For Construction And Grading Operations § 93105, Title 17, California Code of Regulations)	Not completed. Should be prepared and submitted to BAAQMD during development of 100 percent construction plans. BAAQMD must also be notified at least 14 days prior to construction activities.
Bay Area Air Quality Management District	Demolition and Renovation Notification (BAAQMD Regulation 11, Rule 2)	Not completed. Must be submitted at least ten working days prior to any non-emergency building demolition or renovation required by the project. Notification is required for any demolition and for each renovation where the amount of Regulated Asbestos-Containing Material (RACM) is greater than or equal to 100 square/linear feet, or for any dry RACM removal. Asbestos surveys should be completed prior to notification submission.

Note: Management and disposal of excavated soil and groundwater during construction could potentially require additional permits, reviews, and/or approvals by regulatory agencies. These requirements will be determined based on the findings of soil and groundwater investigations scheduled to be performed in 2007.

7.4 Cooperative Agreements

The Authority is the lead agency for the Project Approval/Environmental Document (PAED) phase of the project in cooperation with Caltrans. A MOU was executed in 1998 between the Authority and Caltrans and applies only to the PAED phase of the project.

The Authority and Caltrans then entered into a Cooperative Agreement (Document No. 015596, District Agreement No. 4-1877-C) on May 21, 2003, that defined the terms and conditions under which Caltrans and the Authority agreed to have the Authority as the lead agency prepare preliminary project design, environmental document and Project Report, referred to as the "Study". This Cooperative Agreement terminated on January 1, 2004, prior to the Authority's completion of the Advance Design.

The parties then entered into a Cooperative Agreement (District Agreement No. 4-2106) on July 31, 2006, defining the terms and conditions under which Caltrans and the Authority again agreed to have Authority, as the lead agency, prepare the Study. Subsequent Amendment No. 1 to District Agreement No. 4-2106 (District Agreement No. 4-2 106-AI), entered into by the parties hereto on December 31, 2007, extended the termination date of District Agreement No. 4-2 106 from January 1, 2008 to January 1, 2013.

Caltrans and the Authority are now drafting a Cooperative Agreement to document their agreement to be the co-lead agencies to complete the preliminary engineering design, and to prepare Plans, Specification and Estimates (PS&E), referred to herein as "Design", in order to bring about the earliest possible construction of the desired State highway improvements. The draft Cooperative Agreement can be found in Appendix O.

Caltrans and the Authority acknowledge that a further Cooperative Agreement will be required for the construction as well as maintenance and operation portions of the project.

7.5 Other Agreements

An agreement to obtain a right of way interest from the appropriate federal agency to build the proposed facility would be necessary. Currently, no agreement has been drafted. In addition, an agreement between the City and County of San Francisco (CCSF) and Caltrans would be necessary since the proposed project would overlap into CCSF streets, which would require modifications to existing traffic signals.

A Programmatic Agreement between the FHWA, NPS, the Trust, Veterans Administration, the Authority, Caltrans, GGBHTD, ACHP, and SHPO was executed by the signatories in October 2008. The document primarily deals with potential affects to historic and archaeological properties.

Although the facility is classified as an other principal arterial, which will not be changed, a Freeway Agreement or equivalent to document the understanding between the Trust, CCSF, GGBHTD and Caltrans for the planned traffic movements of the proposed facility and access control will be needed. If the facility is fully constructed, the agreement will outline which streets and roads may be separated from the facility; how streets may be relocated, extended or otherwise modified to maintain traffic movements.

A MOA, PA or Cooperative Agreement will be necessary to ensure that all agencies are in agreement that the mitigation proposal will mitigate the impacts of the proposed project and provide the mechanism to implement the mitigation proposal. The MOA, PA or Cooperative Agreement needs to clearly identify the roles and responsibility of each party.

A maintenance agreement would also be required prior to the start of construction of the project. Long term maintenance of the wide landscaped medians as well as graffiti control and other maintenance issues will be addressed as part of this agreement. In addition, Doyle Drive is a State facility maintained by Caltrans and the existing Maintenance Agreements need to be updated to reflect the requirements of the new facility. The existing agreements are:

- Maintenance Agreement entered into with GGBHTD and executed on March 11, 1980, (Document No. 38-162536, District Agreement No. 4-0340-C) for the operation and maintenance of the lane control devices.
- Freeway Maintenance Agreement entered into with Presidio Trust and executed on March 25, 2004, (Document No. SF-38-015936) for the maintenance of the Richardson Avenue Access improvements.

The FHWA and Caltrans signed a new Joint Stewardship and Oversight Agreement on September 4, 2007. Under the new agreement, The FHWA and Caltrans will utilize a risk-based approach to project-level management that no longer uses the \$1 million threshold to determine FHWA stewardship and oversight. Since the project cost is greater the \$500 million, it is defined as a Major Project and all Major Projects are considered High Profile Projects. The FHWA Major Project Oversight Agreement can be found in Attachment Q.

7.6 Risk Management Plan

A Risk Management Plan (RMP) was prepared in 2005 and updated in July 2007, and will continue to be updated as the design progresses. Therefore, the RMP is considered a living document that will continue to change as the project moves on over time.

Risk management is the systematic process of planning for, identifying, analyzing, responding to, and monitoring project risks. It involves processes, tools, and techniques that will help the project team maximize the probability and results of positive events and minimize the probability and consequences of adverse events as indicated and appropriate within the context of risk to the overall project objectives of cost, time, scope and quality. Project risk management is most effective when first performed early in the life of the project and is a continuing responsibility throughout the project's life cycle.

The project risk management process helps project sponsors and project teams make informed decisions regarding alternative approaches to achieving their objectives and the relative risk involved in each, in order to increase the likelihood of success in meeting or exceeding the most important objectives (e.g. time) sometimes at the expense of other objectives (e.g. cost). Risk management encourages the project team to take appropriate measures to:

- Minimize adverse impacts to project scope, cost, and schedule (and quality, as a result).
- Maximize opportunities to improve the project's objectives with lower cost, shorter schedules, enhanced scope and higher quality.
- Minimize management by crisis.

The Risk Management Plan for the Preferred Alternative can be found in Attachment M.

7.7 Transportation Management Plan

A Conceptual Transportation Management Plan (TMP) was prepared in February 2001, and updated to a Draft TMP in October 2005, to coordinate several future projects proposed near Doyle Drive, including this project. The purpose in developing a Conceptual TMP was to identify those strategies requiring an early lead-time, to begin the public input process, and to identify other likely strategies not specifically tied to alternative development in order to provide a foundation for the final TMP. A revised Draft TMP, focusing exclusively on the Preferred Alternative, was developed in July 2007 and will be further developed to fully describe the final TMP as part of detailed design. The estimated cost of the TMP for the Preferred Alternative is \$11,450,000 and be found in Attachment N.

Recommendations identified in the Draft TMP, include:

- Dissemination of project information to the public through flyers, press releases, radio announcements, telephone hotlines, and websites.
- Coordination with transit agencies, including MUNI, Golden Gate Transit, and the Presidio Trust (PresidiGo) to maintain adequate service in the Doyle Drive construction corridor.
- Development of a contingency plan to address specific actions that will be taken to restore or minimize effects on traffic when congestion or delay exceeds original demand estimates due to unforeseen events.

A TMP typically includes information regarding project impacts and transportation management measures. Project impacts include Roadway Closures and Modified Access and Transit, Pedestrian, and Bicycle Impacts. Transportation Management Measures include the following components: Public Information, Motorist Information, Incident Management, Construction Strategies, and Demand Management Strategies. Doyle Drive is a major commuter route and also a popular scenic route. It is therefore critical to implement a TMP that minimizes disruption to commuter traffic, as well as to users of the Presidio.

7.7.1 ROADWAY CLOSURES AND MODIFIED ACCESS

Certain ramp, lane, and mainline closures are necessary for the realization of construction activities. Planned closures include: Veterans Boulevard/Doyle Drive Ramp, Lincoln Boulevard, and Halleck Street, and Modified Marina Access will occur. These particular closures, modifications, and associated alternate routes are discussed in Section 7.8.1.

7.7.2 TRANSIT, PEDESTRIAN AND BICYCLE IMPACTS

Transit services would continue to operate as the project moves forward, and coordination with transit agencies would minimize impacts on transit operators and riders during the construction period. For GGT buses that travel along Doyle Drive, transit stops at the Golden Gate Bridge Toll Plaza and Richardson Avenue would be maintained throughout the construction period. During the construction period, as traffic is diverted to alternate routes due to ramp closures, travel time for routes that utilize the Doyle Drive corridor would be evaluated, and if necessary, transit schedule adjustments would be made in coordination with appropriate agencies.

The temporary closure of Lincoln Boulevard would require the rerouting of Muni Route 29 and PresidiGo shuttles. A potential alternate route using Halleck, Mason, and McDowell Streets would be developed in consultation with Muni and the Presidio Trust. Alternate locations for transit stops would be determined. Solutions for transit operation during the Halleck Street closure would be developed with consultation with Muni and the Trust.

During the two complete weekend shut downs of Doyle Drive, the connections between the Golden Gate Bridge and Veterans Boulevard would remain open during these weekends and additional bus and ferry service would be provided to facilitate regional transport. Specific changes to transit routes and service details will be determined at a date closer to the closures.

Pedestrian and bicycle access across the Doyle Drive corridor will be maintained via Marshall Street, Crook Street, McDowell Avenue/Crissy Field, and at the Lincoln Boulevard/Golden Gate Bridge Toll Plaza. Bicycle and pedestrian access from Palace Drive would be maintained. Palace Drive would remain a two-way road, incorporating modifications proposed by the San Francisco Department of Recreation and Parks at both the north and south ends where Palace Drive connects to Lyon Street. Temporary pedestrian and bicycle access would be provided on already designated bicycle/pedestrian paths and routes on either side of the project area, on routes described in the *Presidio Trails and Bikeways Master Plan*.

7.7.3 PUBLIC INFORMATION

Outreach strategies have been identified for the project and categorized into three general groups: elected officials outreach, media outreach, and public and agency outreach. These outreach strategies include elements that provide techniques for effective communication of project information to residents, employers, commuters, the media, and public officials. The Draft TMP discusses potential avenues for public information dissemination such as media outreach sessions, press releases, mailers, flyers, websites, and telephone hotlines.

7.7.4 MOTORIST INFORMATION

Motorist information strategies target vehicular traffic operating in the region and in the immediate project vicinity. Motorist information is a crucial component of the TMP; it allows vehicle operators to receive real-time information regarding construction and closures, as well as providing appropriate construction area signage and guidance. A variety of measures are proposed to disseminate information to motorists. These measures include: the use of Changeable Message Signs, Ground Mounted Signs, Highway Advisory Radio, and Extinguishable Message Signs. Agency coordination is required to ensure the proper location of message signs and accurate dissemination of information.

7.7.5 INCIDENT MANAGEMENT

Incident management strategies are employed in the construction zone to ensure minimal traffic impacts to travelers, rapid response to incidents, and prevention of secondary incidents. The Construction Zone Enhanced Enforcement Program (COZEEP) utilizes law enforcement officers for assistance in enforcing reduced traffic speeds in the construction zone and by providing emergency response support. The Freeway Service Patrol (FSP) consists of a team of tow truck drivers who patrol certain sections of the freeway system, detect and respond to incidents, and remove minor incidents. During construction supplemental FSP are provided as part of incident management when proper shoulders are absent. Traffic surveillance via closed circuit television and loop detectors allows Caltrans and CHP staff to monitor the corridor and to potentially dispatch FSP vehicles.

7.7.6 CONSTRUCTION STRATEGIES

Strategies are employed in the construction zone to ensure safe, efficient operations for construction workers and motorists. Strategies such as construction staging and detours insure minimal traffic impacts. Construction work is scheduled to occur, whenever possible, during off-peak hours, while providing clearly marked detours whenever freeway, freeway ramps, or local streets are closed. The staging concepts and detours for the Doyle Drive corridor during construction are discussed in Section 7.8, Stage Construction

Strategies are also employed to encourage contractors to complete work in a timely manner. This strategy is especially beneficial for projects that severely disrupt highway traffic operations. The means by which incentive/disincentive provisions are implemented is by offering contractors a financial reward, or penalty using contract clauses. Contingency plans are also developed to mitigate the effects of late construction activities or unexpected events.

7.7.7 DEMAND MANAGEMENT STRATEGIES

This component examines ways to reduce traffic demand along the Doyle Drive Corridor by encouraging motorists to carpool, take transit, or to travel during off-peak periods. These strategies are implemented in conjunction with public outreach initiatives.

During complete weekend closures of Doyle Drive, additional bus and ferry service would be provided to accommodate traveler demand. Coordination with transit agencies would be necessary to develop appropriate transit schedules.

A traffic control plan (TCP) would be developed in final design to address construction equipment, haul routes, construction signage, and work hours to minimize local traffic impacts.

7.8 Stage Construction

Each of the build alternatives and the various options create differing construction staging scenarios. The most fundamental difference is between the two options for Alternative 2. The No Detour option constructs the new structures above and outside the existing facility while keeping traffic on the existing facility. The estimated construction time is three years and four months. The Detour option constructs a separate temporary detour structure to maintain traffic during the replacement of the low-viaduct. The estimated construction time is four years and three months due to the additional time needed to construct the temporary detour structure. The Preferred Alternative and Alternative 5 are generally constructed to the outside of the existing facility but sequences the traffic shifts first for the southbound lanes and then the northbound lanes. The estimated construction time for the Preferred Alternative is three years and six months while Alternative 5 is estimated at four years and seven months. Figures 7.8-1 through 7.8-5 describe the construction stages for the Preferred Alternative and Figures 7.8-6 through 7.8-8 describe the construction stages for Alternatives 2 and 5. Attachment D contains the detailed stage construction diagrams for the Preferred Alternative. It should be noted that at present the staging is conceptual only and subject to refinement. Additionally, during the final design the required drainage system shall remain fully functional throughout all stages of construction.

During the construction period parking availability would be based on the type of construction activities taking place, their location and duration. Parking shortfalls identified during construction conditions for the project alternatives can generally be addressed through the use of surplus parking in adjacent areas and overall management of parking within the Presidio, consistent with the PTMP. For both the Replace and Widen – No Detour Option and the Parkway Alternative, parking displaced at the Palace of Fine Arts area and the Parade Grounds may be a candidate location for additional bus stop staging and visitor parking. A shuttle would be provided between the Parade Grounds lot and the Palace of Fine Arts area for visitors.

During various construction stages in the project, some ramps or roadways would need to be closed for a period of time. Most of the closures are anticipated to take between four to six months. During these closures, demand is generally met through rerouting and detouring of the anticipated traffic. The preliminary construction phasing has determined a number of instances where roadway lane capacity would be reduced. In order to assess the effects of this reduction, traffic modeling was used to determine the traffic flows and volumes and identify impacts. Using the travel model, a construction year (2010 as the midpoint of construction) scenario was created by interpolating year 2000 and 2030 results. Because each closure affects traffic in a different corridor at different times of day, AM and PM projected traffic conditions were examined individually. The potential traffic operational impacts, based on specific construction stages and locations within the project study area are described below. It should be noted that since the time of the initial study, Park Presidio Boulevard has been renamed to Veterans Boulevard within the Presidio. All references to Park Presidio Boulevard in the following sections refer to Veterans Boulevard.

7.8.1 PREFERRED ALTERNATIVE - REFINED PRESIDIO PARKWAY

Full Weekend Closures

Although most work affecting highway mainline lanes would be accommodated within lane closures, two complete weekend closures of Doyle Drive east of the Park Presidio Interchange would be needed. These closures would allow for specific construction activities required for traffic to transition to a temporary roadway, while the permanent roadway is being constructed, then to transition traffic to the permanent roadway when it is complete.

Veterans Boulevard/Doyle Drive Ramp Closures

The two ramps proposed for closure are those that connect Veterans Boulevard northbound to Doyle Drive southbound, and Doyle Drive northbound to Veterans Boulevard southbound. It is anticipated that the closure of Veterans Boulevard northbound to Doyle Drive southbound would be six to twelve months and Doyle Drive northbound to Veterans Boulevard southbound ramp may be closed for eighteen months, this particular situation represents the early critical "worst case" traffic diversion scenario.

The Veterans Boulevard northbound to Doyle Drive southbound ramp is projected to carry 930 vehicles in the AM peak hour and 730 vehicles in the PM peak hour. The Doyle Drive northbound to Veterans Boulevard southbound ramp is projected to carry 430 vehicles in the AM peak hour and 910 in the PM peak hour. Closure of these ramps would entail a shifting of the estimated 1,360 vehicles in the AM peak hour and 1,640 in the PM peak hour to other routes or times.

The SF-TDM model indicates that these ramp closures would result in traffic moving to other ramps and streets. The general impact of this closure is projected to be that most drivers (over sixty percent in each time period) would not use either Veterans Boulevard or Doyle Drive; these drivers would make their trips on other local streets through the Richmond District, Laurel Heights area, Presidio Heights area, the Cow Hollow District and the Marina District. These trips would generally disperse across the street network grid. The remaining forty percent (up to 370 in the PM peak hour) would travel up Veterans Boulevard and cut through the Toll Plaza Visitor's area to continue their trip. These trips would distribute evenly; half (or twenty percent overall) would cut underneath the Toll Plaza, and the other half would use Lincoln Boulevard to cross underneath Doyle Drive to cross between one side to the other. This is forecasted to result in up to 175 PM peak hour vehicles traveling underneath the Toll Plaza, through this narrow roadway segment. Except for this localized increase in traffic in the Toll Plaza area, no other change in local Presidio traffic volumes is forecast to occur. Thus, other local roadways are not expected to have deterioration in traffic speeds, or resulting levels of service.

Lincoln Boulevard Closure

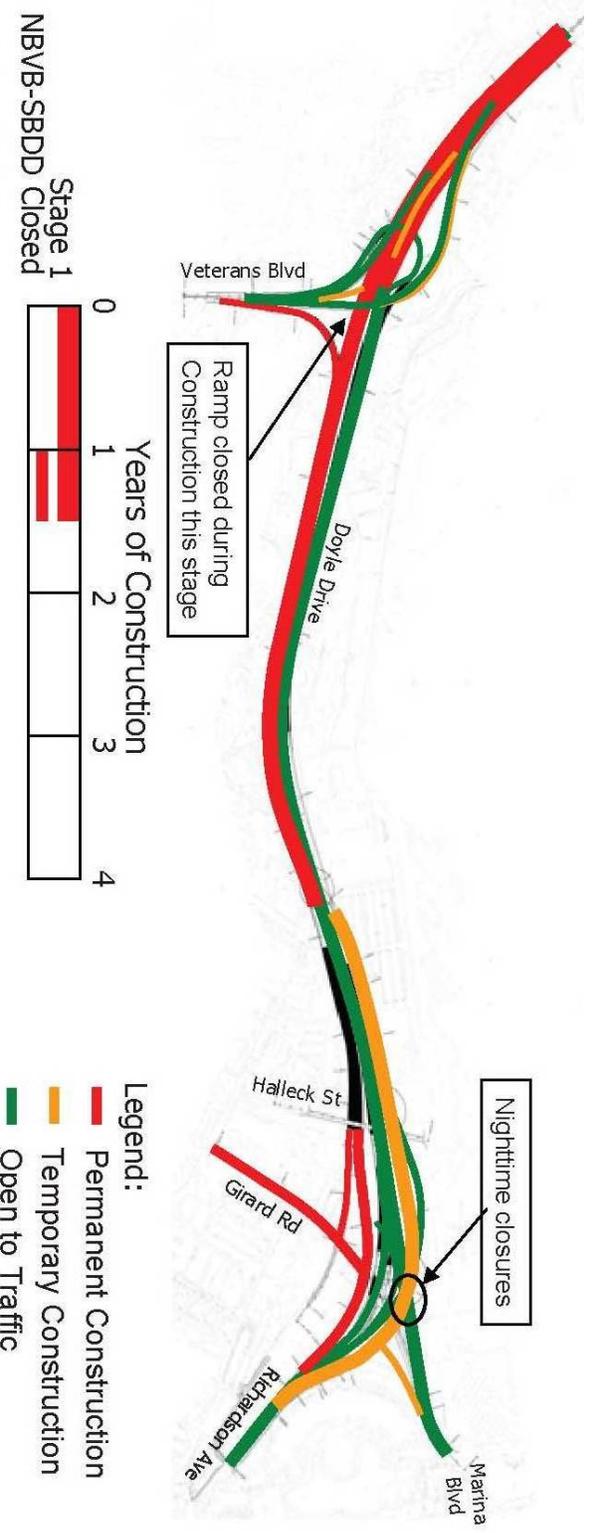
Early in the construction phase, one traffic detour would involve rerouting internal Presidio traffic. A three-month closure of Lincoln Boulevard near the National Cemetery is proposed during the initial stages of construction. During this time, local traffic would be diverted to Halleck Street, Mason Street and McDowell Avenue, and pedestrians and bicyclists would need to follow these parallel routes. (Note: Halleck Street would be required to be opened when Lincoln Boulevard would be closed.) The most critical time period for this closure would be the PM, when 290 vehicles would be expected to use this diverted route northbound. As the detour roads have fewer than fifty vehicles forecast on them at peak hour, the additional traffic should not result in any adverse congestion.

Halleck Street Closure

During construction, another traffic detour would be required when Halleck Street is closed for about twenty-four months. Halleck Street would attract less than 100 vehicles in each direction at peak hour, so that congestion impacts are not anticipated. Bicycle and pedestrian users would be affected, as the nearest detours would be at least 500 meters (1640 feet) to the east (Lyon Street) or 1000 meters (3820 feet) to the west (McDowell Avenue). To assure access between these areas, a replacement path should be provided across the roadway whenever possible.

Modified Marina Access

During the final construction stage of the No Detour Option, the replacement of Marina Boulevard access would temporarily reroute traffic originating south of the facility. This traffic would cross the northbound Richardson Avenue roadway at an at-grade signalized intersection. In the AM condition, the northbound Doyle Drive volumes would drop by sixty vehicles and the southbound by 220 vehicles. In the PM condition, the roadway is projected to have a drop of 160 vehicles in the northbound direction, and less than ten vehicles in the southbound direction. The traffic is anticipated to disperse to a variety of other streets, with no other street showing traffic changes of more than 100 vehicles in any direction. The new intersection created in this situation should operate satisfactorily, assuming that three outbound lanes are available on Richardson Avenue through this intersection, and that two left-turn travel lanes are available for traffic wishing to travel to Marina Boulevard. These strategies would be investigated as part of the TMP, and interactive traffic management, as appropriate, would be implemented.



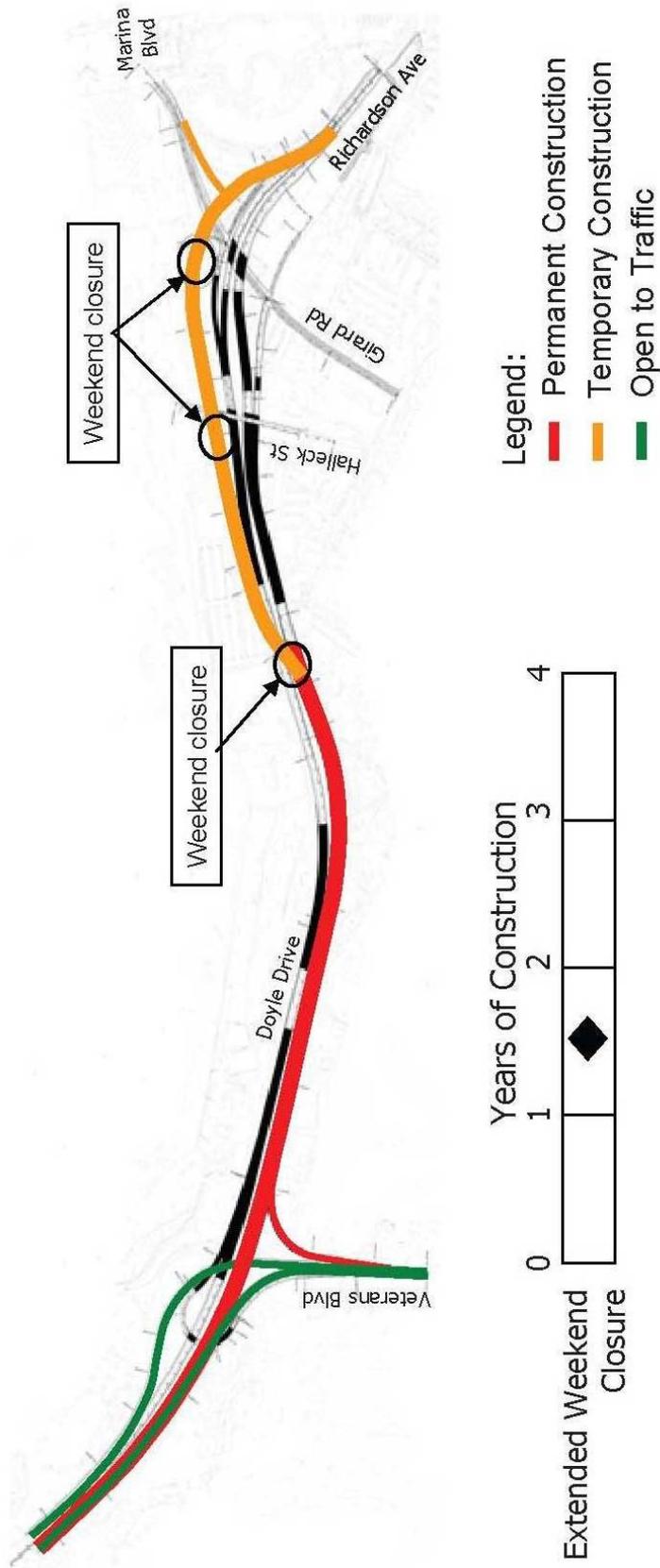
Permanent Construction:
 Construct off-line portions of permanent Doyle Drive (DD) including southbound (SB) Battery tunnel portion of SB DD east of Halleck St and portion of the Girard Rd Interchange. Construct permanent Girard Rd alignment south of DD to Lincoln Blvd. Realign portion of Lincoln Blvd at the Park Presidio Interchange. Construct retaining wall and cantilever roadway section adjacent to Building 106. Remove Post Exchange (PX) Building and Buildings 230 and 231. Shift DD traffic onto temporary widening west of Park Presidio Interchange. Construct portion of SB DD. Construct Park Presidio Interchange ramps.

Temporary Construction:
 Construct off-line portions of northbound (NB) and SB DD at-grade alignment. Widen NB and SB DD at the Park Presidio Interchange. Construct ramp from existing NB Veterans Blvd (VB) to future NB DD. Construct ramp from existing SB Doyle Drive to SB VB. Construct at-grade connection to Marina Blvd with traffic signal. Widen SB DD east of National Cemetery to accommodate detour traffic.

Detours:
 Close Lincoln Blvd from the National Cemetery to building 106 and divert traffic via Washington Ave. Close NB VB to SB DD ramp for a 6 month duration and divert traffic via Geary Blvd and Van Ness Ave.

Construction Staging Preferred Alternative – Stage 1, Phase 1 & 2

Figure 7.8-1



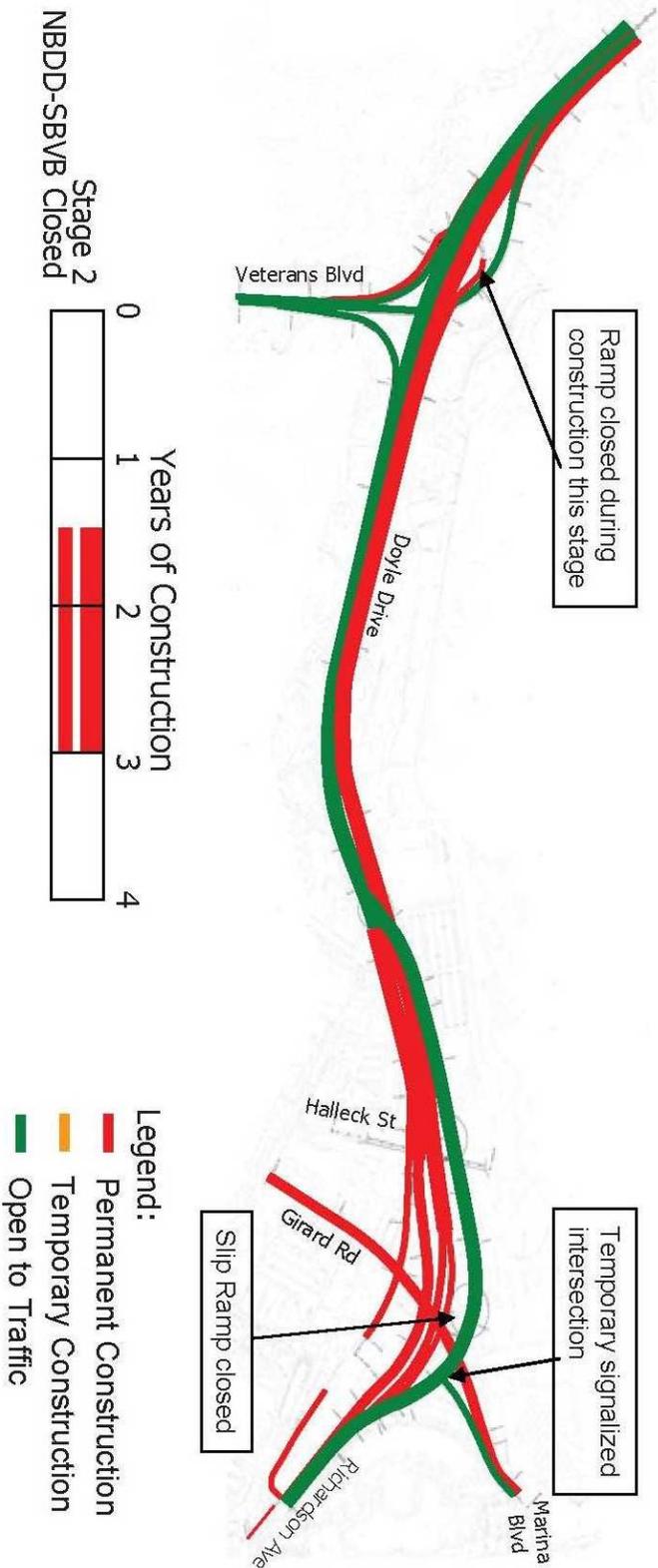
Permanent Construction:
Remove portion of existing DD and Richardson Ramps conflicting with at-grade temporary roadway. Construct portion of SB DD.

Temporary Construction:
Complete NB and SB DD at-grade temporary roadway and cross-over section.

Detours:
Close DD east of Park Presidio Interchange and detour traffic via SB and NB VB, Geary Blvd and Van Ness Ave.

**Construction Staging
Preferred Alternative – Stage 1 Transition, Full Weekend Closure**

Figure 7.8-2



Permanent Construction:

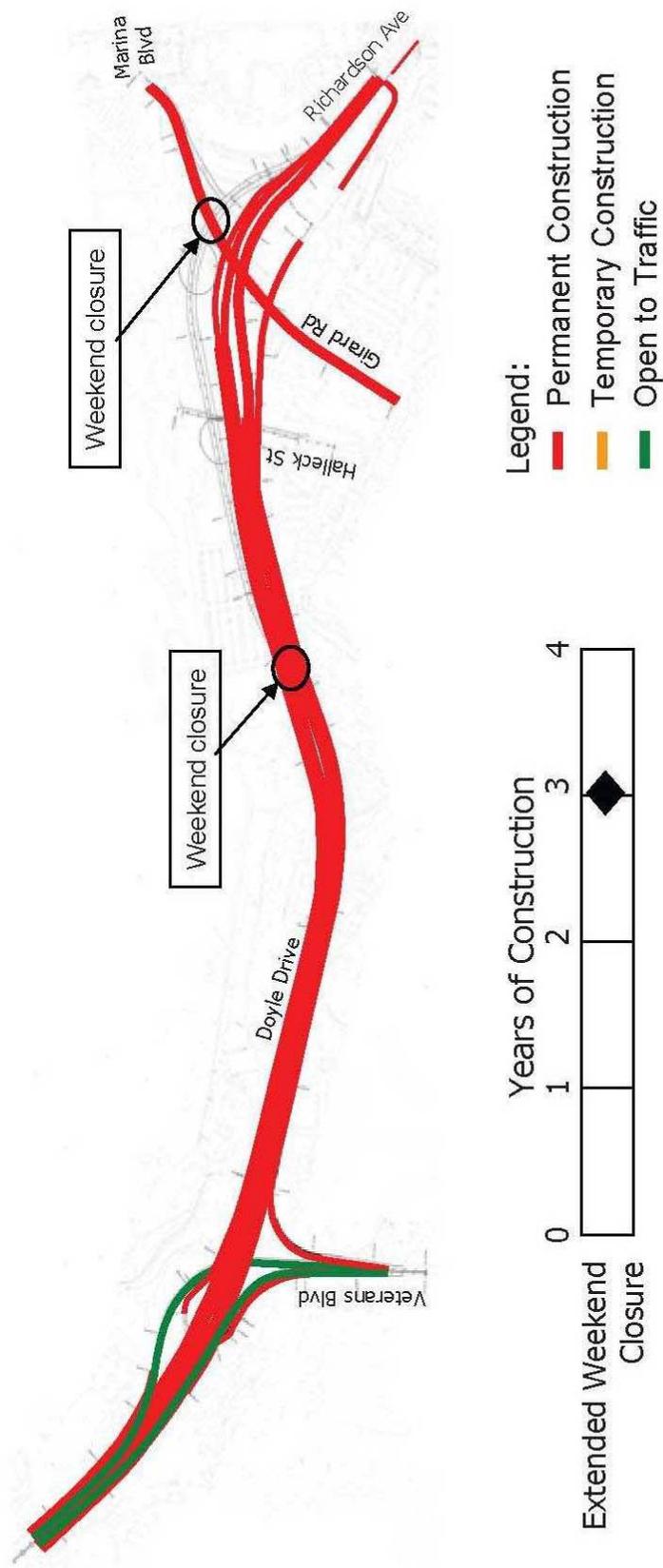
Remove remaining DD east of Park Presidio Interchange. Construct portion of NB DD west and east of the Park Presidio Interchange and NB Battery tunnel. Construct NB and SB DD Main Post Tunnels. Construct Girard Rd to Marina Blvd connection. Complete construction of Girard Rd Interchange. Complete construction of the NB DD to SB VB ramp. Remove temporary SB DD ramp to SB VB. Remove temporary ramp from existing NB VB to future NB DD. Remove temporary widening on DD west of Park Presidio Interchange. Shift traffic to permanent ramp from NB VB to NB DD and to permanent ramp from SB DD to SB VB.

Detours:

Divert NB and SB DD traffic onto permanent SB DD and temporary at-grade roadway. Divert NB and SB Marina traffic onto temporary Marina connection. Divert Halleck St traffic via Lincoln Blvd, McDowell Ave and Mason St. Close existing NB DD to SB VB and detour traffic via Van Ness Ave and Geary Blvd.

Construction Staging Preferred Alternative – Stage 2

Figure 7.8-3

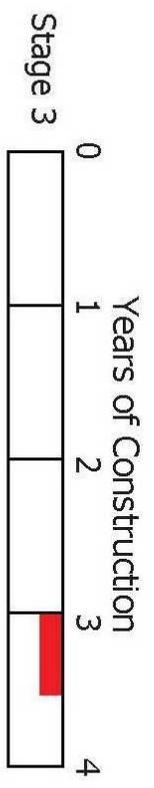
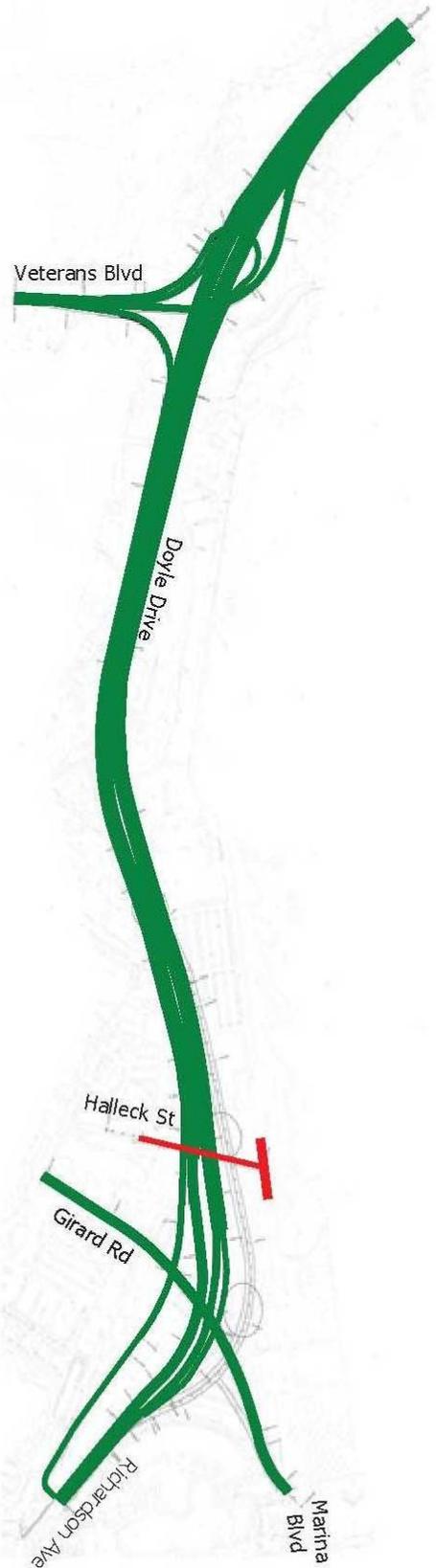


Permanent Construction:
Complete construction of permanent DD and Girard Rd connection to Marina Blvd.

Detours:
Close DD east of Park Presidio Interchange and detour traffic via SB and NB VB, Geary Blvd and Van Ness Ave.

**Construction Staging
Preferred Alternative – Stage 2 Transition, Full Weekend Closure**

Figure 7.8-4



- Legend:**
- █ Permanent Construction
 - █ Temporary Construction
 - █ Open to Traffic

Permanent Construction:

Remove SB DD temporary widening at Park Presidio Interchange and the temporary at-grade roadway. Remove temporary Marina connection. Construct Halleck St and complete grading over Main Post tunnels. Open permanent DD, NB DD to SB VB ramp and Girard Rd interchange to traffic. Construct parking area and access roads west of Palace of Fine Arts.

Detours:

Close Lincoln Blvd for bridge removal over roadway and detour traffic via McDowell to Crissy Field Ave to Lincoln and via Storey to Ruckman to Lincoln. Close NB Veterans Blvd for bridge removal over roadway and detour traffic via Geary Blvd to Van Ness Ave to Lombard St. to NB Doyal Drive.

**Construction Staging
Preferred Alternative – Stage 3**

Figure 7.8-5

7.8.2 ALTERNATIVE 2 - REPLACE AND WIDEN

Veterans Boulevard to Doyle Drive Ramp Closure

In the initial stages of the project it is necessary to close both the northbound Park Presidio to southbound Doyle Drive and northbound Doyle Drive to southbound Park Presidio ramps to traffic for six months while they are replaced. Although the Doyle Drive northbound to Veterans Boulevard southbound ramp may be closed for a longer duration, this particular situation represents the early critical “worst case” traffic diversion scenario. Approximately 1000 vehicles use these ramps in the peak hour in the peak direction.

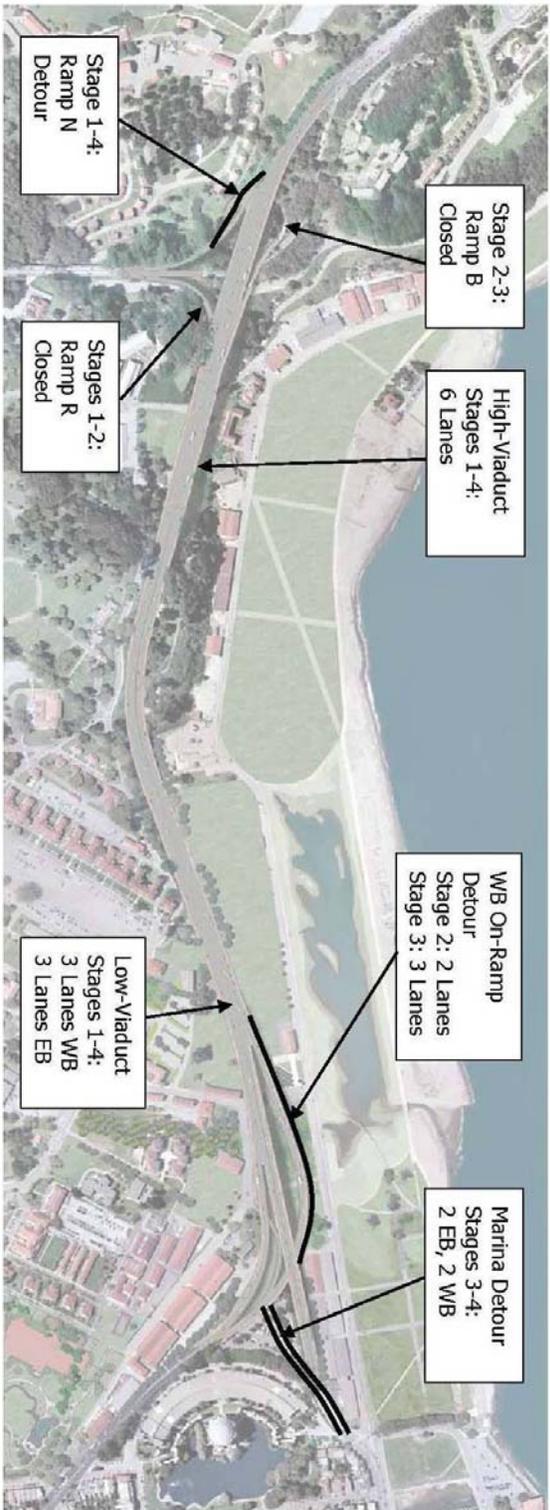
The general impact of this closure is projected to be that most drivers (over sixty percent in each time period) would not use either Veterans Boulevard or Doyle Drive; these drivers would make their trips on other local streets through the Richmond District, Laurel Heights area, Presidio Heights area, the Cow Hollow District and the Marina District. These trips would generally disperse across the street network grid. The remaining forty percent would travel up Veterans Boulevard and cut through the Toll Plaza Visitor’s area to continue their trip. These trips would distribute evenly; half would cut underneath the toll plaza, and the other half would use Lincoln Boulevard to cross underneath Doyle Drive to cross between one side to the other. This is forecasted to result in 350 AM peak hour vehicles and 100 PM peak hour vehicles traveling underneath the Toll Plaza in the peak direction, through this narrow roadway segment. Except for this localized increase in traffic in the toll plaza area, no other significant change in local Presidio traffic volumes is forecast to occur. Thus, other local roadways are not expected to have deterioration in traffic speeds, or resulting levels of service.

Lincoln Boulevard Closure

Rerouting of local Presidio traffic would occur, early in the project, for the three month period while the Veterans Boulevard / Doyle Drive ramps are closed. During this time, Lincoln Boulevard near the National Cemetery is also closed and local traffic would be diverted to Halleck, Mason and McDowell. This would occur during a period while the northbound Veterans Boulevard ramp to southbound Doyle Drive would also be closed. (Note: Halleck would be required to be opened when Lincoln would be closed.) The most critical time period for this closure would be the PM, when 230 vehicles would be expected to use this diverted route northbound. As the detour roads have fewer than 50 vehicles forecast on them at peak hour, the additional traffic should not result in any adverse congestion.

Marina/Richardson Merge and Diverge Relocation

Following completion of the previous two scenarios, under the No Detour Option, a westward relocation of the Marina and Richardson merge (northbound) and diverge (southbound) points would be required. As traffic speeds and capacities would be reduced for this period, an overall drop of 80 vehicles northbound and 340 vehicles southbound would occur on Doyle Drive in the AM. The PM volumes would drop by 160 vehicles northbound and 250 vehicles southbound. These vehicles would relocate to a variety of other streets, with no other local streets showing more than 100 vehicles increase in traffic. The analysis suggests that no major efforts are needed to reduce regional traffic volumes as a result of this shift beyond a general project-related traffic reduction strategy.



Stage 1
 Construction: Construct southern portion of high-viaduct and outside widening portion of low Viaduct. Demolish Ramp R. Construct portion of temporary widening of WB on-ramp from Richardson Blvd. and temporary Ramp N.
 Detours: WB and EB Doyle Drive traffic on existing alignment. Ramp R is closed.

Stage 2
 Construction: Demolish Ramps N and B. Complete construction of southern portion of high-viaduct and replacement of Ramp R and Ramp N. Construct portion of inside widening of low-viaduct, temporary detour to Marina Blvd., and remainder of temporary WB on-ramp from Richardson Blvd.
 Detours: Divert EB Doyle Drive to SB Park Presidio Blvd. traffic on to temporary Ramp N. Ramp B is closed.

Stage 3
 Construction: Demolish old high-viaduct and construct north portion of new structure. Replacement of Ramp B. Demolish old low-viaduct and construct remainder of new structure. Demolish old off-ramp to Richardson Blvd.
 Detours: Traffic is moved on to the southern portion of the new high-viaduct. New Ramp R is opened to traffic. Traffic is switched to portion of new low-viaduct. Marina traffic is switched to temporary detour.

Stage 4
 Construction: Complete construction of closure pour and median barrier of high- and low-viaduct. Remove all remaining temporary detours.
 Detours: Shift all traffic on to new facility.

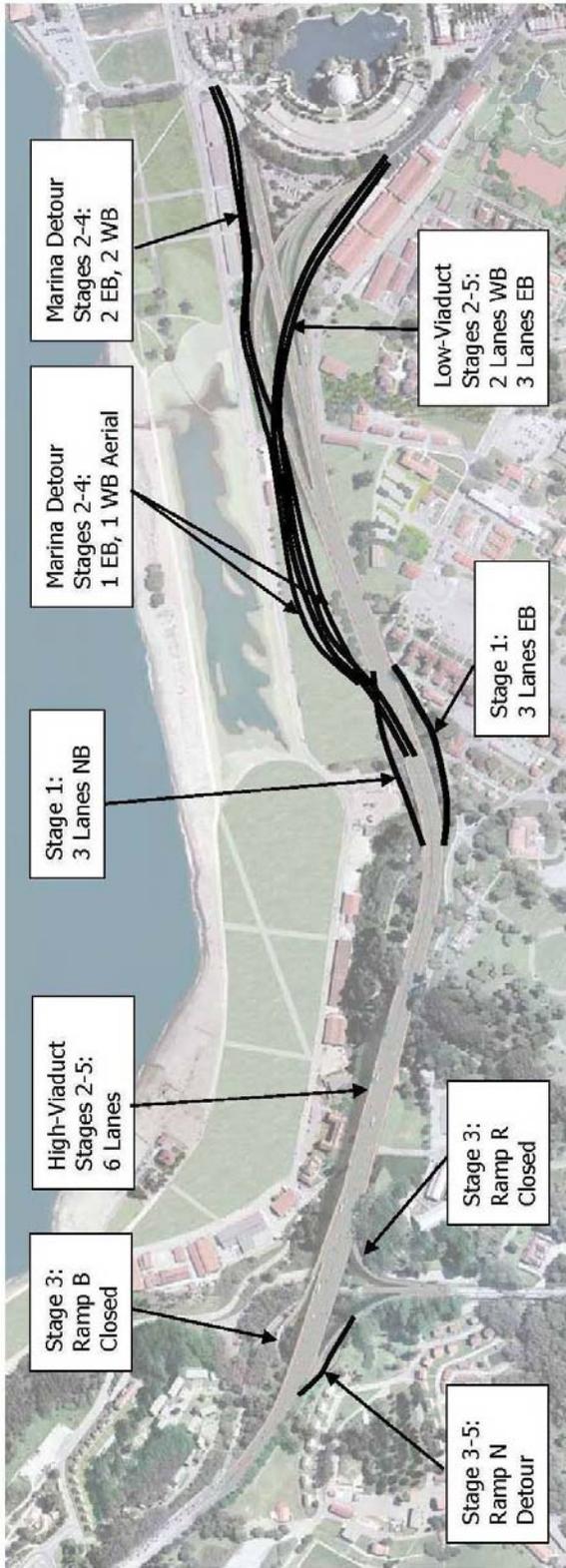
Construction Duration: 3 years 4 months



Doyle Drive Project

Construction Staging
 Alternative 2 - Replace & Widen No Detour

Figure 7.8-6



Stage 1
 Construction: Replace west portion of low-viaduct between the Cemetery and Main Post.
 Detours: WB and EB Doyle Dr. traffic diverted on to temporary detours north and south of construction area.

Stage 2
 Construction: Construct southern portion of high-viaduct and temporary Ramp N, demolish Ramp R and remove temporary detours north and south of the west portion of low-viaduct. Construct Marina and low-viaduct detours.
 Detours: WB and EB Doyle Drive traffic switched back to existing alignment.

Stage 3
 Construction: Demolish Ramps N and B. Complete construction of southern portion of high-viaduct, replacement of Ramp R and Ramp N, and replace low-viaduct.
 Detours: East of the Cemetery, WB and EB traffic is diverted on to a temporary structure north of the low-viaduct. The detour goes over Halleck St., the existing structure, and connects to Richardson Ave. near the Palace of Fine Arts. Marina traffic splits off the main detour west of Halleck St. on to a separate temporary structure that goes over Halleck and Marshall streets and connects to Marina Blvd. at Lyon St. Divert EB Doyle Dr. to SB Park Presidio Blvd. traffic on to temporary Ramp N. Ramp B is closed.

Stage 4
 Construction: Demolish old high-viaduct and construct north portion of new structure. Replacement of Ramp B. Remove all temporary detour structures.
 Detours: Traffic is moved on to the southern portion of the new high-viaduct. New Ramp R is opened to traffic.

Stage 5
 Construction: Complete construction of closure pour and median barrier of high-viaduct. Remove temporary Ramp N.
 Detours: Shift all traffic on to new facility.

Construction Duration: 4 years 3 months



Alternative 2 - Replace & Widen With Detour
Figure 7.8-7

Marina Boulevard Access

During the final construction stage of the No Detour option, the replacement of Marina Boulevard access would require a temporary rerouting of traffic south of the facility. This traffic would need to cross the northbound Richardson Avenue roadway at an at-grade temporary signalized intersection. As there is also a temporary ramp proposed for much of the construction period to run from Doyle Drive northbound to Veterans Boulevard southbound which may attract more traffic through the project site, this situation was tested with and without this temporary ramp in place.

In the AM condition, the northbound Doyle Drive volumes would drop by 60 vehicles and the southbound by 220 vehicles. In the PM condition, the roadway is projected to have a drop of 160 vehicles in the northbound direction, and less than 10 vehicles in the southbound direction. The traffic is anticipated to disperse to a variety of other streets, with no other street showing traffic changes of more than 100 vehicles in any direction.

The new intersection created in this situation should operate satisfactorily, assuming that three outbound lanes are available on Richardson through this intersection, and that two left-turn travel lanes are available for traffic wishing to travel to Marina. The high volume of PM peak hour right-turning traffic from the Marina detour (in addition to concerns about site distance) may also necessitate a signal control.

Assuming that all design constraints are met, no additional actions beyond the normal traffic reduction strategy for the project would seem to be needed.

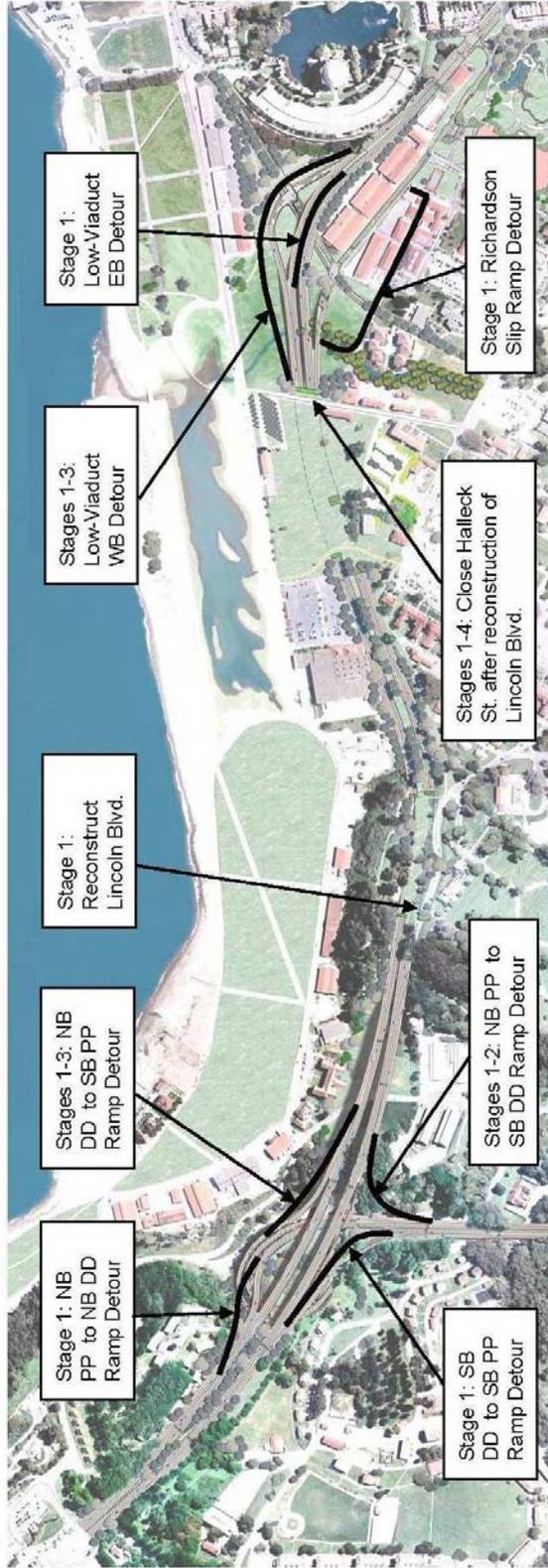
7.8.3 ALTERNATIVE 5 - PRESIDIO PARKWAY

Lincoln Boulevard Closure

Early in the project, one traffic detour would involve the rerouting of internal Presidio traffic. During the initial stages of construction, Lincoln Boulevard near the National Cemetery is proposed for closure for a three month period. During this time, local traffic will be diverted to Halleck, Mason, and McDowell. This would occur during a period while the Northbound Veterans Boulevard hook ramp to Southbound Doyle Drive would also be closed. (Note: Halleck would be required to be opened when Lincoln would be closed.) The most critical time period for this closure would be the PM, when 290 vehicles would be expected to use this diverted route northbound. As the detour roads have fewer than 50 vehicles forecast on them at peak hour, the additional traffic should not result in any adverse congestion.

Halleck Street Closure

During construction, another traffic detour would be required when Halleck Street is closed for about a three year period. Halleck Street would attract less than 100 vehicles in each direction at peak hour, so congestion impacts are not anticipated. Bicyclists and pedestrian would be affected, as the nearest detours would be at least 500 meters (1640 feet) to the east (Lyon Street) or 1000 meters (3280 feet) to the west (McDowell Avenue). To assure access between these areas, a replacement path should be provided across the roadway whenever possible.



Stage 1
 Construction: Construct portions of EB DD from the Park Presidio Interchange to Richardson Ave. Construct offline portions of WB DD between the Battery and Main Post Tunnels and between the Park Presidio Interchange and the Toll Plaza. Construct portions of the Park Presidio Interchange ramps. Construct portions of the Girard Rd. Interchange. Construct temporary detours for WB and EB low-viaduct at Richardson Ave. Construct temporary detours for Park Presidio Interchange ramps. Construct temporary detour for Richardson Ave. slip ramp.
 Detours: Divert EB and WB DD on to detours between low-viaduct and Richardson Ave. Divert EB DD to SB PP and from NB PP to WB DD ramps on to temporary detours. Divert NB PP to EB DD on to a combination of temporary and permanent ramp. Divert WB DD to SB PP on to a combination of temporary and permanent ramp. Divert traffic from Richardson Ave. slip ramp on to temporary detour. Close Halleck St. after reconstruction of Lincoln Blvd.

Stage 2
 Construction: Construct WB high-viaduct between Park Presidio Interchange and the Cemetery. Construct remaining portions of the Battery Tunnel. Construct WB DD causeway at Tennessee Hollow. Remove the Marina Viaduct from Tennessee Hollow to Marina Boulevard. Complete construction of Girard Road Interchange. Remove temporary detour from EB DD to Richardson Avenue. Remove temporary detour from NB PP to EB DD.
 Detours: Divert EB DD on to permanent alignment but with 3 lanes. Open permanent WB DD between the Park Presidio Interchange and the Toll Plaza. Open permanent NB PP to WB DD ramp and permanent NB PP to EB DD ramp.

Stage 3
 Construction: Remove portions of the existing high-viaduct and construct the remaining portion of the permanent ramp from WB DD to SB PP. Complete construction of the Battery Tunnels. Remove the low-viaduct between the Cemetery and Halleck Street. Complete construction of EB DD and construct additional portions of WB DD from Cemetery to Halleck Street.
 Detours: Divert WB DD on to a combination of temporary and permanent alignment from Richardson Avenue to the Toll Plaza.

Stage 4
 Construction: Complete WB DD Main Post Tunnel and construct Halleck Street. Remove remaining portion of existing high-viaduct and residual segments of existing and temporary facilities.
 Detours: Open all traffic movements to permanent alignments and open Halleck Street.

Design Options
Merchant Road Option: If selected, this option would be constructed during Stage 1.
Hook Ramp Option: If selected, this option would eliminate the need for the NB PP to SB DD ramp detour during Stages 1-2. Subsequent stages would remain unchanged.
Circle Drive Option: If selected, this option would eliminate the need for the Richardson slip ramp detour. Subsequent stages would remain unchanged.

Construction Duration: 4 years 7 months



Construction Staging
Alternative 5 – Presidio Parkway

Figure 7.8-8

Marina Boulevard Access without Doyle Drive to Veterans Boulevard Ramp Closure

For the Parkway Alternative, the “worst case” scenario is the point in the construction staging where traffic to and from Marina Boulevard would need to cross a temporary northbound Richardson Avenue traffic flow. As traffic flow varies between the Diamond Option and the Circle Drive option, both of these situations have been analyzed but the results were not appreciably different.

In this scenario, the substantially constrained outbound traffic on Richardson was tested at two lanes. In this instance, outbound Doyle Drive operated adequately in the AM peak hour, with less than 100 vehicles change on Doyle Drive. However, in the PM condition, the lack of three through lanes posed a substantial barrier to traffic, and over 1,000 vehicles shifted to other streets. About 250 vehicles would shift to Lincoln, another 250 vehicles would use Veterans Boulevard to reach the bridge, and another 300 vehicles would choose other routes instead of using the Doyle Drive northbound to Veterans Boulevard ramp.

For this reason, a full three lanes would be needed to carry the volumes coming from Richardson Avenue. With three lanes, the signalized intersection created in this situation should operate satisfactorily and traffic diversion would not occur. Two lanes would be available on Girard Road for southbound Doyle Drive traffic wishing to travel to Marina Boulevard.

No substantial congestion is anticipated on roadways within the Presidio during this phase. All local roadways are forecast to have stable or slightly lower traffic volumes, even with the closure of Halleck Street. Once the extension of Girard Road to Marina Boulevard is opened, it will experience increased traffic, but this is expected as part of implementing Alternative 5.

These strategies will be investigated as part of the *Transportation Management Plan*, and interactive traffic management, as appropriate, would be implemented to alleviate this upcoming bottleneck.

Marina Boulevard Access with Doyle Drive to Veterans Boulevard Ramp Closure

One possible variation of the previously-mentioned phase is for the Doyle Drive northbound to Veterans Boulevard southbound ramp to remain closed, rather than to have a temporary ramp for a portion of the construction period. In the case where this ramp is kept closed during construction, the traffic would divert to the toll plaza routing discussed above in Alternative 2. The remaining vehicles would disperse to other local streets.

Similar to the previously mentioned phase, a full three lanes would be needed to carry the anticipated volumes coming from Richardson Avenue. With three lanes, the signalized intersection created in this situation should operate satisfactorily and traffic diversion would not occur. Similar to Alternative 2, two lanes would be available on Girard Road for traffic wishing to travel to Marina Boulevard.

No substantial congestion is anticipated on roadways within the Presidio during this phase. Generally, all of these local roadways are forecast to have stable or slightly lower traffic volumes, even with the closure of Halleck Street. Once the extension of Girard Road to Marina Boulevard is opened, it will experience increased traffic, but this is expected as part of the implementing of either of the Parkway Alternatives.

These strategies will be investigated as part of the *Transportation Management Plan*, and interactive traffic management, as appropriate, would be implemented.

7.9 Accommodation of Oversize Loads

The proposed project has been designed to accommodate oversize loads in accordance with FHWA and Caltrans' standards. No permanent restrictions to oversized loads have been identified for the project. However, reduced clearances during construction can be expected. Existing Doyle Drive (Route 101) is currently classified an "Advisory Route" on the Caltrans Truck Route classification network. California law allows regulatory prohibition of an 11.6-meter (38-foot) kingpin-to-rear axle vehicle or greater where posted.

7.10 Graffiti Control

The proposed project lies within the Presidio and is accessible to the public, which makes it prone to graffiti. Several retaining walls would be required for the proposed project and the design of these walls would include provisions (such as providing tall, obscuring landscaping) to minimize impacts to the walls from graffiti. Park Police patrols should also serve as a major deterrent. In addition, the maintenance agreement that will be executed for this project will include language regarding graffiti control.

8. PROGRAMMING

Revenues for transportation improvement projects are generated from a variety of sources including state gasoline and diesel fuel taxes, vehicle weight fees, and federal revenues. Additional sources include sales tax measures, local funds other than sales taxes, and private funds. Table 8-1 provides a description of some of these programs.

Project milestones for specific project activities (planning, design, and construction) are provided in Table 8-2. Because each funding program targets these specific project activities, the proposed Doyle Drive Project has been divided into four phases. These phases are:

- Phase 1: Project Approval and Environmental Documentation - the FEIS/R and preliminary engineering are part of PAED;
- Phase 2: Plans, Specifications, and Estimates - final design and development of project cost estimates;
- Phase 3: Acquisition of interest and right of way; and
- Phase 4: Construction. This phase includes implementation of identified mitigation and monitoring.

Table 8-1 Transportation Funding Programs

Funding Program	Description
PLHD (Public Lands Highway Discretionary)	PHLD provides funding for highway and related improvements for federally owned property such as national parks and forests.
High Priority	The High Priority Program provides designated funding for specific projects identified in the SAFETEA-LU (Safe Accountable Flexible Efficient Transportation Equity Act).
UPA (Urban Partnership Agreement)	UPA is a federal discretionary grant awarded to a region to implement tolling, transit, telecommuting and technology to relieve urban congestion.
TCRP¹ (Traffic Congestion Relief Program)	TCRP is a state funding source managed by the California Transportation Commission for the Governor. The TCRP requires the California Transportation Commission (Commission) to adopt guidelines and implement an Exchange Program that allows the exchange of federal Congestion Mitigation and Air Quality Improvement (CMAQ) and Regional Surface Transportation Program (RSTP) funds for state transportation funds, based upon funding availability.
SHOPP¹ (State Highway Operation and Protection Program)	SHOPP is a state funding category used by Caltrans to maintain and operate state highways.
STIP-ITIP¹ (State Interregional Transportation Improvement Program)	STIP-ITIP is a state funding program for Interregional Transportation Improvement Program funds. Caltrans nominates and the California Transportation Commission approves a listing of interregional highway and rail projects for twenty-five percent of the funds to be programmed in the State Transportation Improvement Program.
Proposition K Sales Tax	Proposition K Sales Tax is a local sales tax measure for the City and County of San Francisco. Proposition K funds have been advanced under AB 1335 as a loan against the TCRP funding.
STIP-RIP¹ (State Regional Improvement Program)	STIP-RIP is a state funding source which provides for the regional allocation of state transportation improvement funds.

Note: ¹ Latest approval year for all programs is 2008.

was adopted by the MTC on February 23, 2005. The RTP describes the strategies and investments required to maintain, manage, and improve the transportation network within the nine-county San Francisco Bay Area. The RTP is now updated every four years. On July 23, 2008, the MTC approved the investment program for the financially constrained element of Transportation 2035. The Doyle Drive Replacement project is included in the RTP as a financially constrained element with programmed local, state, and federal funds available over the long term of the Transportation 2030 Plan as well as the draft Transportation 2035 Plan which was released on December 17, 2008 for public review. The draft Transportation 2035 Plan contains two separate entries for the Project:

- 98102 – Reconstruct the South Access to the Golden Gate Bridge: Doyle Drive (environmental study)
- 94089 – Reconstruct the South Access to the Golden Gate Bridge, from Doyle Drive to Broderick Street (design and construction phases)

There is currently \$25.6 million in committed funding for 98102 and \$605.4 million for 94089. Since the release of the draft Transportation 2035 Plan, the MTC and GGBHTD have each committed an additional \$80 million each bringing the total committed funding to \$791 million. The draft Transportation 2035 Plan is expected to be adopted in March 2009 and a letter from MTC regarding the Projects consistency with the 2009 RTP can be found in Attachment S.

Table 8-2 Project Milestones

Task	Date
Project Approval / Environmental Document (PAED)	December 2008
Plans, Specifications & Estimates (PS&E)	April 2010
Ready to List (RTL)	July 2010
Advertisement	August 2010
Contract Award	December 2010
Construction Contract Acceptance (CCA)	December 2014

The Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users" (SAFETEA-LU) (Pub. L. 109-59, 119 Stat. 1144) requires that the financial plan for all Federal-aid projects with an estimated total cost of \$500 million or more to be approved by the Secretary (i.e. FHWA) based on reasonable assumptions. The \$500 million threshold includes capital outlay support costs and design services. The FHWA has interpreted reasonable assumptions to be a risk based analysis. These cost estimate reviews are required to provide the risk based assessment of the estimate and are used in the approval of the financial plan.

In March 2008, the FHWA conducted a cost estimate review of the Preferred Alternative to verify the accuracy and reasonableness of the current total cost estimate to complete the project and to develop a probability range for the cost estimate that represents the project's stage of design. The FHWA worked with the Project team to review the material quantities and unit costs and develop the expected variance for each. The FHWA input the expected

variance into a Monte Carlo¹ simulation to develop forecast curves that represent a cost estimate range for the project.

The Project team met with the FHWA in April 2008 and May 2008 to determine the confidence level of the cost estimate range based on the project's current stage of development. Based on those discussions, the FHWA performed a Monte Carlo simulation which resulted in total project cost estimate range of \$1.05 to \$1.18 billion.

During the FHWA review, costs were separately escalated to the midpoint of construction however the reality of cost escalation for 2008 has been proven differently. The faltering of the economy and housing industry collapse have increased competition for highway construction contracts and have dramatically lowered prices. Recent bids from Contractors to Caltrans have routinely been 20% to 40% below the Engineer's Estimate.

The FHWA has since reevaluated the Monte Carlo simulation using new inflation rate for 2008. The new inflation rate along with the unchanged inflation rates for beyond 2009 have decreased total project cost estimate range to \$958 million to \$1.08 billion, placing the \$1.045 billion just outside the 70% confidence level or the minimum amount of funding to sign the ROD. The FHWA did however sign the ROD with the notion that Caltrans has guaranteed the funding in the amount of \$1.045 billion. The signed ROD can be seen in Attachment R.

**Table 8-3 Total Project Cost
(Year of Expenditure)**

Phase	Project Cost
PA/ED (Expended)	\$26,000,000
PS&E (2008)	\$55,000,000
Right of Way (2010)	\$36,300,000
Roadway (YOE)	\$281,100,000
Structures (YOE)	\$571,500,000
Construction ¹ (YOE)	\$852,600,000
Capital ² (YOE)	\$888,900,000
R/W Support (2008)	\$4,000,000
Construction Support (2008)	\$70,700,000
TOTAL	\$1,044,600,000

Notes:

¹Construction is the sum of Roadway and Structures

²Capital is the sum of Right of Way and Construction.

The balanced funding strategy developed for the Doyle Drive Project relies upon a combination of federal, state and local funds. The proposed implementation phases in

¹A Monte Carlo simulation calculates multiple scenarios of the outcome by continually sampling random values from the expected variance. The simulations ran by FHWA consisted of 10,000 iterations.

relation to anticipated funding sources and committed and proposed funding amounts are presented in Table 8-4, and is subject to change. The available funding for the project will determine the scope and the deliverable phases of the project.

In August 2007, the U.S. Department of Transportation (US DOT) designated the San Francisco Bay Area as an Urban Partner, awarding the region \$159 million in federal grant funds to implement a program of projects centered on variable pricing of Doyle Drive. Tolls would be collected at, or just south of, the Golden Gate Bridge Toll Plaza and be used to fund transportation improvements in the Doyle/US 101 corridor. The use of grant funds for the Doyle Drive Value Pricing Program – including \$35 million in funds for the Doyle Drive Replacement Project – was conditioned on the obtainment of legal authority to impose a congestion toll on Doyle Drive by March 2008. On March 14, 2008, GGBHTD approved a resolution committing to the imposition of a variable toll in the Golden Gate Corridor (including Doyle Drive) as soon as September, 2008 but no later than September 2009. While the level of the toll and exact use of the funds was not set, the GGBHTD's action precluded the use of toll revenues to fund the Doyle Drive Replacement Project. Subsequently, the US DOT obligated the \$35 million PLH grant that was included in the San Francisco Urban Partnership Agreement (SF UPA) for the reconstruction of Doyle Drive, but held off on obligating other UPA grant funds, including tolling system funds, pending confirmation of the SF UPA program. In the summer of 2008, the San Francisco regional partner agencies confirmed they would drop the Doyle Drive tolling project from the UPA program although the FHWA would agree to let the San Francisco regional partners retain \$47.3 million of the UPA funds for the replacement of Doyle Drive. The San Francisco regional partners would still need to look to other local funding sources and cost savings to complete the project funding plan. Depending on the actual funding sources used for the project, the impacts may need to be analyzed in a Re-evaluation/Addendum of the FEIS/R, or a Supplemental FEIS/R, as appropriate.

Currently the project has committed funding of \$790.6 million which is short of the estimated total project cost in year of expenditure of \$1.045 billion that is needed to construct the Preferred Alternative. In order to approve the project and meet air quality regulations, FHWA requires the Record of Decision (ROD) to identify a fully funded alternative or constructible phase. To complete project approval for this project it is therefore proposed to identify Stage 1 of the Preferred Alternative construction staging as a constructible interim phase. The total project cost for Stage 1 excluding the southbound Tennessee Hollow and Girard Road Undercrossing structures in year of expenditure is approximately \$630.2 million and would maintain traffic using the southbound high-viaduct, the southbound Battery tunnel and the at-grade temporary roadway. Stage 1 does not meet the purpose and need for this project and would only be in place until the remainder of the funding is secured in order to complete construction of the Preferred Alternative.

Table 8-4 Proposed and Committed Funding Sources and Levels (in Millions)

Source	Type		Phase 1 (Environmental)	Phase 2 (Engineering)	Phase 3		Phase 4		Total Capital Phases 3-4**	Total
					Right of Way	Right of Way Support	Construction	Construction Support		
PLHD Funds	Federal	Committed	\$8.2	\$1.2						\$9.4
		Proposed								\$0.0
High Priority	Federal	Committed	\$5.6	\$1.0	\$7.5	\$0.8			\$17.5	\$14.8
		Proposed								\$0.0
UPA	Federal	Committed		\$12.8	\$17.0		\$17.5		\$34.5	\$47.3
		Proposed								\$0.0
TCRP	State	Committed	\$9.0	\$6.0						\$15.0
		Proposed								\$0.0
SHOPP	State	Committed		\$24.0		\$1.0	\$364.0	\$16.0	\$364.0	\$405.0
		Proposed								\$0.0
Prop K Sales Tax	Local	Committed	\$2.8	\$5.0			\$60.1		\$60.1	\$67.9
		Proposed								\$0.0
STIP-RIP	Local	Committed		\$5.0	\$10.1	\$2.0	\$54.0		\$64.1	\$71.1
		Proposed								\$0.0
MTC	Local	Committed					\$80.0		\$80.0	\$80.0
		Proposed								\$0.0
GGBHTD	Local	Committed					\$80.0		\$80.0	\$80.0
		Proposed								\$0.0
Other*	Local	Committed			\$1.7	\$0.2	\$197.4	\$54.7	\$199.1	\$254.0
		Proposed								\$0.0
Totals		Committed	\$25.6	\$55.0	\$34.6	\$3.8	\$655.6	\$16.0	\$700.2	\$790.6
		Proposed	\$0.0	\$0.0	\$1.7	\$0.2	\$197.4	\$54.7	\$199.1	\$254.6
		Total	\$25.6	\$55.0	\$36.3	\$4.0	\$853.0	\$70.7	\$899.3	\$1,044.6

Sources: San Francisco County Transportation Authority, December 2008, consistent with proposed 2009 RTP and 2009 TIP amendment.

- Notes:
- Funding plan is based upon estimated capital costs provided in Table 5.2-4 for the Preferred Alternative. Depending upon timing and amount of funding, project may or may not be phased. Project costs are shown in Table 8-3.
 - Additional funds to come from potential cost savings: new and/or redirected federal funds, future RIP, and local sources including bridge tolls. Information contained in this report may need to be re-evaluated or supplemented depending on the actual sources of funds used on the project.
 - Support costs are not included in the totals.

9. REVIEWS

The Traffic and Transit Operations Analysis was reviewed by Rod Oto, Traffic Operations on November 19, 2004 and he had no comments. A Risk Management Plan was prepared for the project at the risk management workshop held on June 23, 2005. The Draft Project Report was reviewed by Mike Thomas, Headquarters Design Coordinator on August 5, 2005 and approved by Helena "Lenka" Culik-Caro, Deputy District Director on January 13, 2006. A constructability review was performed during the Value Analysis review (see Section 6.2) in May 2006 and assumed standard Caltrans construction methods. The Advanced Planning Studies were approved by Abbas Tourzani, Senior Bridge Engineer, on June 26, 2007. This Project Report was reviewed by Mike Thomas, Headquarters Design Coordinator on October 4, 2007. Information regarding the FHWA's and Caltrans' signed Joint Stewardship and Oversight Agreement can be found in Section 7.5. The cost and schedule estimates were reviewed by the FHWA in a workshop held March 18-20, 2008. The FHWA re-reviewed the cost and schedule estimates on April 14, 2008 and approved the current versions in November 2008.

10. PROJECT PERSONNEL

<i>Function / Contacts</i>	<i>Phone Number</i>	<i>E-Mail Address</i>
<u><i>San Francisco County Transportation Authority</i></u>		
Jose Luis Moscovich Executive Director	415-522-4803	jose_luis_moscovich@sfcta.org
Lee Saage Project Manager	415-522-4812	Lee@Saage.net
<u><i>Caltrans</i></u>		
Nidal Tuqan Regional Project Manager	510-286-5542	Nidal_Tuqan@dot.ca.gov
Keyhan Moghbel Chief, Design Peninsula	510-286-7189	Keyhan_Moghbel@dot.ca.gov
Abolfazel Emadzadeh District Branch Chief, Design Peninsula	510-286-4895	Abolfazel_Emadzadeh@dot.ca.gov
Jared Goldfine District Branch Chief, Environmental Analysis	510-286-6203	Jared_Goldfine@dot.ca.gov
Hossein Khodabakhsh Project Engineer	510-622-1789	Hossein_Khodabakhsh@dot.ca.gov
Allison Paich District Office Chief, Project Management & Relocation Service	510-286-5406	Allison_Paich@dot.ca.gov
Mark Shindler District Office Chief, Appraisals, Estimating & Property Management	510-286-5403	Mark_Shindler@dot.ca.gov
Mark Weaver District Office Chief, Acquisition & Utilities Service	510-286-5400	Mark_Weaver@dot.ca.gov
<u><i>Parsons Brinckerhoff</i></u>		
Sabine van der Sluis Project Manager	415-243-4640	VanderSluis@pbworld.com
Eric Lilly Engineering Task Leader	415-243-4745	Lilly@pbworld.com
Robert Malone Environmental Task Leader	415-243-4657	Malone@pbworld.com

11. LIST OF ATTACHMENTS

A. Project Location Map

B. Condensed Plan & Profiles

C. Preferred Alternative Project Plans (see Volume II)

- Typical Cross Sections
- Layout Sheets
- Profiles and Superelevation Diagrams

D. Preferred Alternative Stage Construction Diagrams (see Volume II)

E. Preferred Alternative Advanced Planning Studies (see Volume II)

F. Traffic Flow Diagrams

G. Accident Types & Collision Factors (2003-2006)

H. Preferred Alternative Right of Way Data Sheet and Easements

I. Preferred Alternative Utility Relocation Plan

J. Preferred Alternative Cost Estimate Summary

K. Preferred Alternative Relocation Impact Statement

L. Preferred Alternative Storm Water Data Report Signature Sheet

M. Preferred Alternative Risk Management Plan

N. Preferred Alternative Transportation Management Plan Data Sheet

O. Preferred Alternative Draft Cooperative Agreement

P. Preferred Alternative Programmatic Agreement

Q. Preferred Alternative FHWA Major Project Oversight Agreement

R. Letter from MTC Regarding Consistency with the 2009 RTP

S. FHWA Record of Decision

T. Final Environmental Impact Statement / Report Signature Page and Summary (report under separate cover)

12. REFERENCES

1. United States Department of the Interior, National Park Service. Final General Management Plan Amendment Environmental Impact Statement. July 1994.
2. Caltrans. Project Study Report: Doyle Drive Reconstruction, July 15, 1993.
3. Doyle Drive Task Force. "A Scenic Parkway for the Park", Report of the Doyle Drive Task Force to the San Francisco Board of Supervisors. February 2, 1993.
4. San Francisco County Transportation Authority. Final Report: Doyle Drive Intermodal Study. November 1996.
5. Presidio Trust. Final Environmental Impact Statement and Planning Guidelines for New Development and Uses on 23 Acres within the Letterman Complex, A Supplement to the 1994 General Management Plan Amendment Environmental Impact Statement for the Presidio. March PTMP 2002.
6. Draft Memorandum - Assessment of Funding Plans and Capabilities for the Doyle Drive Environmental Design Study, Parsons Brinckerhoff, June 2000.
7. Doyle Drive Environmental and Design Study Final Alternatives Report, Parsons Brinckerhoff, October 2000.
8. San Francisco County Transportation Authority. Doyle Drive Environmental and Design Study: Scoping Summary Report, May 2000.
9. Final Natural Environmental Study, ESA, July 2005.
10. Final Preliminary Site Investigation, Baseline, October 2004.
11. Conceptual Traffic Management Plan for the Doyle Drive Corridor, Parsons Brinckerhoff, May 2007.
12. Final Preliminary Tunnel Systems Report, Parsons Brinckerhoff, October 2004.
13. Final Community Impact Assessment, Parsons Brinckerhoff, October 2004
14. Addenda to the Final Community Impact Assessment, Parsons Brinckerhoff, September 2006.
15. Final Preliminary Geotechnical Report, Parsons Brinckerhoff, October 2004.
16. Final Hydrology and Water Resources Technical Report, Baseline, October 2004.
17. Final Air Quality Study, ESA, November 2004.
18. Final Visual Impact Assessment, PAM, October 2004.
19. Final Traffic and Transit Operations Report, DKS, December 2004.

20. Addenda to the Final Traffic and Transit Operations Report, DKS, October 2006.
21. Addenda to the Final Technical Studies, Parsons Brinckerhoff/DKS, September 2006.
22. Draft Storm Water Data Report, Parsons Brinckerhoff, January 2006.
23. Cost Estimate Review, FHWA, August 2008.

13. GLOSSARY of ABBREVIATIONS/ACRONYMS

ABAG	Association of Bay Area Governments
ACHP	Advisory Council on Historic Preservation
ADTV	Average Daily Traffic Volumes
APE	Area of Potential Effects
BAAQMD	Bay Area Air Quality Management District
BCDC	San Francisco Bay Conservation and Development Commission
BMP	Best Management Practice
Caltrans	California Department of Transportation
CCA	Construction Contract Acceptance
CSSF	City and County of San Francisco
CEQA	California Environmental Quality Act
CO	Carbon Monoxide
FEIR	Final Environmental Impact Report (CEQA Document)
FEIS	Final Environmental Impact Statement (NEPA Document)
DFG	Department of Fish and Game
EPA	Environmental Protection Agency
ESA	Environmentally Sensitive Area
FEMA	Federal Emergency Management Agency
FHWA	Federal Highways Administration
FOE	Finding of Effect
GGBHTD	Golden Gate Bridge Highway and Transportation District
GGNRA	Golden Gate National Recreation Area
GMPA	Final Presidio General Management Plan Amendment
ITIP	Inter-regional Transportation Improvement Plan
LDAC	Letterman Digital Arts Center
LPA	Locally Preferred Alternative
MCE	Maximum Credible Earthquake
MOA	Memorandum of Agreement
MOU	Memorandum of Understanding
MSAT	Mobile Source Air Toxics
MTC	Metropolitan Transportation Commission
MVM	Million Vehicle Miles
MVMT	Million Vehicle Miles Traveled

NPDES	National Pollutant Discharge Elimination System
NEPA	National Environmental Protection Act
NHLA	National Historic Landmark District
NOx	Nitrogen Oxides
NPS	National Park Service
PA	Programmatic Agreement
PAED	Project Approval / Environmental Document
PM	Particulate Matter
PS&E	Plans, Specifications & Estimates
PSR	Project Study Report
PTIP	Presidio Trust Implementation Plan
PTMP	Presidio Trust Management Plan
RIP	Regional Improvement Plan
RTL	Ready to List
RTP	Regional Transportation Plan
RWQCB	Regional Water Quality Control Board
SAGGB	South Access to the Golden Gate Bridge
SFCTA	San Francisco County Transportation Authority
SF-TDM	San Francisco Traffic Demand Model
SHOPP	State Highway Operation and Protection Program
SHPO	State Historic Preservation Officer
SIP	State Implementation Plan
SWMP	Storm Water Management Plan
SWPPP	Storm Water Pollution Prevention Plan
TASAS	Traffic Accident Surveillance and Analysis System
TCP	Traffic Control Plan
TCRP	Traffic Congestion Relief Plan
TIP	Transportation Improvement Plan
TMP	Transportation Management Plan
Trust	Presidio Trust
USACE	United States Army Corps of Engineers
USFW	United States Fish and Wildlife Service
VA	Value Analysis, Department of Veterans Affairs
VOC	Volatile Organic Compounds