



CHAPTER FIVE

Cumulative Impacts Analysis

Doyle Drive Project
Draft Environmental Impact Statement/Report
and Draft Section 4(f) Evaluation

CHAPTER FIVE

CUMULATIVE IMPACTS ANALYSIS

The Council on Environmental Quality (CEQ) identifies the impacts that must be addressed and considered by federal agencies in satisfying the requirements of the *National Environmental Policy Act* (NEPA). This includes permanent, temporary, indirect, and cumulative impacts. The purpose of this chapter is to provide an analysis of the cumulative impacts (also known as a cumulative effects) anticipated as a result of this Doyle Drive Project.

A cumulative effects analysis is intended to describe the sum total of all impacts to a particular resource that have occurred, are occurring, and will likely occur as a result of any action or influence, including the direct and reasonably foreseeable indirect effects of the proposed action.

Cumulative impacts can be positive as well as negative depending on the environmental resource (e.g., air quality, wetlands, etc.) being evaluated. It is possible that some environmental resources can be negatively and others positively affected by the same proposed project. Most cumulative effects analyses identify varying levels of beneficial and adverse effects depending on the environmental resources and the specific actions. Because of this potential mixture of effects, it is sometimes difficult to determine which alternative is best.

5.1 Guidance

This analysis follows guidance from the CEQ, the Federal Highway Administration (FHWA) and the implementing regulations of the *California Environmental Quality Act* (CEQA). Brief discussions of CEQ, FHWA, and CEQA guidance follow.

5.1.1 Council on Environmental Quality

CEQ regulations implementing the procedural provisions of NEPA define cumulative effects as:

The impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency or person undertakes such other actions.

The cumulative effects of an action may be undetectable when viewed in the individual context of general impacts, but they can add to other disturbances and eventually lead to a measurable environmental change. Cumulative effects should be evaluated along with the overall impacts analysis of each alternative. The range of alternatives considered should include the No-Build Alternative as a baseline against which to evaluate cumulative effects. The range of actions to

be considered includes not only the proposed project but all connected and similar actions that could contribute to cumulative effects.

Related actions should be addressed in the same analysis. CEQ recommends that an agency's analysis accomplish the following:

- Focus on the effects and resources within the context of the proposed action.
- Present a concise list of issues that have relevance to the anticipated effects of the proposed action or eventual decision.
- Reach conclusions based on the best available data at the time of the analysis.
- Rely on information from other agencies and organizations on reasonably foreseeable projects or activities that are beyond the scope of the analyzing agencies purview.
- Relate to the geographic scope of the proposed project.
- Relate to the temporal period of the proposed project.

A cumulative effects analysis involves assumptions and uncertainties. Monitoring programs and/or research can be identified to improve the available information and, thus, the analyses in the future. The absence of an ideal database should not prevent the completion of a cumulative effects analysis.

5.1.2 Federal Highway Administration

FHWA environmental regulations do not explicitly address cumulative effects. However, FHWA policy is also provided in a memorandum and associated position paper¹ dated August 20, 1992, and a memorandum² dated January 31, 2003. The January 31, 2003, memorandum states "An appropriately thorough review of the probable direct and indirect impacts of FHWA actions and documentation of other cumulative effects on specific resources is essential to a reasoned and informed project decision and will assist in attaining FHWA's environmental streamlining and stewardship goals."

Per FHWA guidance, cumulative effects analysis is resource-specific and generally performed for the environmental resources directly affected by the action. However, not all of the environmental resources directly affected by a project will require a cumulative effects analysis. The environmental resources subject to cumulative effects analysis should be determined on a case-by-case basis early in the NEPA process, generally as part of early coordination or scoping.

¹Position Paper on Secondary/Cumulative Impact Assessment in the Highway Development Process.

²Interim Guidance: Questions and Answers Regarding Indirect and Cumulative Impact Considerations in the NEPA Process.

5.1.3 California Environmental Quality Act

CEQA Guidelines provide

that the lead agency identify reasonably foreseeable projects in the vicinity of the proposed project, summarize their effects, identify the contribution of the proposed project to cumulative impacts in the project region, and recommend feasible options for mitigating or avoiding the project's contribution to any significant cumulative effects (CEQA Guidelines Section 15130 [b][3]).

5.2 Scope and Methodology of the Cumulative Impacts Analysis

The cumulative impacts analysis for the Doyle Drive Project was conducted in a series of steps:

- Identify the environmental and community resources that warrant a cumulative impacts analysis.
- Define the geographic boundaries for each resource area.
- Define the timeframe (temporal boundary) for analysis for each resource area.
- Identify past actions and present and reasonably foreseeable future projects that would affect that resource.
- Identify the impacts (or benefits) to the resource from the other projects.
- Determine: 1) whether there currently is a cumulative impact to the resource area; and, 2) whether the impacts from the Doyle Drive Project would contribute to that impact.

5.3 Resources Evaluated

Cumulative effects were evaluated for other projects or activities such as major infrastructure projects, community development improvements, or private developments that are geographically related to the Doyle Drive Project. Reliance was placed on written correspondence from agencies and planning officials, interview notes, and meeting reports.

For a resource area to be considered for this cumulative impacts analysis, the resource element must have been projected to experience a measurable impact and/or effect due to the Doyle Drive Project. Listed below are the resource elements that were identified for this cumulative analysis:

- Traffic and Transportation;
- Biological Environment;
- Hydrology, Water Quality, and Stormwater Run Off;

- Cultural Resources; and
- Visual Quality.

5.4 Temporal and Geographic Boundaries

When evaluating cumulative effects, the analyst must consider expanding the geographic study area beyond that of the proposed project, as well as expanding the temporal (time) limits to consider past, present, and future actions that may affect the environmental resources of concern. The temporal and geographic boundaries can be different for each environmental resource evaluated.

The geographic scope of analysis includes the physical limits or boundaries of environmental resources studied for this project, as well as the boundaries of other projects or activities that also may contribute to the effects on an environmental resource.

5.4.1 Temporal

A timeframe extending from 1998 through 2030 was used for all five environmental resources (traffic and transportation, land use, energy, cultural, biological environment, and hydrology) analyzed. Using 1998 as the starting point for the analysis allowed an assessment of the changes that have occurred since the Presidio was turned over to the National Park Service and the Presidio Trust. The year 2030 is the future year used in regional transportation planning documents and the traffic analysis for this environmental document.

5.4.2 Geographic

The geographic boundaries for the cultural, land use, energy, and hydrology resources were the Presidio and the immediate surrounding area. However, for traffic and transportation and the biological environment, the geographic study area was broadened to include locations which could still impact the biological and transportation systems within the region.

5.5 Other Projects and Plans Considered in this Analysis

Future projects, within the identified geographic boundaries, were included in the cumulative effects analysis if they were planned, approved, and funded. In some instances, if a specific project was not funded, but would have a substantial impact on the study area if implemented, the project was also considered in this analysis. All or a portion of the projects had to be located within the cumulative effects geographic study boundaries. The projects also had to be initiated before 2030. Effects from these projects were evaluated because they could result in cumulative effects on the critical resources.

The cumulative impacts analysis considers the impacts to the community and the environment caused by the Doyle Drive Project in combination with other projects in the area including those in Marin County, the city of San Francisco,

and the Presidio. The transportation projects and other development projects which were considered in this analysis are summarized below.

Letterman Digital Arts Center – completed summer 2005

The Letterman Digital Arts Center is located on a 9.3 hectare (twenty-three acre) site in the eastern portion of the Letterman District near the Lombard Gate. The Letterman Digital Arts Center provides a large, public open space at Lyon and Lombard Streets, offering opportunities for passive recreation and pedestrian access, including a new gateway at the intersection of Lyon Street and Chestnut Street. Parking is provided underground.

Presidio Transit Center – to be completed May 2006

Plans are continuing on the proposed Presidio Transit Center, a transportation hub designed to improve access to the Presidio and provide clear information to visitors. It will be located on the Main Post near the Presidio Fire Station, and will provide a central location where MUNI busses, the PresidiGo Free Shuttle, and other transit services can converge.

A new building that is architecturally compatible with the setting will be constructed. The new facility will also include covered bus waiting areas, public restrooms, retail space, and secure bicycle parking.

Presidio Water Recycling Project – planning document prepared March 2002; to be completed August 2007

The Presidio Water Recycling Project will construct a small (500,000 gallons per day) water recycling system (located within an existing Presidio building in the Letterman District) and corresponding system components, including delivery pipelines and recycled water storage. The proposed water recycling plant would treat wastewater generated at the park to comply with water quality. Phase 1 would have a maximum treatment capacity of 200,000 gallons per day and would serve Crissy Field and the Letterman Digital Arts Center site.

Crissy Marsh Expansion – preliminary planning

The *Marsh Study* will identify a broad array of options for ensuring the long-term viability of Crissy Marsh and discuss the benefits, costs, impacts, conflicting and trade-offs associated with each option. The *Study* will provide information to select options to move forward for further study. Although there is no approved plan for this project, its prominence in Presidio planning efforts warrants its consideration in relation to the Doyle Drive Project.

Crissy Field Project -- completed

The Crissy Field Project transformed a 40.5 hectare (one hundred acre) area of asphalt into a shoreline national park through a unique partnership among public, private and philanthropic sectors. The Golden Gate Promenade at Crissy Field, part of the 400-mile San Francisco Bay Trail system, is a multi-use trail that

is an important corridor between San Francisco and the Golden Gate Bridge. Secondary pathways adjacent to Mason Street provide alternate routes through the project area for bicycles and pedestrians. Principal features of the project are a 11.3 hectare (twenty-eight acre) grassy field representing the historic Crissy airfield, a sheltered picnic area, a tidal marsh and the Crissy Field Center (a community environmental center).

Tennessee Hollow Restoration – preliminary planning

In fall 2001, the Trust initiated planning to restore surface drainage and native riparian habitat along the three natural drainages in Tennessee Hollow, including El Polin Spring. Restoration will expand riparian habitats and allow for an integrated system of freshwater streams and freshwater, brackish and tidal marsh, reestablishing a connection to Crissy Marsh. This project will also entail the improvement of management practices in the surrounding watershed; the protection of cultural and archaeological resources; and improve recreational, educational and interpretive opportunities.

Building Rehabilitation in the Presidio – on-going

The Presidio is a National Historic Landmark District, with 780 distinct contributing features, including 469 historic buildings, constructed primarily by the U.S. Army from the Civil War through World War II.

A critical aspect of the Presidio Trust's mission is to preserve these structures and restore them to active use. The Trust and its partners are now engaged in the process of rehabilitating or restoring these facilities which include residential units, buildings to serve businesses and non-profit organizations and park users. The Presidio's entire housing stock will be completely rehabilitated and occupied by 2006.

Rehabilitation of the Palace of Fine Arts – on-going

The San Francisco Recreation & Park Department, in partnership with the non-profit Maybeck Foundation, is undertaking a twenty-two million dollar restoration of the Palace of Fine Arts. The restoration project is being done in four phases as follows:

1. Phase I — Rotunda Roof Repair - completed
2. Phase IIA — Lagoon and Park (East Landscape) Restoration - under construction
3. Phase IIB — Buildings and Park (West Landscape) Restoration - project is in Design Phase with construction scheduled to start summer 2006
4. Phase III — Peristyle - project in planning phase.

San Francisco – Oakland Bay Bridge: East Span Seismic Safety Retrofit and Project – currently under construction

Following the Loma Prieta earthquake, Caltrans initiated a seismic retrofit program of area structures and bridges, including the six major bridges in the Bay Area. Retrofit projects for the San Francisco-Oakland Bay Bridge include seismic strengthening of the west span (from San Francisco to Yerba Buena Island) and construction of a new east span (from Yerba Buena Island to the Oakland touchdown). An interim retrofit of the existing east span has been completed.

Golden Gate Bridge Seismic Retrofit – on-going

The Seismic Retrofit is divided into two phases. Phase I, now completed, is the retrofit of the north abutment of the bridge. Phase II, which began in the summer of 2001, will retrofit the southern abutment of the bridge. Phase II also requires heavy truck traffic on existing roads and trails, and possible use of trails as staging areas. Trail routes through and to the area may need to be relocated temporarily to reduce vehicle, pedestrian and bicycle conflicts. During construction of this project, bicycles and pedestrians share Battery East Road and Marine/Long Drives with construction trucks.

Golden Gate Bridge Movable Median Barrier – on-going

This project entails the design and construction of movable barriers, including a cushioning system at the Toll Plaza.

Highway 101 Widening, Interchange and HOV Projects – on-going

The project will close the gap in the high occupancy vehicle (HOV) lane system between the Richardson Bay Bridge and Route 37 by constructing a reversible HOV lane. Completion of the HOV lane system will reduce the traffic delay during peak traffic periods for HOV lane and mixed-flow lane travelers; encourage the use of buses, vanpools and carpools; enhance existing intermodal transportation options; and add mixed-flow lane capacity during off-peak periods.

Octavia Boulevard Project – completed September 2005

The intent of the new boulevard is to provide a smooth transition of vehicular travel from local streets to arterials, and from those arterials to the remaining portion of the elevated new Central Freeway (which was also completed in September 2005). The boulevard will be widened to a four lane two-way roadway separated by a central median, and flanked on either side by a one-way street with on-street parallel parking. Within the medians, roadway, and sidewalks improvements such as a new light fixtures; tree plantings; and benches, trash receptacles and traffic signals will be installed.

Fort Baker Project – preliminary planning

The proposed plan includes creation of a conference and retreat center at Fort Baker, and includes programs to conserve natural and historic features. The center will be housed in the historic buildings around the parade ground and in the adjacent nonhistoric residential area. New building of compatible character will be constructed to provide adequate space for meetings, dining and accommodations. The center, under the jurisdiction of the NPS, will be financed and managed by one or more private operators selected through a competitive bid process.

Presidio Environmental Remediation Program (Presidio Trust) – ongoing

Pursuant to a 1999 agreement with the U.S. Army and the National Park Service, the Presidio Trust is cleaning up hazardous materials contamination from prior military uses at the Presidio. Clean-up sites include landfills and areas contaminated with petroleum products. The Trust intends to complete the clean-up program in ten years, with Area A of the Presidio cleaned up in four years. Remediation will be followed by revegetation in conformance with the VMP.

Golden Gate Bridge District Remediation, Phase II (Golden Gate Bridge Highway and Transportation District) – ongoing

Remediation of contaminated soils below the Golden Gate Bridge is occurring as a two-phase project. Phase I, now completed, focused on cleanup of contamination in areas directly below the bridge where safe access was needed for construction crews working on the Golden Gate Bridge Seismic Retrofit Project. Affected areas include Battery East and popular vista areas near the bridge. Phase II will continue to investigate contaminated soils to determine where remediation is required. The Phase II planning horizon is approximately five years.

The cumulative assessment considers the potential for the project, in combination with the projects listed above, to have impacts on the environment of the Presidio and surrounding area.

5.6 Cumulative Impacts Evaluation

First the direct effects (impacts) on the critical resources caused by the Doyle Drive Project were identified from the technical reports for each of those subjects. Indirect effects resulting from the direct effects on the critical resources were then estimated. Similar information, where possible, was gathered from available sources for each of the projects (listed above) included in the cumulative effects analysis. If impacts information was not available, professional judgment was utilized and general assumptions were made. Finally, the effects were re-examined in combination with each other to estimate the cumulative effect on each critical environmental resource.

5.6.1 Traffic and Transportation

Doyle Drive is part of a roadway network which provides access in and out of the city of San Francisco. The Golden Gate Bridge, including U.S. Highway 101, Route 280, Route 80, Highway 1, and the San Francisco-Oakland Bay Bridge are also part of this system. The most recent *2030 Regional Transportation Plan for the San Francisco Bay Area* (Metropolitan Transportation Commission (MTC), 2005) lists several ongoing projects on these facilities (the larger, projects are discussed earlier in this chapter) over the next several years that could affect traffic operations on these facilities. During the construction period, delays associated with other projects could result in a cumulative effect of increased traffic delay in terms of access into the City.

These delays would be considered temporary. The potential for increased delay and congestion would depend on the timing of construction activities associated with each project, the amount of traffic diversion from these facilities to Doyle Drive, and measures that would be implemented to eliminate or reduce potential impacts such as public awareness campaigns and increased transit service.

Once constructed, long term cumulative impacts are not expected. The long-term baseline traffic conditions (2030 No-Build) in the Doyle Drive Project study area were analyzed using the travel demand forecasting model that was developed by the City and the San Francisco County Transportation Authority (the Authority). Future conditions in this model included all known past, present, and future projects identified in the draft *Presidio Transportation Improvement Plan (PTMP)*. Therefore, the Doyle Drive Project was analyzed in the context of long-range traffic conditions for the region. As such, the baseline future forecast actually presents cumulative transportation effects. Overall, the project would result in a benefit or little change to long-term traffic conditions in the region.

5.6.2 Biological Environment

Projects that would have a net local, long-term, beneficial cumulative effect on biological resources include those that would protect, enhance or expand biological resources in the Presidio. These projects include the Crissy Field Marsh Project and the Tennessee Hollow Riparian Corridor Enhancement Project.

The implementation of the Crissy Field Marsh Project has transformed forty hectares (one hundred acres) of asphalt surrounded by chain link fence to a restored dune and tidal marsh system, and increased habitat as well as diversity of plant and wildlife species. In addition, a *Crissy Field Marsh Feasibility Study* is currently underway. If this study identifies priority areas within the Presidio Trust's jurisdiction critical to ensuring the health of the marsh, the Trust would ensure that the Crissy Field planning efforts are completed and implemented in a timely manner. These efforts would result in increased species richness, the

reintroduction and expansion of endangered species populations, and a net increase in habitat for native communities and wetland systems.

The Tennessee Hollow Riparian Corridor Enhancement Project would connect to the expanded Crissy Field tidal marsh and would restore Tennessee Hollow, including its three main tributaries, as well as native riparian habitat that would be suitable for nesting avian species.

The Presidio Environmental Remediation Actions would result in short-term adverse effects on special-status species. However, the beneficial effects in the long-term due to increased habitat for special-status species would outweigh adverse effects of these actions. Implementation of U.S. Fish and Wildlife Service Recovery Plans would have short-term construction-related impacts on special-status species, including San Francisco lessingia, but the long-term benefits to listed plant species of those plans would outweigh any adverse short-term effects.

The No-Build Alternative coupled with the cumulative projects at the Presidio would result in long-term beneficial effects to biological resources because there are no adverse activities associated with the No-Build Alternative, and there are no cumulative project activities that would lack mitigation. Additionally, the benefits of restoration would outweigh the short-term adverse effects of cumulative projects.

The Replace and Widen Alternative coupled with the other projects in the study area would result in temporary and long-term effects on biological resources, primarily on important plant communities, Army Corps of Engineers (USACE) jurisdictional waters of the U.S., Cowardin wetlands under protection of the National Park Service (NPS) or the Presidio Trust, and nesting bird species. These cumulative effects would contribute cumulatively to non-listed special-status plant and animal species, native plant community and jurisdictional wetland impacts at the Presidio. The cumulative benefits of restoration projects in historically disturbed and existing disturbed areas would outweigh the adverse effects of project construction activities under the Replace and Widen Alternative on biological resources.

The Presidio Parkway Alternative shares some of the impacts described above for the Replace and Widen Alternative. This alternative also includes underground (tunnel) segments with possible indirect effects on hydrology. The long-term benefits of cumulative restoration of historically disturbed and existing disturbed areas proposed under the Presidio plans and projects would reduce the effects on biological resources. For both build alternatives, implementation of mitigation would reduce adverse effects of the Doyle Drive Project and would thus reduce cumulative impacts on non-listed special-status plant and animal species, native plant communities, and jurisdictional wetlands. Overall, the cumulative impacts could provide a beneficial effect on the study area.

5.6.3 Hydrology, Water Quality, and Stormwater Run-Off

The combination of the Doyle Drive Project and other proposed projects, including the restoration of Tennessee Hollow, the Presidio Water Recycling Project, and projects associated with various alternatives of the *General Management Plan Amendment* (GMPA) and the *Presidio Trust Management Plan* (PTMP), could have an overall net benefit due to the decrease in impervious surface as identified in the PTMP.

Along the Doyle Drive roadway corridor, however, there is the potential for an overall increase in impervious surface area. The increase in impervious surface would lead to an increase in run-off. Through the increased run-off, there is the potential for the transport of greater quantities of pollutant loads to the Bay leading to a cumulative impact to the overall water quality of the Bay.

However, best management practices (BMPs) will be put in place for the Doyle Drive Project which would minimize water quality degradation. As such, given the BMPs for the roadway projects, as well as the decrease in impervious surface in the extended study area (for the Presidio Parkway Alternative), there will be an overall cumulative beneficial effect to water quality.

No cumulative impacts to flooding or groundwater resources are anticipated. Cumulative impacts associated with construction dewatering, or construction-period runoff water quality would not be anticipated.

5.6.4 Historic Resources

The regulatory context for assessing cumulative impacts to cultural resources is Section 106 of the *National Historic Preservation Act* (see section 3.2.9). This cumulative impacts section analyzes the potential for cumulative impacts to the six historic properties, including the Presidio NHLD, the Marina and Presidio Viaducts of Doyle Drive, the Golden Gate Bridge, the Palace of Fine Arts, and archaeological site CA-SFr 6/26.

Other than the Doyle Drive project, plans which identify land use concepts for the Presidio and could affect contributing elements to the National Historic Landmark District (NHLD) are the GMPA, and the PTMP. These plans include projects that would demolish a number of historic structures, and could adversely affect other historic structures that contribute to the NHLD. They also include components that would enhance some cultural landscapes and rehabilitate some historic structures. Overall, the Doyle Drive project, in conjunction with the other projects noted above, would have a cumulative impact on historic resources.

In addition to the projects identified earlier in this chapter, other Presidio projects were also considered in combination with each of the build alternatives to capture potential cumulative effects:

- Historic Building Restoration, Presidio NHLD – on-going
- Construction of Trails and Scenic Overlooks, Presidio NHLD – on-going
- Management of Natural Areas and Wildlife, Presidio NHLD – on-going
- Management of the Historic Forest, Presidio NHLD – on-going
- Management of Designed Landscapes, Presidio NHLD – on-going.

For this analysis, these known past, present, and future undertakings have been considered in conjunction with adverse effects identified in this document for both of the build alternatives, as well as compared to the existing conditions on the Presidio as described in the 1993 updated documentation of the Presidio NHLD. Since the 1993 inventory, 39 buildings and structures that were contributors to the Presidio NHLD, and which would have been located within the Focused Area of Potential Effect (APE), have been removed. These contributors were primarily located in the east and west ends of the Crissy Field Planning District and were demolished to accommodate the rehabilitation of Crissy Marsh. A few buildings were also removed from the Crissy Field and Letterman Planning Districts during other projects.

The thirty-nine buildings and structures removed from these areas since 1993 dated to the twentieth century, and most were built just before or during the first years of World War II (ca. 1940-1942). These buildings and structures (including the railroad line) were identified as contributing elements of the landmark district, even though many were described in the 1993-updated documentation as having “marginal integrity” because of demolition of other nearby buildings and various additions and modifications.³ At least eight NHLD contributing buildings and structures located near (north of) the Mason Street warehouses at the east end of Crissy Field, were demolished as part of past projects.

The following discussion addresses these impacts by project alternative.

Alternative 2, Replace and Widen – Presidio Impacts

The cumulative effect of the previous demolition of contributing elements, in conjunction with the Replace and Widen Alternative, differs depending upon the option under consideration. The Replace and Widen, No-Detour Option, would not contribute to an adverse cumulative effect to the Presidio NHLD. This alternative would not contribute to the erosion of the Presidio NHLD’s boundary within the Crissy Field Planning District (or North Cantonment historic functional area) because it does not require the removal of additional contributing elements, other than Doyle Drive. The removal of buildings in this area has been a concern because fewer buildings remain and those that have been preserved function to represent the historical function of the area as well as define the Presidio’s north east boundary.

³NPS, “Presidio ... Registration Forms,” page 7-181.

The new Doyle Drive structures built under this option would resemble the existing Doyle Drive facility in overall location, material, color, and form and although they would be larger in scale and massing, they would not result in a cumulative adverse effect to the Presidio NHLD. Although Doyle Drive is a contributor to the Presidio NHLD and it will be removed under this alternative, its loss will not contribute to a cumulative effect on the Presidio NHLD. The potential for this alternative to contribute to a cumulative effect to the Presidio NHLD, is low and a cumulative effect is not predicted [36CFR800.5(a)(1)].

The Replace and Widen, With Detour Option, could contribute to an adverse cumulative effect to the Presidio NHLD. Although Doyle Drive is a contributor to the Presidio NHLD and it will be removed under this alternative, its loss will not contribute to a cumulative effect on the Presidio NHLD. While the new Doyle Drive structures built under this option would resemble the existing Doyle Drive facility in overall location, material, color, and form, this alternative would contribute to the erosion of the northeast boundary of the NHLD by removing contributing elements located in the Crissy Field Planning District, at the northeast corner of the NHLD, specifically because it would require the removal of four of the seven Mason Street warehouses (Buildings 1182, 1183, 1184, and 1185) from their original locations. Past projects have resulted in the demolition of at least eight NHLD contributing elements in this part of the former North Cantonment, just north of the Mason Street warehouses. The construction of this alternative, therefore, would increase the loss of contributing elements in this area of the Presidio NHLD where few contributing buildings and structures remain. The removal of the warehouses could result in this area becoming a non-contributing portion of the Presidio NHLD, and in this way erode the boundary of the district because it would no longer contain contributing elements. It is possible, therefore, for this alternative to result in an adverse cumulative effect to the Presidio NHLD, when compared to past, present, and future projects [36CFR800.5(a)(1)].

There would be direct effects to the cultural landscape resources of the Presidio NHLD under Alternative 2: Replace and Widen due to the: 1) alteration or removal of existing cultural landscape features and 2) the addition of new non-historic features into the cultural landscape. The Replace and Widen Alternative would result in the destruction or alteration of historic circulation features including Doyle Drive, Veterans Boulevard, Lincoln Boulevard, Crissy Field Avenue, Battery Blaney Road, Marshall Street, Mason Street, Gorgas Avenue, and Halleck Street. In addition, construction would result in the removal of historic circulation features located in the area to the east and west of Halleck Street (south of Mason Street and north of Gorgas Avenue) and the paved and graveled open area under and south of the Doyle Drive viaduct, west of the Mason Street Warehouses, north of Gorgas Avenue, and east of Halleck Street would be removed and landscaping would be added after construction. The removal of circulation features and the addition of landscaping would lessen the design, setting, materials, workmanship, association, and feeling that reflect the

utilitarian and industrial functions of the of the Presidio and would result in an adverse effect. The construction of this alternative would also result in the alteration of the stands of trees in the area west of the Veterans Boulevard interchange, the alteration of the stand of trees in the area east of the Veterans Boulevard interchange, trees that are located in the area north of Lincoln Boulevard and south of the new at-grade portion of Doyle Drive would be removed, the removal of one of the palm trees that are located to the north of the existing low viaduct structure in the New Commissary and Post Exchange parking lot, the removal of one or more of the four Monterey cypress trees located to the west of the Mason Street warehouses (Nos. 1184 and 1185). These trees are a part of the historic vegetation features of the cultural landscape and their destruction would result in an adverse effect.

There would be indirect visual effects on the Presidio's cultural landscape under Alternative 2: Replace and Widen. Currently, Doyle Drive is clearly visible from Crissy Field and is a prominent feature in views toward the south, southeast, and southwest from Crissy Field. Key visual characteristics views of Doyle Drive from Crissy field are: 1) the bridge's materials, color, form, massing, scale and 2) the structure's decreasing elevation from west to east, reflecting the decreasing elevation of the natural topography of the bluff. Under Alternative 2, the existing Doyle Drive structure would be demolished and replaced with a new Doyle Drive structure that would be visible from Crissy Field. The new structure would be built on the existing structure's alignment. It would have a similar relationship to the natural topography of the bluff as the existing structure and the new structure's materials, color, and form would be similar to that of the existing structure. However, the new structure would be wider, and higher under the No-Detour Option, than the existing Doyle Drive. From a distance, the increased width and height of the new structure would be comparable in massing and scale to that of the existing structure. However, the increased width and height would increase the structure's visual presence and would alter the integrity of feeling in the areas immediately adjacent to Doyle Drive.

Alternative 2, Replace and Widen – Individual Historic Properties

The potential for this alternative to result in a cumulative effect to the historic properties, when compared to past, present, and future projects, is described below by individual property [36CFR800.5(a)(1)].

The Marina and Presidio Viaducts of Doyle Drive would not experience a cumulative effect under the Replace and Widen Alternative because they would experience a direct adverse effect under this alternative. The Doyle Drive viaducts would be destroyed under both options of the Replace and Widen Alternative. This action constitutes a direct adverse effect on Doyle Drive but does not contribute to a cumulative effect [36CFR800.5(a)(1)] because the entire eligible property (Doyle Drive) would no longer exist.

The Replace and Widen Alternative would likely cause an adverse cumulative effect on the Golden Gate Bridge historic property. This property would experience a direct adverse effect under both options of this alternative through the removal of Doyle Drive, which is a contributing element of the bridge property. It is possible that this effect, in combination with other current and future projects, would be cumulatively adverse [36CFR800.5(a)(1)]. Other projects that involve the Golden Gate Bridge are on-going, however, the scope of the effects of these projects on the remaining portions of the Golden Gate Bridge property are not known at this time: the Golden Gate Bridge Seismic Retrofit Project, the Golden Gate Bridge Movable Median Barrier Project, Golden Gate Bridge Public Safety Railing Project, Golden Gate Bridge Cable Restoration, and the Richardson Avenue Slip Ramp project. It is not clear which features of the Golden Gate Bridge Property will retain integrity once these projects are completed, but it is presumed that these proposed projects will not threaten the NHL eligibility of the Golden Gate Bridge. It may be necessary, however, to re-define the contributing elements of the bridge property upon completion of the current project.

The Replace and Widen Alternative would not cause an adverse cumulative effect on the Palace of Fine Arts property and it would remain eligible for the NRHP. This historic property would not experience direct or indirect adverse effects under either option of this alternative. This alternative would not cause an adverse cumulative effect when considered in conjunction with past, present, and future projects [36CFR800.5(a)(1)]. Neither of the known on-going projects appears likely to cause adverse effects (Richardson Avenue Slip Ramp Project or the Rehabilitation of the Palace of Fine Arts Projects). It is assumed that the rehabilitation project will be accomplished in a manner consistent with the Secretary's Standards for the Treatment of Historic Properties (36 CFR part 68) and applicable guidelines [36CFR800.5(a)(2)(ii)], and would not “diminish the integrity of the property's location, design, setting, materials, workmanship, feeling, or association” [36CFR800.5(a)(1)] of the Palace of Fine Arts Property. The Replace and Widen Alternative would not cause an adverse cumulative effect on archaeological site CA-SFr-6/26 and it would remain eligible for the NRHP. This alternative would not cause direct or indirect adverse effects on known archaeological resources, nor does it appear that other known current and future projects would cause adverse effects to these resources that would be cumulative when considered with the current project.

Alternative 5, Presidio Parkway – Presidio Impacts

The Presidio Parkway Alternative (under either option) could result in an adverse cumulative effect on the Presidio NHL. First, this alternative would introduce new structural and visual elements into a part of the Presidio NHL that has already lost some historic integrity through the demolition of contributing buildings and structures. The viaducts, tunnels, and at-grade portions of Presidio Parkway Alternative that would be constructed in this northeast corner of the Presidio NHL would not resemble the existing Doyle Drive facility in overall

location, massing, and scale. Secondly, the Presidio Parkway Alternative would require the destruction of additional contributing elements. The Presidio Parkway Alternative, under the Diamond Option, would result in the destruction of Buildings 201, 204, and 230, all of which are located in the former Quartermaster Depot functional area of what is now the Main Post Planning District.

The Presidio Parkway Alternative, under the Circle Drive Option, would result in the destruction of the same three buildings, as well as Building 1151, which is located in the Letterman Planning District. Both options would require alteration of contributing roadways, including: Young Street, Halleck Street, Gorgas Avenue, Girard Road, and Vallejo Street. The Presidio Parkway Alternative, therefore, would result in both the introduction of new construction, and the destruction of contributing buildings and structures under both options, and when considered in conjunction with past, present, and future projects, would result in an adverse cumulative effect to the Presidio NHLD [36CFR800.5(a)(1)].

There would be direct effects to the cultural landscape elements of the Presidio NHLD under the Presidio Parkway Alternative due to the alteration and removal of historic features and the addition of non-historic features into the cultural landscape. The construction of the new Doyle Drive structure would result in the destruction or alteration of historic circulation features including Doyle Drive, Veterans Boulevard, Cowles Street Lincoln Boulevard, Crissy Field Avenue, Battery Blaney Road, Marshall Street, Mason Street, Gorgas Avenue, and Halleck Street. The construction of the new structure would alter the existing grade of the bluff, a historic topographic feature of the Presidio cultural landscape. 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. In particular the historic reasons for the location of the Main Post and the historic topographic and spatial relationship between the Main Post and the Lower Post areas on Crissy Field would be less apparent. The Main Post, located on land that slopes down toward the north, was sited along the edge of this natural bluff that overlooks the San Francisco Bay. This location served both practical and symbolic functions. It provided for views of the Bay and the Golden Gate and symbolized the Spanish control of these features. This location provided convenient access to the area along the water's edge that provided safe anchorage for ships. The alteration and destruction of these historic topographic, circulation, and spatial organization features of the cultural landscape would lessen the design, materials, workmanship, setting, feeling, and association that reflect:

- the spatial relationship of the Main Post, located on upland, to the Lower Post and
- the service and supply land uses and activities and the related utilitarian nature of this portion of the Presidio.

This would constitute “physical destruction of or damage to all or part of the property” and “change of the character of the property’s use or of physical features within the property’s setting that contribute to its historic significance” and as such is an adverse effect under 36 CFR 800.5(a)(2)(i).

The construction of the new high viaduct and reconfiguration of the Veterans Boulevard interchange would result in the alteration of the stands of trees in the areas west and east of the Veterans Boulevard interchange, north of Lincoln Boulevard and south of Doyle Drive near the National Cemetery, a stand of trees in the area north of Doyle Drive near Merchant Road, and the removal of one or more of the three palm trees that are located to the north of the existing low viaduct structure in the New Commissary and Post Exchange parking lot. These trees are a part of the historic vegetation features of the cultural landscape. The loss of some of the trees from these specific locations would result in an adverse effect under 36 CFR 800.5(a)(2)(i).

There would be indirect adverse visual effects on the Presidio’s cultural landscape under Alternative 5: Presidio Parkway. Key visual characteristics of the views of Doyle Drive are: the bridge’s materials, color, form, massing, and the structure’s decreasing elevation, from west to east, that reflects the decreasing elevation of the natural topography of the bluff. The existing Doyle Drive structure would be replaced with a new Doyle structure that would be visible from Crissy Field, the Main Post, and the Letterman area, and the Quartermaster Depot. Views of the new structure would lessen the integrity of setting, association, and feeling that currently exists at the various locations around the Presidio and would constitute as adverse indirect effect under 36 CFR 800.5(a)(2)(v).

Alternative 5, Presidio Parkway – Individual Historic Properties

This cumulative effects analysis considers the potential for the Presidio Parkway Alternative, in combination with known past, present, and future projects in the area, to adversely effect individual historic properties within the Focused APEs. The Presidio Parkway Alternative would introduce tunnels, a type of structure not currently used in Doyle Drive. Furthermore, portions of the new alignment would be shifted away from the existing Doyle Drive alignment. This effects analysis has already identified the direct and indirect adverse effects that this alternative would cause to the historic properties within the Focused APEs. The potential for this alternative to result in a cumulative effect to the historic properties, when compared to past, present, and future projects, is described below by individual property [36CFR800.5(a)(1)].

The Doyle Drive viaducts would not experience a cumulative effect under the Presidio Parkway Alternative because they would experience a direct adverse effect under this alternative. The Doyle Drive viaducts would be destroyed under the options of the Presidio Parkway Alternative. This action constitutes a direct adverse effect and therefore no cumulative effect is expected when compared with past, present, or future projects [36CFR800.5(a)(1)].

The Presidio Parkway Alternative would likely cause an adverse cumulative effect on the Golden Gate Bridge historic property. This property would experience a direct adverse effect under the options of this alternative through the removal of Doyle Drive, which is a contributing element of the bridge property. It is possible that this effect, in combination with other current and future projects, would be cumulatively adverse [36CFR800.5(a)(1)]. Other projects that involve the Golden Gate Bridge are on-going, however, the scope of the effects of these projects on the remaining portions of the Golden Gate Bridge property are not known at this time: the Golden Gate Bridge Seismic Retrofit Project, the Golden Gate Bridge Movable Median Barrier Project, Golden Gate Bridge Public Safety Railing Project, Golden Gate Bridge Cable Restoration, and the Richardson Avenue Slip Ramp project. It is not clear which features of the Golden Gate Bridge property will retain integrity once these projects are completed, but it is presumed that these proposed projects will not threaten the NHL eligibility of the Golden Gate Bridge. It may be necessary, however, to re-define the contributing elements of the bridge property upon completion of the current project.

The Presidio Parkway Alternative would not cause an adverse cumulative effect on the Palace of Fine Arts property and it would remain eligible for listing on the NRHP. This historic property would not experience direct or indirect adverse effects under either option of this alternative. This alternative would not cause an adverse cumulative effect when considered in conjunction with past, present, and future projects [36CFR800.5(a)(1)]. Neither of the known on-going projects appears likely to cause adverse effects (Richardson Avenue Slip Ramp Project or the Rehabilitation of the Palace of Fine Arts Projects). It is assumed that the rehabilitation project would be accomplished in a manner consistent with the Secretary's Standards for the Treatment of Historic Properties (36 CFR part 68) and applicable guidelines [36CFR800.5(a)(2)(ii)], and would not “diminish the integrity of the property's location, design, setting, materials, workmanship, feeling, or association” [36CFR800.5(a)(1)] of the Palace of Fine Arts Property.

The Presidio Parkway Alternative would not cause an adverse cumulative effect on archaeological site CA-SFr-6/26 and it would remain eligible for listing on the NRHP. This alternative would not cause direct or indirect adverse effects on known archaeological resources, nor does it appear that other known current and future projects would cause adverse effects to these resources that would be cumulative when considered with the current project.

5.6.5 Visual Quality

Several of the projects and plans discussed in Section 5.6 have the potential to result in temporary and permanent visual changes within the landscape units and viewshed of the Doyle Drive Project. These project and plans include the Letterman Digital Arts Center, Presidio Transit Center, Crissy Marsh Expansion, Tennessee Hollow Restoration, Building rehabilitation in the Presidio,

Rehabilitation of the Palace of Fine Arts, and the Golden Gate Bridge Toll Plaza Redesign.

Of these projects several would involve rehabilitation of existing buildings (building rehabilitation in the Presidio and Rehabilitation of the Palace of Fine Arts) to preserve and restore their historic character which would result in minor improvements in the visual setting and character of the project area. Several projects would result in substantial improvements to the existing visual setting of the project area by expanding natural habitat areas (i.e. Crissy Marsh Expansion and Tennessee Hollow Restoration).

The Golden Gate Bridge Toll Plaza Redesign would provide enhanced visitor facilities and interpretive center as well as relocate the existing maintenance yard which would result in a beneficial effect on the viewshed of the project area.

The Presidio Transit Center would result in a new transportation oriented use being located within the Main Post landscape unit. The visual character of this area consists of offices, warehouses, parking lots and roadways and as such the transit center in combination with the Doyle Drive Project would not result in a cumulatively significant change in the visual character of this area.

The Letterman Digital Arts Center has resulted in a dramatic visual change within the Main Post and Richardson Avenue Exit landscape units. The Digital Arts Center was the subject of a previous environmental impact statement. That report concluded that the Digital Arts Center would enhance the visual integrity of the Letterman area, improve views from many vantage points within the Presidio, and result in a visual scale more appropriate for the surrounding area. (page 239, *Final Environmental Impact Statement and Planning Guidelines* for new development uses on 23 areas within the Letterman Complex, Presidio Trust, March 2000).

The Doyle Drive Project in combination with other projects will result in an overall beneficial effect on the visual environment, particularly when considering such projects as historic restoration, wetland enhancement, and removal of the elevated transportation corridor, which are all consistent with the plans and policies for the Presidio.

5.7 Summary of Cumulative Effects

Exhibit 5-1 on the following page summarizes the potential cumulative effects presented in this chapter.

**Exhibit 5-1
Summary of Cumulative Effects**

Resource Area	No-Build	Replace and Widen	Presidio Parkway
Traffic and Transportation	No impacts expected	No impacts expected	No impacts expected
Biological Environment	Beneficial Effects	Cumulative mitigation benefits would outweigh potential adverse impacts	Cumulative mitigation benefits would outweigh potential adverse impacts
Hydrology	No impacts expected	No impacts expected	No impacts expected
Historic Resources	<p>Presidio: No impacts expected</p> <p>Individual Structures: No impacts expected</p>	<p>Presidio: No-Detour Option: No impacts expected</p> <p>With Detour Option: Potential Adverse Effects</p> <p>Individual Structures: No impacts expected</p>	<p>Presidio: Circle Drive Option: No impacts expected</p> <p>Diamond Option: No impacts expected</p> <p>Individual Structures: No impacts expected</p>
Visual Quality	Beneficial Effects	Beneficial Effects	Beneficial Effects