

Management Plan (VMP); the Presidio Trails and Bikenways Master Plan; and the Presidio Trust Management Plan (2002). More information about these plans, and other projects within the Presidio, is presented in Chapters 3 and 5 of this document.

1.3.3 Environmental and Engineering Analysis: the Next Step

This environmental document has been initiated as the next step in the progression of the proposed South Access to the Golden Gate Bridge – Doyle Drive Project (Doyle Drive Project).

Under the *National Environmental Policy Act (NEPA)*, an environmental analysis must be performed if the proposed action is being implemented by a federal agency, requires a federal permit, has federal funding or requires a federal approval action. At the state level, any agency that proposes a major action is required to comply with the *California Environmental Quality Act (CEQA)*.

Since the Doyle Drive Project, is being initiated by state and county agencies, and is programmed for federal funding, it must follow federal and state environmental laws (NEPA and CEQA). Pursuant to these environmental regulations, this *Final Environmental Impact Statement/Report (FEIS/R)* contains a discussion of proposed project alternatives, existing environmental and community resources, potential permanent and temporary impacts, and proposed mitigation. In addition, this document provides information about the comments received and discussions from both the public and agencies to the DEIS/R, as well as from continued project development. Pursuant to CEQA, this document also identifies the environmentally superior alternative (see Chapter 4).

1.4 Project Purpose and Need

NEPA analyses require that a proposed project's alternatives be developed based upon the project's purpose and need. The purpose and need statement should clearly and succinctly explain why the project is needed and the project's intended purpose. The purpose and need is considered the cornerstone of NEPA environmental documentation.

The following purpose and need statement was prepared in accordance with FHWA *Technical Advisory T 6640.8*. It also reflects the recommendations of federal, state, regional, and local agencies, as well as community members and legislators who have, over the past three years, refined the project's purpose and need through a collaborative process.

1.4.1 Project Purpose

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.



Doyle Drive viaduct structure

- 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;
- maintain the functions that the Doyle Drive corridor serves as part of the regional and city transportation network;
- improve the functionality of Doyle Drive as an approach to the Golden Gate Bridge;
- preserve the natural, cultural, scenic and recreational values of affected portions of the Presidio;
- 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);
- 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;
- minimize the traffic impacts of Doyle Drive on the Presidio and local roadways;
- improve intermodal and vehicular access to the Presidio; and
- redesign the Doyle Drive corridor using the parkway concept described within the *Doyle Drive Intermodal Study* (1996).

1.4.2 Project Need

Doyle Drive is approaching the end of its useful life after over 70 years of operation. 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. **Exhibit 1-3** summarizes the need for the project.

**Exhibit 1-3
Need for this Project**

ELEMENT	DEFICIENCY	RESULT
STRUCTURAL DEGRADATION	<ul style="list-style-type: none"> ▪ Age of the facility ▪ The effects of heavy traffic ▪ Exposure to salt air 	Seismically and structurally below standard
LOCATION	Eastern portion is located in an identified liquefaction ¹ zone	Structural failure during an earthquake
DESIGN	Original design does not meet today's safety standards	Today's vehicle fleet combined with traffic volumes and vehicle maneuvers add to driving patterns not anticipated when Doyle Drive was designed
ACCESS	No direct vehicular access into the Presidio	Limited access to facilities within the Presidio

¹Liquefaction is the process by which a solid behaves as a liquid. This is often the case with some soils, resulting in landslides. Liquefaction can also happen during an earthquake in certain filled areas.

Structural Degradation

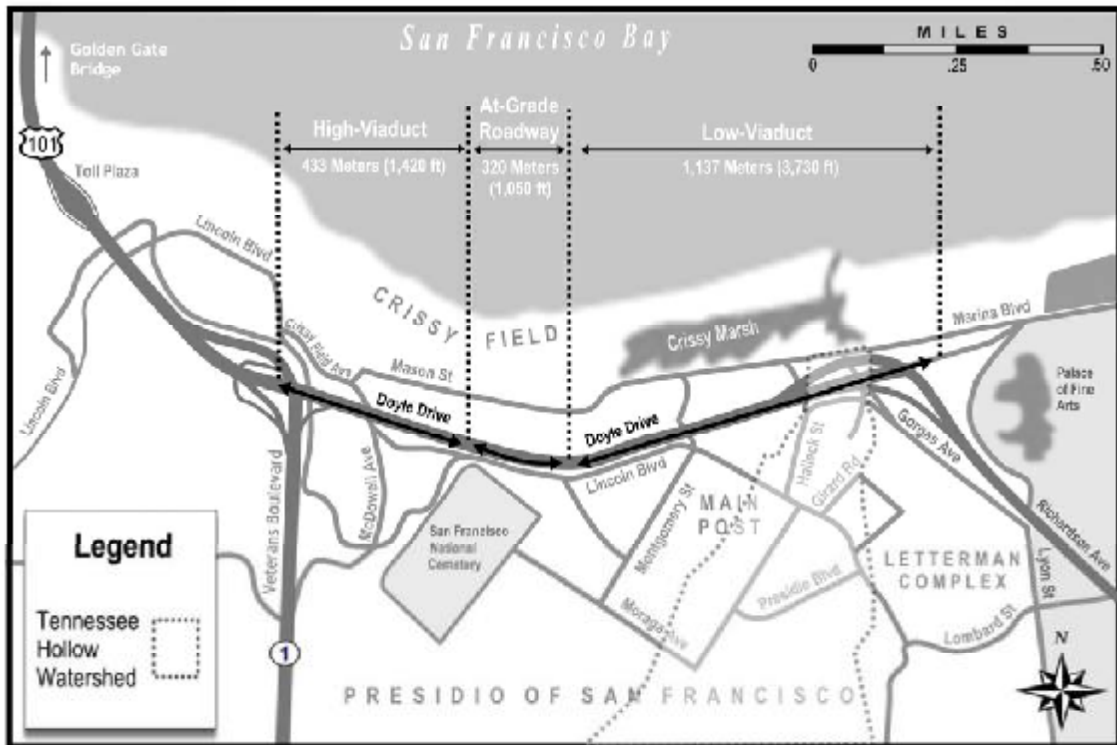
The Doyle Drive roadway contains two viaduct sections (see **Exhibit 1-4 and 1-5**). In 1995, the low-viaduct was retrofitted to withstand a probabilistic earthquake assuming that Doyle Drive would be replaced within a ten-year period. The substructure (foundations and the main trusses) of the high-viaduct was retrofitted for a maximum credible earthquake¹.

**Exhibit 1-4
Main Doyle Drive Structures**

BRIDGE NUMBER	BRIDGE NAME	YEAR BUILT	ALTERNATE NAME USED IN THE DOCUMENT
34-0014	Marina Viaduct	1936	Low-viaduct
34-0018	Ruckman Avenue UC	1939	Ruckman Avenue
34-0019	Presidio Viaduct	1936	High-viaduct

¹ The Maximum Credible Earthquake (MCE) is the largest ground motion expected to occur at the project site once every 1,500 years.

Exhibit 1-5
Location of Doyle Drive Viaducts and other Key Features



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 of service to the life of the viaduct bridge decks. However, the decks need to be replaced because they have deteriorated and are near the end of their useful life span.

While the previous corrosion prevention and seismic stabilization measures provided short-term solutions to the deck degradation and seismic vulnerability issues, they did not bring the roadway up to current design and safety standards. The current lifespan of Doyle Drive was not ultimately prolonged by these measures. These measures only delayed the roadway's replacement. In the interim, the high-viaduct will increasingly become a financial burden as Caltrans will need to perform more frequent routine maintenance and monitoring to ensure its safety. Caltrans is currently performing extensive rehabilitation work to further stabilize the degradation of the high-viaduct. Should additional 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 lower Tennessee Hollow watershed, is within a potential liquefaction zone. Soils in this area, occurring at shallow depths not exceeding ten meters (33 feet), include 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 severely damaged due to this sinking of the ground and the loss of lateral support of the foundation elements.

Nonstandard Design Elements

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

The existing roadway does not have shoulders. Current Caltrans design standards call for three-meter (ten-foot) wide shoulders on either side of the roadway. The current lack of shoulders, and the resultant inability to clear disabled vehicles from travel lanes, contributes to the high level of congestion and increased likelihood of serious accidents.

The tight curves 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 acceleration lengths of the exit ramps are insufficient, given the speed of the approaching vehicles.

Vehicular Access into the Presidio

Access between Doyle Drive and the Presidio is currently indirect via roads located within the Golden Gate Bridge Toll Plaza area. The ramps at the Toll Plaza connect to Merchant Road (on the west) and the Golden Gate Bridge service roads (to the east). These roads then connect to Lincoln Boulevard, which provides access to the Presidio. A new slip ramp² from northbound Richardson Avenue to the intersection of Marshall Street and Gorgas Avenue was completed in 2005 to provide access for the Letterman facility. The new slip ramp only provides access to the Presidio for northbound traffic. When access to the Presidio is provided via Doyle Drive, the slip ramp will be eliminated.

Currently, the lack of direct access into the Presidio has forced Doyle Drive traffic to detour through city neighborhoods adjacent to the Presidio gates. As illustrated in **Exhibit 1-6** usage of the Presidio is expected to increase dramatically over the next 20 years. Without proper access to the Presidio,

² A slip ramp is a short connector ramp that is located between a major roadway and its adjacent frontage road. These ramps allow motorists to "slip" from one roadway to another.

increased traffic will have a greater negative affect on the surrounding neighborhoods.

**Exhibit 1-6
Current and Projected Presidio Users**

	2001	2020	INCREASE
EMPLOYEES	2,020	7,190	256%
RESIDENTS	2,250	3,720	65%
ANNUAL VISITORS	5.1 million	9.9 million	95%

Source: *The Presidio Trust, 2002.*

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

1.4.3 Logical Termini and Independent Utility

The Federal Highway Administration's *Title 23 CFR 771.111(f)* states that three criteria must be considered to ensure meaningful evaluation of alternatives and to avoid commitments to future transportation improvements before they are fully evaluated. Independent project sections must:

- connect logical termini and be of sufficient length to address environmental matters on a broad scope;
- have independent utility or independent significance, i.e., be usable and be a reasonable expenditure, even if additional transportation improvements in the area are not made; and
- not restrict consideration of alternatives for other reasonably foreseeable transportation improvements.

Logical Termini and Sufficient Length and Scope

The Doyle Drive portion of Route 101 encompasses the low- and high-viaduct segments of Doyle Drive and the Park Presidio Interchange with Route 1, including the at-grade roadway portions adjacent, and in between, these structures. The eastern terminus begins at Lyon Street where the new facility conforms to the existing city street network and the western terminus extends to the Golden Gate Bridge Toll Plaza.

The termini of the Doyle Drive project are logical because the project intends to replace both viaducts on Doyle Drive and the Park Presidio Interchange. The interchange lies just east of the Toll Plaza area and transitions to the high-

viaduct. The low-viaduct ends where it transitions to grade at Richardson Street west of Lyon Street. Therefore, the proposed project begins at the Toll Plaza and ends at Lyon Street and includes all intersections and interchanges in between.

Independent Utility

Transportation projects must also have independent utility according to FHWA regulations. That is, the project must be a reasonable expenditure even if no additional transportation improvements in the area are made. The proposed alternatives considered in this FEIS/R represent transportation improvements that meet the project's purpose and need and minimize impacts to the cultural, natural, and community resources along Doyle Drive. Chapter Two of this document includes a description of the Preferred Alternative and how it meets the project needs even if no additional transportation improvements are made within the corridor.

Not Restrict Consideration of Alternatives

Finally, FHWA regulations require that a transportation project not restrict consideration of alternatives for other reasonably foreseeable transportation improvements. The proposed Doyle Drive Project would not limit the consideration of alternatives for transportation improvements which may be proposed for the Golden Gate Bridge, Highway 1, or surrounding surface roadways in the Presidio.

1.5 Project Partners

A number of agencies are participating in this Doyle Drive Project environmental process. The agencies and their roles are discussed below.

Federal Lead Agency

A *National Environmental Policy Act* (NEPA) document is required for most federal actions. An action can include funding a project, building a project on federal land, or issuing a federal permit. The federal agency which takes this action is typically the lead NEPA agency. A lead agency is the agency with the main responsibility for complying with federal environmental regulations. For the Doyle Drive Project, the Federal Highway Administration (FHWA) is the lead federal agency for the purposes of NEPA. The Authority and Caltrans are also co-lead agencies on this project.

State Lead Agency

Similar to NEPA regulations, the *California Environmental Quality Act* (CEQA) requires that a state, regional, or local agency take responsibility for complying with state environmental regulations if a governmental (state, regional, or local) action is being taken. The lead CEQA agency for the Doyle Drive Project is the