

short term energy consumption associated with construction activities. Such mitigation measures could include:

- The location of material production facilities on-site or within close proximity to the project site;
- The use of newer, more energy efficient construction vehicles; and
- Implementation of a program to encourage construction workers to carpool or use public transportation for travel to and from the construction site.

3.4 Biological Environment

Botanical and wildlife species in urban landscapes depend on the availability of suitable habitat for survival. Habitat loss and increasing habitat fragmentation are the primary causes of species decline in these environments. This section provides an overview of:

- natural communities;
- wetlands and other waters of the United States;
- plant species;
- animal species; and
- invasive species.

Detailed information about biological resources can be found in the *South Access to the Golden Gate Bridge: Doyle Drive Project Revised Natural Environmental Study* (NES), July 2005. The NES contains an analysis of impacts and specific mitigation measures, as well as Best Management Practices (BMPs) and conservation measures for the biological environment. The NES is incorporated in this document by reference, and in all areas where more detail is provided on mitigation measures, the NES commitments are considered part of this document.

The overall mitigation goal identified in the NES is to avoid or minimize construction-related project impacts on biological resources, using generally accepted and practicable mitigation measures through the deployment of BMPs and the designation of Environmentally Sensitive Areas (ESAs)³². Generally, BMPs focus on prevention and containment. This is achieved by controlling the generation of source pollutants and then capturing and containing source pollutants that are generated. For example, application of temporary erosion control materials to unfinished slopes can control a source of sediment

³² *Environmentally Sensitive Areas (ESAs) are locations of identified at-risk resources that are to be protected by avoidance or by restrictions on Caltrans activities. ESAs typically use fencing, flagging, signing, or monitoring to protect resources from direct physical damage by project activities. The use of the term in this document should not be confused with any discussion of sensitive resources within the construction corridor, for which impacts and mitigations are identified. An ESA, by definition, is a site where all impact is avoided. ESAs will be staked and flagged prior to construction and clearly marked on the contract project plans.*

deposition. Silt fence can also be deployed to capture sediments that are generated. Deploying both source and sediment control measures provides an efficient and manageable method for addressing erosion. Other examples include locating equipment and material staging areas in existing disturbed areas within construction limits, limiting fueling and maintenance of equipment to areas not containing sensitive resources (e.g., serpentine plant communities, potential raptor breeding habitat);); prohibitions against washing vehicles on site; establishing fueling zones at least 30 meters (100 feet) from wetlands, or as designated by a qualified biologist.³³ Standard water pollution control procedures such as sandbagging, use of hay bales, diversion ditches, and desilting ponds will also be employed. The project applicant will employ feasible engineering methods during construction to avoid and minimize fugitive dust, erosion and sedimentation, and hazardous materials spills. Refer to the NES for a further description of BMPs for the biological environment.

3.4.1 Natural Communities

This section presents a summary of the existing plant communities in the Doyle Drive Project study area. The focus is on biological communities, not individual plant or animal species. This section also includes information on wildlife corridors and habitat fragmentation. Wildlife corridors are areas of habitat used by wildlife for seasonal or daily migration. Habitat fragmentation is the potential for habitat to be divided, thereby lessening its biological value³⁴.

Regulatory Setting

Both federal and local regulations guide the preservation of the biological environment within the Presidio and the surrounding study area. These include:

- the *San Francisco General Plan*; and
- the National Park Service and the Presidio Trust Plans and Policies:
 - *Final General Management Plan Amendment (GMPA)*;
 - *Presidio Trust Management Plan (PTMP)*;
 - *Tennessee Hollow Watershed Project Environmental Assessment*;
 - *Natural Resources Section of the Resources Management Plan*;
 - *Presidio Vegetation Management Plan and Environmental Assessment (VMP)*; and
 - *National Park Service (NPS) Management Policies*.

These plans and policies are discussed in detail in Section 3.1 of this document.

³³ A "qualified biologist," as the term is used here, means any person who has completed at least four years of university training in wildlife or plant biology or a related science, and/or has demonstrated field experience in the identification and life history of the species potentially present.

³⁴ Biological value as a result of habitat fragmentation is defined as loss of total habitat area and habitat connection, and increased insularity and edge effects.